FINAL

Remedial Investigation Report
And
Remedial Action Workplan

Site 812

U. S. Army Garrison Fort Monmouth
Fort Monmouth, New Jersey

Directorate of Public Works

June 2001

Versar INC.
2558 Pearl Buck Road, Suite 1
Bristol, Pennsylvania 19007

Contract No. DACA51-00-D-0004
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United States Army

Fort Monmouth, New Jersey

FINAL

Remedial Investigation Report and Remedial Action Workplan

Site 812

JUNE 2001

CERTIFICATION

For: Remedial Action Workplan, Site 812,
Fort Monmouth, New Jersey

" I certify under penalty of law that the information provided in this document is true, accurate, and complete to the best of my knowledge. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

Joseph Fallon
Environmental Protection Specialist

Name, Title	Signature	Date

" I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete to the best of my knowledge. I am aware that there are significant civil penalties for knowingly submitting false, inaccurate or incomplete information and that I am committing a crime of the fourth degree if I make a written false statement which I do not believe to be true. I am also aware that if I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

Stephen N. Wood LTC, MI
Garrison Commander

Name, Title	Signature	Date

This Remedial Action Workplan for Site 812, Fort Monmouth, New Jersey has been reviewed and approved.

Ian Curtis, Case Manager
NJDEP, Bureau of Case Management

Name, Title	Signature	Date

FINAL

REMEDIAL INVESTIGATION REPORT
&
REMEDIAL ACTION WORKPLAN

SITE 812

PREPARED FOR:

UNITED STATES ARMY FORT MONMOUTH
DIRECTORATE OF PUBLIC WORKS
BUILDING 167
FORT MONMOUTH, NJ 07703

PREPARED BY:

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JUNE 2001

VERSAR PROJECT NO. 104936.4936.105

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EXECUTIVE SUMMARY

Versar, Inc. (Versar) is supporting the United States (U.S.) Army Fort Monmouth (Fort Monmouth), Directorate of Public Works (DPW), Monmouth County, New Jersey by preparing a Remedial Investigation Report (RIR) and Remedial Action Workplan (RAW) for Site 812. Site 812 is the reported location and surrounding vicinity of a former gasoline station (designated as Site 812) that was identified as an area of potential environmental concern during an internal DPW review of historical aerial photographs and site records. This report describes the results of site investigation (SI) and remedial investigation (RI) activities conducted to determine the potential environmental impacts (if any) from past operations conducted at Site 812. The RIR/RAW is based on work performed by Versar in the summer of 2000 and TECOM-Vinnell Services (TVS) in 1999 and 2000.

Site 812 is located in the south-central portion of the Main Post of Fort Monmouth and encompasses approximately 2.75 acres. Site 812 was not initially identified as a suspected hazardous waste site at Fort Monmouth in the Installation Assessment Report prepared in 1980 by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) (USATHAMA, 1980). This report identified sites with known or suspected waste materials and waste generating activities at the facility and formed a basis for environmental assessment/investigation at Fort Monmouth.

Since specific historical information was not available regarding previous operations and conditions at Site 812, the aerial photograph historical and site record review was used to establish a basis for proposed environmental investigation efforts at Site 812. The photograph and records review had identified a number of former structures and areas of potential concern including several areas of disturbed soil, a coal storage yard, railroad tracks of the Central New Jersey Railroad, and suggestions of a former gasoline station.

An SI was initiated in September 1999 with the installation of soil borings B-1 through B-5 utilizing a mobile GeoProbe® to evaluate the observed locations of previous site structures/areas of disturbance. Soil and aqueous samples were collected from the boring locations and analyzed for volatile organic compounds (VOC), including methyl-tert butyl ether (MTBE), methyl-tert-butyl alcohol (MTBA), and lead as potential contaminants of concern (COC) associated with the suggested gasoline station location. Lead was detected in a soil sample collected from Boring B-5 above the respective New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC) and the aqueous sample collected from Boring B-5 detected VOC above respective NJDEP Ground Water Quality Criteria (GWQC). An expanded SI was then conducted proximate to the Boring B-5 location on 9 December 1999 and seven soil samples and one aqueous sample were collected and analyzed for VOC, semi-volatile compounds (SVOC), pesticides, polychlorinated biphenyls (PCBs), and Target Analyte List (TAL) metals. In addition, the collected soil samples were also analyzed for Total Petroleum Hydrocarbons (TPHC). VOC, SVOC, TPHC, pesticides, and metals were all detected in the soil samples, but not above the respective RDCSCC. VOC, SVOC and metals were detected in the aqueous samples, with VOC and metals detected above the respective GWQC.

An RI approach was then established based upon the NJDEP Technical Requirements for Site

Remediation (NJAC 7:26) that included the installation of additional soil borings. The borings were located on an expanded sampling grid with 30-foot centers based on the findings of the SI, the historical aerial photograph and records review, and the presence of underground utilities to provide further delineation of the initially identified area as well as surrounding areas that now encompass principally parking lots.

During the RI (December 10, 1999 through February 2000), soil borings at 162 locations were advanced in a phased approach by TVS utilizing a mobile GeoProbe®. The collected soil samples were analyzed for VOC and TPHC. No VOC were found in exceedence of the respective NJDEP RDCSCC. However, in seven of the samples, concentrations of TPHC were detected above the 1,000 milligrams per kilogram (mg/Kg) or parts per million (ppm) criteria for Total VOC, but below the 10,000 ppm standard for Total Organic Compounds (TOC). These samples ranged in depth from 1.5 feet (ft) to 5 ft below ground surface (bgs), and were randomly distributed among the borings. No specific source area of contamination or potential COC were identified as a result of the soils investigation. Because no specific VOC were identified in the soil samples, the TPHC detections are unimportant.

During the RI investigation, 163 groundwater grab samples were also collected from the soil borings within the expanded sampling grid and submitted for VOC analysis. Fifteen VOC were detected; ten were identified at concentrations above their respective NJDEP GWQC. Based on the GeoProbe® groundwater investigation conducted during the SI and the RI, VOC contamination, and specifically the Boring B-5 location, was identified for further evaluation in the planned groundwater monitoring well program.

To evaluate the groundwater conditions at Site 812, fourteen (14) groundwater monitoring wells designated as MW-1 through MW-14 were installed during April and May 2000. The well locations were selected based on the results of the GeoProbe® soil and groundwater investigation and site history. Monitoring wells MW-1, MW-2 and MW-3 were installed as deep wells ranging in depth from 50 ft to 52 ft bgs. Monitoring wells MW-4 through MW-14 were then installed as shallow wells ranging in depth from 7 ft to 19 ft bgs. MW-1 and MW-4 (one deep and one shallow well) were placed in close proximity to Boring Location B-5. Two rounds of groundwater samples (May and June 2000) were collected from the fourteen monitoring wells and analyzed for VOC, SVOC, pesticides/PCB, and metals. Slug tests were also performed on several of the wells to determine the characteristics of the shallow groundwater beneath Site 812. In summary, no PCB/pesticides or SVOC were detected above the respective NJDEP GWQC. However, 13 metals were detected above respective GQWC and VOC were detected above respective GWQC at the three distinct locations. Eight VOC (benzene, 1,1-dichloroethene, cis- and trans-1,2-dichloroethene, 1,1,1-trichloroethane, tetrachloroethene, trichloroethene, and vinyl chloride) were detected above the respective GWQC in well MW-4 and concentrations of 1,1,1-trichloroethane were detected in wells MW-5 and MW-7 exceeding the respective GWQC. Eight VOC were then identified as COC at Site 812: 1,1-dichloroethene, benzene, cis-1,2-dichloroethene, tetrachloroethene, trans-1,2-dichloroethene, trichloroethene, vinyl chloride (VC), and 1,1, 1-trichloroethane.

Based on the results of the RI, three (3) areas of concern at Site 812 were evident. The first area (Area 1), and the area of most concern, is proximate to monitoring wells MW-1, MW-4 and Boring B-5, and encompasses approximately 1,400 square ft (sq ft). To a lesser degree of concern is Area 2, which is proximate to monitoring well MW-5 and Boring B-8, encompassing approximately 875 sq ft. Area 3, which is proximate to monitoring well MW-7, encompasses approximately 500 sq ft. Although these areas all have contaminants in groundwater that exceed the NJDEP GWQC, only Area 1 significantly exceeds the standards (by several orders of magnitude). Additionally, based on the soil and groundwater data, it is apparent that the Area 1 COC plume (1,2-dichloroethene) is isolated and unrelated to the COC plume (1,1,1-trichloroethane) present in Areas 2 and 3.

The extent of Area 1 contamination is likely confined to a small area in the upper 5 to 10 ft of soil and groundwater. A groundwater sample collected below this area (MW-1) had no detectable concentrations of chlorinated organic compounds. The lateral extent of contamination is also minimal since soil borings on the periphery of Area 1 (less than 20 ft from the area inclusive of borings B-42, B-44, B-46, B-59) are not impacted.

Monitoring wells MW-5 and MW-7 (Areas 2 and 3) have each been impacted by the same contaminant (1,1,1-trichloroethane), potentially the result of the same source material. Through natural degradation or dilution, the low-level contamination in these areas is predicted to quickly degrade to concentrations below New Jersey GWQC. Based on the results of borings proximate to MW-5 and MW-7, it is unlikely that the extent of contamination extends significantly beyond the actual sampling locations of MW-5 and MW-7.

The results of the groundwater monitoring program show that VOC concentrations have decreased over time and have not migrated off-site. The fact that there is no increase in concentrations of the contaminants detected above the GWQC with time indicates that no new sources of contamination have impacted the plume. It should be noted that groundwater is the only apparent media that has been impacted. Soils appear relatively clean suggesting a small source area of contamination.

A search of the comprehensive well database maintained by the NJDEP's Well Permitting and Regulations Section of the Bureau of Water Allocation, performed as part of the RIR/RAW, did not identify public supply, public non-community, or non-public [supply] wells within one mile of Site 812. Further, there are no domestic, irrigation, industrial, or supply wells existing within the boundaries of Site 812. Since no groundwater use is occurring or is anticipated to occur, the groundwater beneath Site 812 was not considered a groundwater use area.

The necessity of treatment of soil and/or groundwater at the three identified locations is arguable based on the low contaminant concentrations. However, in a proactive effort to augment the natural attenuation/contaminant degradation process, Fort Monmouth is proposing to implement a remedial action for the groundwater at Site 812. The focus of potential remedial alternatives will target MW-4 (Area 1) and the potential migration of COC to the north, i.e., in the direction of groundwater flow.

The following remedial action objectives were established for Site 812:

- Groundwater monitoring should be continued to demonstrate contaminant degradation due to ongoing natural attenuation.
- The natural attenuation occurring at the Site should be evaluated against the implementation of potentially applicable remedial technologies to enhance/accelerate the natural remediation process and/or more directly mitigate the residual levels of VOC.

The following remedial action alternatives/in-situ technologies were evaluated within the RAW: Chemical treatment – Hydrogen Release Compound (HRC); Fenton Reagents; bioremediation; and Monitored Natural Attenuation.

The DPW proposes to implement HRC injection at the three established "hot spot" areas to directly enhance/accelerate the naturally occurring in-situ anaerobic bioremediation at Site 812 and retard the generation and extent of vinyl chloride (VC) migration in the groundwater, a natural degradation product of the chlorinate organics. HRC will be injected at 57 locations to a depth of 4-8 ft bgs in treatment grids centered on the three monitoring wells (MW-4, MW-5, and MW-7). By reducing the source of contaminants, the volume and migration of generated degradation products, specifically VC, will also be reduced. In addition, to maintain subsurface anaerobic conditions within the treatment area, an upgradient injection of HRC will be performed approximately 30 days following the initial HRC application. Quarterly groundwater monitoring of MW-01 through MW-08 and MW-12 through MW-14 will be continued following the initial HRC injection. Furthermore, one or more additional downgradient monitoring wells will be located near Husky Brook and incorporated into the groundwater sampling program to monitor performance of the remedial action and retardation of the COC. The monitoring wells will be sampled for VOC+15 and TAL metals. Based on the results of the soil investigations, no additional soil sampling is proposed.

Twelve months after the initial HRC injection, the results and findings of the Remedial Action will be reviewed and four potential follow-on scenarios evaluated:

1. No Further Action may be proposed;
2. Further source area treatment i.e., a second HRC injection, may be performed;
3. If the Class III-A aquifer designation is applicable, establishment of Alternate groundwater quality criteria may need to be developed; and/or
4. If it is determined that the Class II GWQC are applicable, establishment of a Classification Exception Area (CEA) may be proposed.

Site 812 exists within the boundary of Fort Monmouth, and as such, is a Federal facility with controlled access. The DPW will continue to maintain a groundwater use restriction within the impacted area. The DPW is the lead agency for all land use issues at Fort Monmouth. The Installation Master Plan resides in the Engineering Services and Planning Division of the DPW. There are no additional institutional controls proposed as part of this Remedial Action. By submittal of this Report, Fort Monmouth is requesting written approval for the proposed remedial action at Site 812, and for Permit-by-Rule approval for the proposed HRC application in the three "hot spot" areas of the site and discharge to groundwater.

SECTION 1.0
INTRODUCTION

1.1 OVERVIEW

VERSAR, Inc. (Versar) has been contracted by the United States (U.S.) Army Fort Monmouth (Fort Monmouth), Directorate of Public Works (DPW), Fort Monmouth, New Jersey to prepare a Remedial Investigation Report (RIR) and Remedial Action Workplan (RAW) for Site 812, based on work performed by Versar in the summer of 2000 and TECOM-Vinnell Services (TVS) in the Fall of 1999 through February 2000.

This report describes the results of site investigation (SI) and remedial investigation (RI) activities conducted at the reported location of a former gasoline station and surrounding vicinity (designated as Site 812) to determine the potential environmental impacts (if any) from past operations conducted at the site. Site 812 is located on the south-central portion of the Main Post of Fort Monmouth. Site 812 was identified as an area of potential environmental concern during an internal DPW review of historical aerial photographs and site records. This report has been prepared in partial fulfillment of Contract No. DACA 51-00-D-004, Delivery Order No. 0005.

1.2 SITE DESCRIPTION

Fort Monmouth is located in the central-eastern portion of New Jersey in Monmouth County, approximately 45 miles south of New York City and 70 miles northeast of Philadelphia **(Figure 1**). In addition to the Main Post, the installation includes two subposts, the Charles Wood Area and the Evans Area. The Main Post encompasses approximately 630 acres and is generally bounded by State Highway 35, Parkers Creek, Lafetra Creek, the New Jersey Transit Railroad, and a residential area to the south. The post was established in 1918 during World War I (WW I) as an Army Signal Corps training center. The Main Post currently provides administrative, training, and housing support functions, as well as providing many of the community facilities for Fort Monmouth. The primary mission of Fort Monmouth is to provide command, administrative, and logistical support for Headquarters, U.S. Army Communications and Electronics Command (CECOM). CECOM is a major subordinate command of the U.S. Army Materiel Command (AMC) and is the host tenant at Fort Monmouth.

Site 812 is located in the south-central portion of the Main Post near the Main Street entrance to Fort Monmouth and encompasses approximately 2.75 acres. Site 812 is bordered by Murphy Drive to the east and south and to the northwest by an access road and Building 1000 (the Post Exchange or PX) and Building 1001 (the Four Seasons Store). “Building” 812, the Army Community Service Center and associated parking areas currently occupy the area defined as Site 812. **Appendix A** contains photographs of Site 812.

Specific historical information is not available regarding previous operations and conditions at Site 812. Reportedly, Site 812 is the former location of a gasoline station with underground fuel storage. Site 812 was not identified as a suspected hazardous waste site at Fort Monmouth in the Installation Assessment Report prepared in 1980 by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) (USATHAMA, 1980). This report identified sites with known or suspected waste materials at the Fort Monmouth facility. Furthermore, Site 812 was not identified or addressed in the Site Investigation (SI) Report prepared by Roy F. Weston, Inc. (WESTON) for the Main Post and Charles Wood Areas of Fort Monmouth (WESTON, 1995). As previously discussed, Site 812 was identified as an area of potential environmental concern during an internal DPW review of historical aerial photographs and site records.

1.3 REPORT ORGANIZATION

This report has been prepared in accordance with the New Jersey Department of Environmental Protection (NJDEP) Technical Requirements for Site Remediation (New Jersey Administrative Code (NJAC) Chapter 7:26E et seq.) The report is presented as follows:

Section 1 – Introduction
Section 2 – Technical Overview
Section 3 – Remedial Investigation Report
Section 4 – Remedial Action Workplan.
Section 5 – References

The Tables and Figures to this Report are located following the body of the text. Appendices to this report contain copies of Fort Monmouth Standard Operating Procedures (SOPs) used in performing the RI activities, copies of boring and monitoring well logs installed at Site 812, the evaluation of slug tests performed at selected wells, the results of a sensitive receptor survey and well search, and the Analytical Data Packages for the laboratory analyses conducted in support of the RI.

SECTION 2.0
TECHNICAL OVERVIEW

2.1 HISTORIC INFORMATION

Reportedly, Site 812 is the former location of a gasoline station with underground fuel storage. Site 812 was not initially identified as a suspected hazardous waste site in the Installation Assessment Report prepared for Fort Monmouth in 1980 by USATHAMA (USATHAMA, 1980). This report identified sites with known or suspected waste materials and waste generating activities at the facility and formed a basis for environmental assessment/investigation at Fort Monmouth. Site 812 was also not identified or addressed in the SI Report prepared for the Main Post and Charles Wood Areas of Fort Monmouth (WESTON, 1995). To establish a basis for proposed environmental investigation efforts at Site 812, a review was conducted of historical aerial photographs and site records. **Appendix A** contains annotated copies of two historical photographs of areas encompassing Site 812. The photograph and records review identified a number of former structures and areas of potential concern including several areas of disturbed soil, a coal storage yard, railroad tracks of the Central New Jersey Railroad, and suggestions of a former gasoline station. A more detailed review of historic aerial photographs of Fort Monmouth and the area encompassed by Site 812 (now principally parking areas) was then conducted in support of the RIR. A summary of this historical aerial photograph and records review is presented below.

2.1.1 Historical Aerial Photograph Review

Eight aerial photographs were obtained and reviewed at the NJDEP archives in Trenton, New Jersey to evaluate historic information relative to environmental conditions at Site 812. The following years were reviewed: 1940, 1947, 1951, 1951 1957, 1961, 1971, and 1987. The scales of the photographs depicting Site 812 during the years 1940 through 1971were approximately one inch equal to 16,000 ft. The photograph depicting Site 812 circa 1987 was reviewed at a scale of one inch equal to 400 ft. **Figure 2a** is a representation of the findings of the historical aerial photograph review.

None of the present day structures appeared in the earliest photograph review (i.e., 1940). The entire site was vegetated and appeared undisturbed with the exception of a lineation (i.e., outline of an image) that ran in a north-south direction, possibly intersecting the location of the present day footprint of Building 812. This lineation appears as either an access road or perhaps a small drainage swale. However, based on the scale of the photograph, it was difficult to differentiate.

By 1947, Building 812 had been constructed and appeared in its present day configuration. No other buildings existed on the site at that time. The lineation observed in the 1940 photograph was not observed, suggesting possible backfilling of a swale or drainage easement proximate to Building 812. Building 812 remained in its present day configuration in the 1951 aerial photo. A second structure was present approximately 120 ft west of Building 812. Just to the southeast of this building was a concrete pad or similar structure with some type of surface structure. The purpose of this structure could not be determined because of the scale of the photograph. The 1954 photograph was unchanged.

The structure west of Building 812 (the rectangular building) had a new addition attached to the east side of the building in the 1957 photograph. The concrete pad southeast of this structure identified on the 1951 photograph had disappeared. By 1961, the addition on the east side of the building was gone, but two large objects (each about twice the size of a car) are evident west of Building 812. The 1971 photo showed that all the structures, with the exception of Building 812, were gone. Disturbed soil was evident in the area of the former rectangular building west of Building 812. Paving was evident around most of the site. Between 1971 and 1987, site improvements continued, and the site appeared as it does today. No significant differences were observed.

2.1.2 Previous Site Reports

A previous report regarding Building 812 entitled, *Underground Storage Tank Closure and Site Investigation Report – Building 812,* prepared by SMC Environmental Services Group (SMC, a wholly-owned subsidiary of Versar) (SMC, 1998) was identified and reviewed. This document reported that on April 27, 1998, a fiberglass underground storage tank (UST) located on the east side of Building 812 (see **Figure 2**) was closed by removal in accordance with NJDEP UST closure procedures. The NJDEP Registration No. 0081533-133 for this UST identified a 2,000-gallon capacity No. 2 fuel oil tank.

The post-excavation soil sampling results did not identify contaminated soils with Total Petroleum Hydrocarbon (TPHC), VOC, or SVOC concentrations exceeding the various NJDEP criteria at the former location of the UST or associated piping. No further action was proposed regarding the UST closure and site assessment and a Closure Approval Letter, dated 24 February 2000 was received from the NJDEP. There is no perceived or implied association between the locations of this UST and the environmental conditions at Site 812 addressed within this report.

2.2 PHYSICAL SETTING

The following is a description of the geological/hydrogeological setting of the area surrounding Site 812. Included is a description of the regional geology of the area surrounding Fort Monmouth, as well as descriptions of the local geology and hydrogeology of the Main Post area. A geological map of New Jersey is provided as **Figure 3.**

2.2.1 Geology

Regional Geology and Local Geology

Monmouth County lies within the New Jersey Section of the Atlantic Coastal Plain physiographic province. The M-12 Restoration site is located in what is referred to as the Outer Coastal Plain subprovince, or the Outer Lowlands. The geologic map of New Jersey is provided as **Figure (3)**.

In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, sand and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet (ft) per mile and are deposited on Precambrian and lower Paleozoic rocks (Zapecza, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

The formations record several major transgressive/regressive cycles and contain units, which are generally thicker to the southeast and reflect a deeper water environment. More than 20 regional geologic units are present within the sediments of the Coastal Plain. The individual thicknesses for these units varies greatly (i.e., from several ft to several hundred ft). The Coastal Plain deposits thicken to the southeast from the Fall Line (i.e., a boundary zone between older, resistant rocks and younger, softer plain sediments) to greater than 6,500 ft in Cape May County (Brown and Zapecza, 1990).

Based on the regional geologic map (Jablonski, 1968), the Cretaceous-age Red Bank Sand and Tinton Sand, and the Tertiary-age Hornerstown Sand crop out at the Main Post area. The Red Bank Sand conformably overlies the Navesink Formation and dips to the southeast at 35 ft per mile. The upper member (Shrewsbury) of the Red Bank Sand is a yellowish-gray to reddish brown clayey, medium-to-coarse-grained sand that contains abundant rock fragments, minor mica and glauconite. The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite. The Navesink Formation, which crops out approximately four miles northwest of the Main Post, is a dark grayish-black clayey glauconitic sand which conformably overlies the Mount Laurel Sand.

The Tinton Sand conformably overlies the Red Bank Sand and ranges from a clayey medium to very coarse-grained feldspathic-quartz and glauconite-sand to a glauconitic-coarse sand. The color varies from dark yellowish orange or light brown to moderate brown and from light olive to grayish olive. Glauconite may constitute 60 to 80 percent of the sand fraction in the upper part of the unit. The upper part of the Tinton is often highly oxidized and iron oxide encrusted (Minard, 1969).

The Hornerstown Sand unconformably overlies the Red Bank Sand and dips to the southeast at 50 to 60 feet per mile. The Hornerstown Sand consists of a dark green clayey glauconitic sand.

The Tertiary-age Kirkwood and Vincentown Formations crop out approximately two miles south of the Main Post. The Vincentown Formation contains a lower member which is a greenish-gray glauconitic sand and an upper member which ranges from sand to clayey limestone. The Kirkwood Formation consists of alternating layers of sand and clay. The Vincentown and Kirkwood Formations dip to the southeast at approximately 20 and 27 feet per mile, respectively (Jablonski, 1968).

The geologic formations that outcrop at the Fort Monmouth Army Base (the Tinton and Red Bank Sands, and the Hornerstown Formation), along with the Navesink Formation are part of the Composite Confining Unit that overlies the Wenonah-Mount Laurel Aquifer (Zapecza, 1990). A cross section of the New Jersey Coastal plain that shows these formations is presented in **Figure (4)**.

2.2.2 Soils

According to the U.S. Department of Agriculture (USDA), Soil Conservation Service, Monmouth County Soil Survey, the majority of the Main Post is covered by urban land. The soil survey describes urban land as areas where concrete, asphalt, buildings, shopping centers, airports, or other impervious surfaces cover 80 percent or more of the surface. In addition, the survey indicates that the natural subsurface soils have largely been replaced with artificial or foreign fill materials (developed land with disturbed soils). The following soil series and classification units are mapped in the Main Post area:

- DoB Downer sandy loam (with 2 to 5 percent slopes);
- FrB Freehold sandy loam (with 2 to 5 percent slopes);
- FUB Freehold sandy loam/urban land complex (with 0 to 10 percent slopes);
- HV Humaquepts, frequently flooded;
- KvA Kresson loam (with 0 to 5 percent slopes);
- UA Udorthents, smoothed; and
- UD Udorthents – urban land complex (with 0 to 3 percent slopes).

The Downer series soils are well-drained soils that are found on uplands and terraces. The soils are formed in acid, silty coastal plain sediments. The Freehold soils are also well drained and are formed in acid, loamy, coastal plain sediments that, by volume, are 1 to 10 percent glauconite and are found on uplands. The Humaquepts soils are somewhat poorly- to very poorly- drained soils that are formed in stratified, sandy, or loamy sediments of fluvial origins. The Humaquepts soils are located on the floodplain and are subject to flooding several times each year. The Kresson loam is a nearly level to gently sloping soil and is somewhat poorly drained. The soil is found on low divides and in depressions. The Udorthents soils have been altered by excavation or filling activities. In filled areas, these soils consist of loamy material that is more than 20 inches thick. The filled areas include floodplain, tidal marshes, and areas with moderately, well drained to very poorly drained soils. Some Udorthent soils contain concrete, asphalt, metal, and glass.

Boring and monitoring well logs (**Appendix C**) installed at Site 812 describe the soils to consist of earthen cover underlain by fill material. The fill material consists of debris mixed with organic material and silty clayey sandy soil. The fill is underlain by natural soil consisting of low permeability silty, clayey sand.

2.2.3 Hydrogeology

Regional Hydrogeology

Fort Monmouth lies in the Atlantic and Eastern Gulf Coastal Plain groundwater region (Meisler et al., 1988). This groundwater region is underlain by undeformed, unconsolidated to semi-consolidated sedimentary deposits. The chemistry of the water near the surface is variable with low dissolved solids and high iron concentrations. The water chemistry in areas underlain by glauconitic sediments (such as Red Bank, Tinton, and Hornerstown Sands) is dominated by calcium, magnesium, manganese, aluminum and iron. The sediments in the area of Fort Monmouth were deposited in fluvial-deltaic to near shore environments.

The water table aquifer in the Main Post area is identified as part of the "composite confining units," or minor aquifers. The minor aquifers include the Navesink formation, Red Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation. These geologic formations form a "Composite Confining Bed" for the Wenonah Mount Laurel Aquifer (Zapecza, 1984).

Wells installed in the Red Bank and Tinton Sands produce 2 to 25 gallons per minute (gpm) (Jablonski, 1968). Groundwater is typically encountered at the Main Post and in the surrounding areas at shallow depths below ground surface (2 to 9 ft bgs). Water in the surficial aquifer flows east toward the Atlantic Ocean.

Local Hydrogeology

Boring and monitoring well logs (**Appendix C**) installed at Site 812 describe the soils to consist of earthen cover underlain by fill material. The fill material consists of debris mixed with organic material and silty clayey sandy soil. The fill is underlain by natural soil consisting of low permeability silty, clayey sand.

Shallow groundwater is locally influenced within the Main Post area by the following factors:

- Tidal influence (based on proximity to the Atlantic Ocean, rivers, and tributaries)
- Topography
- Nature of the fill material within the Main Post area
- Presence of clay and silt lenses in the natural overburden deposits
- Local groundwater recharge areas (i.e., streams, lakes)

Due to the fluvial nature of the overburden deposits (i.e., sand and clay lenses), shallow groundwater flow direction is best determined on a case-by-case basis. Based on groundwater depth measurements in the monitoring wells at Site 812, the groundwater flow near Site 812 was determined to be to the north.

Aquifer Classification

A review of the NJDEP Groundwater Quality Standards (NJAC 7:9-6), January 7, 1993, indicates that the site is underlain by a Class III-A aquifer. The primary designated use for Class III-A groundwater is the release or transmittal of groundwater to adjacent classification areas and surface water, as relevant. Secondary designated uses in Class III-A include any reasonable uses. For an area to be classified as a Class III-A aquifer, the groundwater must meet the following characteristics:

- Class III-A groundwater includes portions of the saturated zones (that meet the criteria below) of the Woodbury Formation, Merchantville Formation, Marshalltown Formation, Navesink Formation, Hornerstown Formation, aquitard formations of the Potomac-Raritan-Magothy aquifer system and the Kirkwood aquifer system, portions of the glacial moraine and glacial lake deposits, and other geologic units having the characteristics of an aquitard. Class III-A areas have the following characteristics (NJAC 7:9-6.5):
- The average thickness of a Class III-A area must be at least 50 feet

- Typical hydraulic conductivity of a Class II-A aquifer is approximately 0.1 ft/day or less
- The areal extent defined as Class III-A must be at least 100 acres.

The shallow aquifer at Fort Monmouth meets each of the four criteria listed above. These criteria are discussed below:

- As presented in **Figure (5)**, Fort Monmouth is located within the outcrop area of the "Navesink-Hornerstown Confining Unit." The Navesink and Hornerstown Formations are part of the Composite Confining Unit (Martin, 1998), which also includes the Red Bank Sand, Tinton Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation.
- **Figure (5)** also illustrates the thickness of the Hornerstown-Navesink Confining Unit, which in the vicinity of Fort Monmouth, is approximately 125 feet.
- Published hydraulic conductivities (Martin, 1998) for the Navesink-Hornerstown Confining Unit yield a geometric mean of 0.12 feet per day, which is consistent with an aquitard.
- The area of Fort Monmouth is greater than 100 acres.

Therefore, based on regulatory criteria, published geologic information, and as site-specific conditions, Site 812 is underlain by a Class III-A aquifer (i.e., an aquitard).

2.2.4 Topography

Over the last 80 years, the natural topography of Fort Monmouth has been altered by excavation and filling activities by the military. The land surface at the Main Post is relatively flat and ranges in elevation from 4 ft above mean sea level (msl) in the east at Oceanport Creek to 32 ft above msl at the western end of the post, near Highway 35. According to the U.S. Geological Survey (USGS) topographic map (USGS, 1981), and site-specific elevation data from the monitoring wells and soil boring program, land surface elevation near Site 812 is approximately +15 to +22 ft above msl.

2.2.5 Surface Water and Wetlands

Surface water runoff from the western portion of the Main Post flows into the Lafetra Creek to the north or into Mill Creek to the south. The USGS topographic map of the area (**Figure 1**) identifies Lafetra Creek as Parkers Creek Branch and Mill Creek as Wampum. Both Mill and Lafetra Creeks originate off-post. Mill Creek flows along the southern boundary of the Main Post, turning north just past the Auto Craft Shop. Mill Creek is channelized and flows past several landfills. Lafetra Creek forms the northern boundary of the Main Post and joins Mill Creek to form Parkers Creek. Parkers Creek flows eastward along the northern property boundary and joins Oceanport Creek east of the post. Most of Parkers Creek, Lafetra Creek, and Mill Creek are tidally influenced.

The U.S. Fish and Wildlife Service (FWS) National Wetland Inventory, Long Branch quadrangle maps indicate the presence of wetlands at the Main Post. Parkers and Oceanport Creeks are classified as estuarine intertidal aquatic beds. The area of Parkers Creek and the part of

Oceanport Creek/Husky Brook are classified as estuarine intertidal emergent wetlands. Lafetra Creek and Mill Creek are classified as riverine lower perennial open water/unknown bottom.

No surface water bodies (i.e., creeks, ponds, wetlands, etc.) traverse Site 812.

2.3 SITE INVESTIGATION SUMMARY

2.3.1 Reliability and Quality of Laboratory Analytical Data

All soil and water samples were analyzed at the Fort Monmouth Environmental Laboratory, a New Jersey certified laboratory (Certification No. 13461). Data validation indicates that analytical data is of acceptable quality and reliability. The data reports indicate that the appropriate analytical methods were used, holding times were not exceeded, and duplicate and blank analyses showed good reproducibility. The method detection limits achieved by the laboratory for the various analytes are below regulatory criteria. Based on this quality assurance review, all data has been validated and can be considered reliable.

2.3.2 Contamination Summary

The initial historical photograph and records review had identified a number of former structures and areas of potential concern including several areas of disturbed soil, a coal storage yard, railroad tracks, and suggestions of a former gasoline station. Evidence of several former structures and areas of disturbance were also identified during the historical aerial review conducted as part of this RIR.

At Site 812, the areas of concern appear to be the soils and underlying groundwater. Potential COC are those that are associated with the suggested gasoline station (VOC and metals). This background data formed the basis for the environmental investigation program at Site 812.

2.3.3 Significant Events/Seasonal Variation

There were no significant events that influenced sampling procedures during the SI and the RI. The analytical results show no discernable seasonal variation. It should be noted that although tidal influences are evident in the tributaries near Site 812, it is unlikely that significant tidal effects exist in site-specific groundwater elevations.

2.4 TREATABILITY, BENCH-SCALE AND PILOT-SCALE STUDIES

There were no treatability, bench-scale, or pilot-scale studies done in support of the RI for Site 812. However, hydraulic conductivity tests were conducted to assist in the evaluation of potential remedial technologies/alternatives.

2.5 DEVELOPMENT OF PERMIT LIMITATIONS

Data has not been collected, to date, to develop permit limitations in support of proposed remedial actions for Site 812.

2.6 ECOLOGICAL ASSESSMENT SUMMARY

No streams, ponds, or other surface water habitats exist within the boundaries of the Site 812 area. In addition, based on the extent of the contamination discussed in this Report, it is unlikely that any contamination has migrated, or will migrate, beyond the boundaries of Site 812. Ecological assessments were not done as part of the RI of Site 812.

SECTION 3.0
REMEDIAL INVESTIGATION REPORT

3.1 INVESTIGATION APPROACH

Environmental investigations were implemented at Site 812 to determine the potential impacts (if any) from past operations conducted in and around Site 812, and if identified, to delineate the extent of soil and groundwater contamination and determine the need for further action. An SI was initiated at Site 812 in September 1999 with the installation of soil borings utilizing a mobile GeoProbe® to evaluate the locations of previous site structures/areas of disturbance identified during the historical aerial photograph and records review. Soil and groundwater grab samples were collected from the boring locations and analyzed for VOC, including methyl-tert butyl ether (MTBE) and methyl-tert-butyl alcohol (MTBA), and lead as potential COC associated with the suggested gasoline station location. An expanded SI was then conducted on at the Boring B-5 location on 9 December 1999 and additional soil and aqueous samples were collected and analyzed for an expanded list of parameters, including TPHC (soils only), VOC, SVOC, PCB, and Target Analyte List (TAL) metals.

An RI approach was then established based upon the findings of the SI and the NJDEP Technical Requirements for Site Remediation (NJAC 7:26) that encompassed the installation of additional soil borings within an expanded sampling grid utilizing a refined list of analytical parameters. The borings were located on 30 ft centers based on the findings of the SI, the historical aerial photograph and records review, and the presence of underground utilities to provide further delineation of the initially identified area as well as surrounding areas that now encompassed principally parking lots. The intent of the sampling was to obtain a complete soil column from 0-6 inches bgs to the observed water table. A 4-ft split-spoon soil sample was obtained and screened visually and by using a photoionization detector (PID)/flame-ionization detector (FID). If contamination was observed or detected by field instrumentation, a sample was collected. If nothing was visually observed or detected by field screening, a sample was obtained just above the water table. Groundwater monitoring wells were then located based upon the findings of the GeoProbe® investigation and installed and sampled in May and June 2000. Slug tests were performed on several of the wells to determine the characteristics of the shallow groundwater beneath Site 812.

The RI activities at Site 812 were managed by the DPW and performed by TVS and Versar. The RI was initiated on 10 December 1999 and field work continued through June 2000. All analyses were performed and reported by the Fort Monmouth Environmental Laboratory, a NJDEP-certified testing laboratory (Certification No. 13461). All sampling was performed in accordance with the methods described in the NJDEP Field Sampling Procedures Manual. Sampling frequency and parameters analyzed complied with the NJDEP Technical Requirements for Site Remediation. Fort Monmouth SOPs for the performance of GeoProbe® investigations and groundwater sampling are provided in **Appendix B.**

Analytical results were first compared to the respective method detection limit (MDL) and the Maximum Background Concentrations (MBC) established for the Main Post at Fort Monmouth (where applicable and appropriate). Analytical results that exceeded the MDL and the MBC (where applicable and appropriate) were then compared to the respective NJDEP criteria.

3.2 SITE AND REMEDIAL INVESTIGATION ACTIVITIES

3.2.1 GeoProbe® Investigation

During the RI, soil borings at 162 locations were advanced in a phased approach by TVS utilizing a mobile GeoProbe®. The collected soil samples were analyzed for VOC and TPHC. Between December 10, 1999 and February 2000, one hundred sixty three (163) soil borings were advanced by TVS utilizing a mobile GeoProbe®. The locations of the soil borings are presented on **Figure 4** and are designated as B-0, B-1 through B-162 (excluding B-83 and B-158), B-1A through B-5A, and 161A.(1) Drilling locations were chosen based on the findings of the historical aerial photograph review and underground utilities. Retained soil samples were visually classified at the time of the drilling program. Changes in the soil strata, such as color, consistency, texture, and grain-size were recorded with depth. Boring logs from the GeoProbe® investigation are presented in **Appendix C**. In addition, groundwater samples (referred to as aqueous samples on the tables and figures) were collected as grab samples from the GeoProbe® borings and submitted for analysis.

The findings of the GeoProbe® soils and groundwater investigation are summarized below.

3.2.1.1 Soils

An SI was initiated in September 1999 with the installation of soil borings B-1 through B-5 utilizing a mobile GeoProbe® to evaluate the observed locations of previous site structures/areas of disturbance. These five borings were positioned to evaluate the locations of previous site structures/unknown objects identified during the review of historical aerial photographs (see **Figure 2a**). Six soils samples were collected from the five borings and analyzed for VOC, including methyl-tert butyl ether (MTBE) and methyl-tert-butyl alcohol (MTBA), and lead representing the potential contaminants associated with a former gasoline station (i.e., leaded gasoline). Two VOC were detected, and only at Boring B-5, cis-1,2-dichloroethene at 3.7 m/Kg and tetrachloroethene (PCE) at 0.47 mg/Kg. The two detections were below the respective RDCSCC of 79 mg/Kg for cis-1,2-dichloroethene and 4 mg/Kg for PCE. Lead was detected at Boring B-2 at 5.47 mg/Kg, at Boring B-4 at 5.66 mg/Kg, and at Boring B-5 at 601.75 mg/Kg. The detection at Boring B-5 exceeded the RDCSCC for lead of 400 mg/Kg, but this single exceedance is less than one order of magnitude greater than the RDCSCC. The sampling depths and analytical results for analytes with detections above the respective analytical MDL are presented in **Table 1.** The analytical results for each sample detected above the respective RDCSCC have then been **bolded** in **Table 1**. The analytical data packages are provided in **Appendix G** (under separate cover).

An expanded SI was then conducted at the Boring B-5 location on 9 December 1999 to more completely evaluate soil conditions at this location by depth. Seven additional soil samples were collected from the following sample depths: 0-0.5 ft, 1–1.5 ft, 2-2.5 ft, 3-3.5 ft, 4-4.5 ft. 5-5.5 ft, and 6-6.5 ft and analyzed for VOC, semi-volatile organic compounds (SVOC),

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(1) Boring B-5 required a second advancement because of a broken sample container from the original B-5 boring.

pesticides/polychlorinated biphenyls (PCB), TPHC, and metals. Three VOC were detected in the seven samples: chloroform, cis-1,2-dichloroethene, and methylene chloride. Chloroform was detected in three samples ranging from 0.29 to 0.33 mg/Kg, below the RDCSCC of 19 mg/Kg. Cis-1,2-Dichloroethene was detected in one sample at 0.37 mg/Kg, below the RDCSCC of 79 mg/Kg. Methylene chloride was detected in two soil samples at 0.92 mg/Kg and 2.2 mg/Kg, below the RDCSCC of 49 mg/Kg. No VOC are identified as COC.

Four SVOC were detected in seven soil samples: bis(2-ethylhexyl)phthalate, chrysene, di-n-butylphthalate, and pyrene. Bis(2-Ethylhexyl)phthalate was detected in all seven soil samples ranging from 0.17 to 0.55 mg/Kg, below the RDCSCC of 49 mg/Kg. Chrysene was detected in one soil sample at 0.11 mg/Kg, below the RDCSCC of 9 mg/Kg. Di-n-Butylphthalate was detected in all seven soil samples ranging from 0.14 mg/Kg to1.2 mg/Kg, below the RDCSCC of 5,700 mg/Kg. Pyrene was detected in two soil samples at 0.13 and 0.15 mg/Kg, below the RDCSCC of 1,700 mg/Kg. No SVOC are identified as COC.

TPHC was detected only at the 6-6.5 ft sampling depth at 294.86 mg/Kg, which is below both the NJDEP criteria for Total VOC of 1,000 mg/Kg or parts per million (ppm) and 10,000 ppm for Total Organic Compounds (TOC). Three pesticides were detected in the seven soils samples: 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT. 4,4'-DDD was detected in four samples ranging from 0.004 mg/Kg to 0.011 mg/Kg, below the RDCSCC of 3 mg/Kg. 4,4'-DDE was detected in four samples ranging from 0.004 mg/Kg to 0.01 mg/Kg, below the RDCSCC of 2 mg/Kg. 4,4'-DDT was detected in four samples ranging from 0.020 mg/Kg to 0.054 mg/Kg, below the RDCSCC of 2 mg/Kg. No PCB were detected in the seven soil samples. TPHC, Pesticides, and PCBs are not identified as COC.

Twenty metals were detected in each of the seven soil samples: aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, mercury, nickel, potassium, sodium, vanadium, and zinc. Aluminum was detected ranging from 6,620 mg/Kg to 12,700 mg/Kg, there is no RDCSCC for aluminum. Antimony was detected ranging from 1.32 mg/Kg to 3.61 mg/Kg, below the RDCSCC of 14 mg/Kg. Arsenic was detected ranging from 4.89 mg/Kg to 13.8 mg/Kg, below the RDCSCC of 20 mg/Kg. Barium was detected ranging from 16.6 mg/Kg to 44.7 mg/Kg, below the RDCSCC of 700 mg/Kg. Beryllium was detected ranging from 0.694 mg/Kg to 1.25 mg/Kg, below the RDCSCC of 2 mg/Kg. Cadmium was detected ranging from 0.483 mg/Kg to 1.08 mg/Kg, below the RDCSCC of 39 mg/Kg. Calcium was detected ranging from 820 mg/Kg to 5,010 mg/Kg, there is no RDCSCC for calcium. Chromium was detected ranging from 52.4 mg/Kg to 102 mg/Kg, there is no RDCSCC for chromium. Cobalt was detected ranging from 1.91 mg/Kg to 4.07 mg/Kg, there is no RDCSCC for cobalt. Copper was detected ranging from 3.08 mg/Kg to 26.0 mg/Kg, below the RDCSCC of 600 mg/Kg. Iron was detected ranging from 20,600 mg/Kg to 37,400 mg/Kg, there is no RDCSCC for iron. Lead was detected ranging from 7.79 mg/Kg to 32.9 mg/Kg, below the RDCSCC of 400 mg/Kg. Magnesium was detected ranging from 2,030 mg/Kg to 4,100 mg/Kg, there is no RDCSCC for magnesium. Manganese was detected ranging from 43.0 mg/Kg to 118 mg/Kg, there is no RDCSCC for manganese. Mercury was detected ranging from 0.023 mg/Kg to 0.086 mg/Kg, below the RDCSCC of 14 mg/Kg. Nickel was detected ranging from 4.83 mg/Kg to 10.1 mg/Kg, below the RDCSCC of 250 mg/Kg. Potassium was detected ranging from 4,150 mg/Kg to 8,710 mg/Kg, there is no RDCSCC for potassium. Sodium was detected ranging from 161 mg/Kg to 1,070 mg/Kg, there is no

RDCSCC for sodium. Vanadium was detected ranging from 35.7 mg/Kg to 70.9 mg/Kg, below the RDCSCC of 370 mg/Kg. Zinc was detected ranging from 33.8 mg/Kg to 73.4 mg/Kg, below the RDCSCC of 1,500 mg/Kg.

In summary, the SI and expanded SI failed to identify a distinct source area for soils or define potential contaminants of concern COC. While VOC, SVOC, TPHC, pesticides, and metals were all detected in soil samples collected at Boring Location B-5, except for lead during the initial SI, the detections did not exceed the respective RDCSCC. Lead was detected at Boring location B-5 in all eight collected samples, but only the sample collected at 7.5 ft bgs exceeded the RDCSCC of 400 mg/Kg. Given this isolated exceedence of the RDCSCC, which is less than one order of magnitude greater than the criteria, as well as the depth of the sample location, lead is not identified as a COC for soils.

Based on the findings of the SI and expanded SI and the NJDEP Technical Requirements For Site Remediation (NJAC 7:26), the sampling grid was expanded to provide further delineation during the RI of the area initially identified in the historical aerial photograph review and as well as surrounding areas that are now principally parking lots. During the RI (10 December 1999 through February 2000), soil samples were collected at varying depths from an additional 162 locations and analyzed for a refined list of parameters that included only VOC and TPHC. The results of the RI are shown in **Table 1**, are summarized below, and the sampling locations are shown on **Figure 6a**.

Eight VOC were detected in the soil samples collected during the RI: 2-butanone, acetone, bromodichloromethane, chloroform, cis-1,2-dichloroethene, methylene chloride, toluene, and xylenes (total). 2-Butanone was detected in 219 of the collected soils samples ranging from 0.61 mg/Kg to 9.3 mg/Kg, with none of the detections exceeding the RDCSCC of 1,000 mg/Kg. Acetone was detected in 93 of the collected samples ranging from 1.2 mg/Kg to 5.6 mg/Kg, with none of the detections exceeding the RDCSCC of 1000 mg/Kg. Bromodichloromethane was detected in two of the collected soil samples at 0.32 mg/Kg and 0.37 mg/Kg, with none of the detections exceeding the RDCSCC of 11 mg/Kg. Chloroform was detected in 200 of the collected samples ranging from 0.22 mg/Kg to 0.86 mg/Kg, with none of the detections exceeding the RDCSCC of 19 mg/Kg. Cis-1,2-Dichloroethene was detected in one of the collected soil samples at 3.7 mg/Kg, which is below the RDCSCC of 79 mg/Kg. Methylene chloride was detected in 77 of the collected soil samples ranging from 0.23 mg/Kg to 9.2 mg/Kg, with none of the detections exceeding the RDCSCC of 49 mg/Kg. Toluene was detected in one of the collected soil samples at 0.23 mg/Kg, which is below the RDCSCC of 1,000 mg/Kg. Total xylenes were detected in 2 of the collected soil samples at 0.49 mg/Kg and 1.79 mg/Kg, with neither detection exceeding the RDCSCC of 410 mg/Kg.

TPHC was detected in 149 of the collected soil samples ranging from 162.24 mg/Kg to 7099.8 mg/Kg, with seven detections exceeding the 1,000 ppm criteria for Total VOC (see the table below), but not the 10,000 ppm standard for Total Organic Compounds (TOC). Further, as also shown in the table below, for the seven soil samples with TPHC detections exceeding 1,000 ppm, VOC were only detected at six of the boring locations, and none of the VOC exceeded the respective RDCSCC. Because VOC were not detected above RDCSCC at those locations where TPHC concentrations were elevated, neither the TPHC nor the VOC are identified as COC.

Sample Location	Sample Depth (ft)	TPHC Concentration (mg/Kg)	VOC Detections (mg/Kg)	NJDEP RDCSCC (mg/Kg)
B61	2.5 - 3	1,356.52	2-Butanone – 5.8 mg/Kg Chloroform – 0.65 mg/Kg Methylene Chloride – 0.32 mg/Kg	1000 19 49
B64	2.5 - 3	1,194.58	2-Butanone - 5.0 mg/Kg	1000
B71	1 – 1.5	7,099.8	No VOC Detections	-
B106	3 –3.5	2,221.44	2-Butanone – 5.1 mg/Kg	1000
B136	4.5 - 5	1,042.12	2-Butanone – 1.8 mg/Kg Acetone – 4.2 mg/Kg Chloroform – 0.41 mg/Kg	1000 1000 10
B138	4.5 - 5	1,905.14	2-Butanone – 1.3 mg/Kg Chloroform – 0.44 mg/Kg	1000 19
B144	4.5 - 5	2,377.56	2-Butanone – 1.6 mg/Kg Chloroform – 0.46 mg/Kg	1000 19

The detections above the analytical MDL from the GeoProbe® soils investigation for TPHC are shown on **Figure 6a,** for VOC on **Figure 7a,** for SVOC on **Figure 8,** and for metals on **Figure 9.** In addition, the detections above the respective RDCSCC have been "boxed" in "red" on **Figures 6 through 9**. The results of the expanded soils investigation also failed to identify a distinct source area or potential contaminants of concern (COC) at Site 812. The findings of the GeoProbe® soils investigation were evaluated in concert with the GeoProbe® groundwater investigation to direct the placement of groundwater monitoring wells at Site 812.

3.2.1.2 Groundwater

As previously discussed, the SI was initiated in September 1999 with the installation of soil borings B-1 through B-5 to evaluate the observed locations of previous site structures/areas of disturbance (see **Figure 2a**). Groundwater samples (aqueous samples) were collected as grab samples from borings B-4 and B-5 and analyzed for VOC, MTBE and MTBA, and lead. The sampling depths and analytical results for analytes with detections above the respective MDL are presented in **Table 2.** The analytical results for each sample detected above the respective NJDEP GWQC have then been **bolded** in **Table 2**. The analytical data packages are provided in **Appendix G** (under separate cover).

Two VOC were detected at Boring B-4, ethylbenzene and total xylenes. Ethylbenzene was detected at 1.29 micrograms per Liter (ug/L), which is below the GWQC of 700 ug/L. Total xylenes were detected at 4.23 ug/L, which is below the GWQC for total xylenes of 40 ug/L. Thirteen VOC were detected at Boring B-5 as shown in the table below:

Summary of VOC detections at Boring B-5

Detected VOC	NJDEP GWQC (ug/L)	Boring B-5 September 1999 (ug/L)	Boring B-5 December 1999 (ug/L)
1,1-Dichloroethene	2	**7.78**	**6.6**
2-Butanone	300	ND	9.04
4-Methyl-2-Pentanone	400	ND	15.23
Acetone	700	3.26	18.82
Benzene	1	**12.07**	**10.13**
Carbon Disulfide	NLE	2.95	6.13
cis-1,2-Dichloroethene	10	**15,879.47 D**	**7,789.06 D**
Ethylbenzene	700	73.64	77.9
tert-Butyl alcohol	NLE	74.67	66.36
Tetrachloroethene (PCE)	1	**2.74**	**1.57**
Toluene	1000	34.42	34.38
trans-1,2-Dichloroethene	100	**1,692.34 D**	**854.77 D**
Trichloroethene (TCE),	1	**4.98**	**2.57**
Vinyl Chloride	5	**98.13**	**90.27 D**
Xylenes(Total)	40	**92.33**	**238.23 D**

ND – Not detected.
NLE – No GWQC exists for this analyte.
D – Analytical value from sample dilution.
Exceedences of the GWQC are printed in **bold-faced** type.

The detections during the SI for 1,1-dichloroethene, benzene, cis-1,2-dichloroethene, PCE, trans-1,2-dichloroethene, trichloroethene (TCE), VC, and total xylenes also exceeded the respective GWQC. Additionally, lead was detected in Boring B-4 at 20.4 ug/L and in Boring B-5 at 160.2 ug/L, with both detections exceeding the GWQC for lead of 10 ug/L.

The expanded SI was then conducted at the Boring B-5 location to more completely evaluate this location by depth. A second boring (also designated Boring B-5) was installed on 9 December 1999 and a groundwater grab sample was taken from this boring at a depth of 7-12 ft bgs and analyzed for VOC, SVOC, pesticides/PCBs and metals. As shown in the table above, 15 VOC were detected during the December sampling event. Furthermore, the detections during the December sampling event for 1,1-dichloroethene, benzene, cis-1,2-dichloroethene, PCE, trans-1,2-dichloroethene, TCE, VC and xylenes (total) again exceeded the respective GWQC.

Two SVOC were detected during the expanded SI at Boring B-5. Diethyl phthalate and 4-methyl phenol were detected at 13.25 ug/L and 28.13 ug/L, respectively. The detection for diethyl phthalate was below the GWQC of 5000 ug/L. 4-Methyl phenol does not have a GWQC. However, the NJDEP Ground Water Quality Standards (NJAC 7:9-6, Table 2 – Interim Generic Ground Water Quality Criteria) state that interim criteria may be derived for any constituent, in accordance with specific methodologies and using a risk assessment approach. The NJDEP Interim Generic Criteria for Synthetic Organic Chemicals (SOC) lacking evidence of carcinogenicity and lacking specific or interim specific criteria are to be compared against a generic criteria of 100 ug/l (SOCs are identified as having "evidence of carcinogenicity" or "lacking evidence of carcinogenicity" based upon available scienctific evidence.). The detection for 4-methyl phenol (which lacks evidence of carcinogenicity) did not exceed the Interim Generic Criteria for SOCs of 100 ug/l.

There were no detections for pesticides/PCBs during the expanded SI at Boring B-5

Twenty-one metals were detected during the expanded SI at Boring B-5. Aluminum was detected at 10,400 ug/L, which exceeded the GWQC of 200 ug/L. Antimony was detected at 10.6 ug/L, below the GWQC of 20 ug/L. Arsenic was detected at 12.1 ug/L, which exceeded the GWQC of 8 ug/L. Barium was detected at 107 ug/L, below the GWQC of 2000 ug/L. Cadmium was detected at 5.45 ug/L, which exceeded the GWQC of 4 ug/L. Calcium was detected at 546,000 ug/L, there is no GWQC for calcium. Chromium was detected at 100 ug/L, which equals the GWQC of 100 ug/L. Cobalt was detected at 4.84 ug/L, there is no GWQC for cobalt. Copper was detected at 86.5 ug/L, below the GWQC of 1,000 ug/L. Iron was detected at 21,000 ug/L, which exceeded the GWQC of 300 ug/L. Lead was detected at 289 ug/L, which exceeded the GWQC of 10 ug/L. Magnesium was detected at 60,800 ug/L, there is no GWQC for magnesium. Manganese was detected at 213 ug/L, which exceeded the GWQC of 50 ug/L. Mercury was detected at 0.46 ug/L, which is below the GWQC of 2 ug/L. Nickel was detected at 17.8 ug/L, below the GWQC of 100 ug/L. Potassium was detected at 75,900 ug/L, there is no GWQC for potassium. Selenium was detected at 22.8 ug/L, below the GWQC of 50 ug/L. Silver was detected at 5.46 ug/L, below the GWQC of 20 ug/L. Sodium was detected at 264,000 ug/L, which exceeded the GWQC of 50,000 ug/L. Vanadium was detected at 45.6 ug/L, there is no GWQC for vanadium. Zinc was detected at 428 ug/L, below the GWQC of 5,000 ug/L.

Based on the results of the SI and the expanded SI, the Boring B-5 location was identified as a potential source area for VOC and metals groundwater contamination requiring further evaluation in the planned groundwater monitoring well program at Site 812.

Groundwater samples were then collected as part of the RI starting in December 1999. Groundwater grab samples were collected from 163 soil boring locations within the expanded sampling grid at varying depths and analyzed for VOC.

Fifteen VOC were detected in the groundwater samples collected during the RI: 1,1,1-trichloroethane, 1,1-dichloroethane, 1,1-dichloroethene, 2-butanone, 2-hexanone, acetone, benzene, bromoform, chloroform, ethylbenzene, methylene chloride, MTBE, toluene, trichlorofluoromethane, and xylenes (total).

1,1,1-Tichloroethane was detected at three boring locations ranging from 4.69 ug/L to 84.32 ug/L, with the detection at 84.32 ug/l exceeding the GWQC of 30 ug/L. 1,1-Dichloroethane was detected at one boring location at 13.13 ug/L, below the GWQC of 70 ug/L. 1,1-Dichloroethene was detected at one boring location at 1.85 ug/L, below the GWQC of 2 ug/L. 2-Butanone was detected at five boring locations ranging from 1.62 ug/L to 14.46 ug/L, below the GWQC of 300 ug/L. 2-Hexanone was detected at one boring location at 2.42ug/L, there is no GWQC for 2-hexanone. Acetone was detected at 28 boring locations ranging from 2 ug/L to 22.59 ug/L, below the GWQC of 700 ug/L. Benzene was detected at three boring locations ranging from 1.06 ug/L to 4.04 ug/L, with all three of the detections exceeding the GWQC of 1 ug/L. Bromoform was detected at three boring locations ranging from 3.49 ug/L to 7.58 ug/L, with two of the detections at 5.6 ug/L and 7.58 ug/L exceeding the GWQC of 4 ug/L. Chloroform was detected at three boring locations ranging from 1.35 ug/L to 3.05 ug/L, below the GWQC of 6 ug/L. Ethylbenzene was detected at five boring locations ranging from 1.2 ug/L to 21.07 ug/L, below the GWQC of 700 ug/L. Methylene chloride was detected at one boring location at 20.95 ug/L, which exceeded the GWQC of 2 ug/L. MTBE was detected at five boring locations ranging from 1.56 g/L to 5.78 ug/L, below the GWQC of 70 ug/L. Toluene was detected at three boring locations ranging from 1.31 ug/L to 6.13 ug/L, below the GWQC of 1000 ug/L. Trichlorofluoromethane was detected at four boring locations ranging from 1.36 ug/L to 7.86ug/L, there is currently no GWQC for trichlorofluoromethane. Xylenes (total) were detected at three boring locations ranging from 1.59 ug/L to 7.64 ug/L. The GWQC for total xylenes is 40 ug/L.

In summary, four VOC were detected at concentrations above their respective GWQC at seven boring locations. The table below lists the four VOC, the boring locations, sample depths, the exceedences and the respective GWQC.

Sample Location	Sample Depth (ft)	VOC Parameter	Exceedence (µg/L)	GWQC (µg/L)
B8	8 - 13	1,1,1-Trichloroethane	84.32	30
B19	11 - 16	Methylene Chloride	20.95	2
B41	8 - 12	Benzene	4.04	1
B62	7 – 12.5	Benzene	2.0	1
B63	7 – 12.5	Benzene	1.06	1
B148	5 - 10	Bromoform	5.6	4
B149	5 - 10	Bromoform	7.58	4

Note: D – Analytical value from sample dilution.
µg/l – micrograms/liter

In addition to the Boring B-5 location, VOC groundwater contamination was further evaluated in the groundwater monitoring well program at Site 812

3.2.2 Groundwater Monitoring Wells

3.2.2.1 Groundwater Monitoring Well Installation

To evaluate the groundwater conditions at Site 812, fourteen (14) groundwater monitoring wells designated as MW-1 through MW-14 were installed during April and May 2000. The well locations are shown on **Figure 10** and were selected based on the results of the GeoProbe® soil and groundwater investigation, and site history.

Monitoring wells MW-1, MW-2 and MW-3 were installed as deep wells ranging in depth from 50 ft to 52 ft bgs. Monitoring wells MW-4 through MW-14 were then installed as shallow wells ranging in depth from 7 ft to 19 ft bgs. MW-1 and MW-4 (one deep and one shallow well) were placed in close proximity to Boring Location B-5. The Boring B-5 location was identified during the GeoProbe® groundwater investigation as a potential source area for VOC and metals groundwater contamination requiring further evaluation. The remaining wells were placed to represent other areas of VOC detection identified during the GeoProbe® groundwater investigation.

The monitoring wells are constructed of 4-inch ID, Schedule 40 PVC well screens and casings. The well screens range from 5 ft to 20 ft in length with No. 10 slots (0.010 inch). **Table 4** provides specifications for the groundwater monitoring wells.

The monitoring wells were installed in accordance with the *Monitor Well Requirements for Unconsolidated Aquifers* (NJDEP Field Sampling Procedures Manual). The well logs and construction details are provided in **Appendix C**. After completion of the monitoring wells, casing elevations and horizontal locations were determined by a New Jersey-licensed surveyor. The survey information is presented on the Well Certification Forms and Form B's provided in **Appendix C**.

Based on the drilling logs, Site 812 is underlain by two distinct stratigraphic units. The uppermost unit is generally a sand and gravel material with trace amounts of silt. This unit is approximately 25 ft in thickness. This unit is underlain by a gradational uniform silt layer, the thickness of which exceeded the depth of the RI efforts. Fill material consisting of bricks, wood debris, and concrete were identified in the area of boring B-5, MW-1, and MW-4. This fill material is approximately seven ft deep and begins at grade. A geologic cross section of Site 812 is presented in **Figure 11.**

Regional groundwater flow directions are generally southeastward in both shallow and deep water bearing units.

Locally, in the Tinton Sand unit and Red Bank Sand unit the groundwater flow is in the northwesterly direction. Grassy, precipitation-recharge zones extend east, south and southeast of Building 812, while north, west and northwest of Building 812 the ground surface is entirely covered by parking lots and other buildings. The lack of recharge creates a depression in the water table beneath the covered areas and consequently the groundwater is diverted in a northwesterly direction, toward Husky Brook, the natural local discharge area.

3.2.2.2 Groundwater Results

This section presents the laboratory analyses performed on the groundwater samples and the quantitative results. A qualitative evaluation of the results is provided in Section 3.3.

Two rounds of groundwater sampling (May and June 2000) were collected from the fourteen newly installed monitoring wells. During each sampling event, groundwater depth measurements were recorded and groundwater elevations were calculated to determine apparent groundwater flow direction (see **Figures 10 and 11**). **Table 4** presents this data in tabular format. Based on these data, it was determined that groundwater flows in a northerly direction.

Groundwater samples (collected from MW-1 through MW-14) were analyzed for VOC, SVOC, pesticides/PCB, and metals during each of two sampling events (May and June 2000). Results of these analyses are presented on **Table 3** and are discussed below.

Volatile Organic Compounds

A total of 19 VOC were detected in five monitoring wells (MW-04, MW-05, MW-07, and MW-

09) at Site 812 during the May and June 2000 sampling events. A summary of the detections by VOC is provided below.

Carbon disulfide was detected at MW-04 during both sampling events at 20.25 ug/L and 8.43 ug/l, respectively, and at MW-08 during the May sampling event at 1.79 ug/L. There is no established GWQC for carbon disulfide.

Chloroform was detected at MW-08 during both sampling events at 3.0 ug/L and 1.32 ug/L, respectively, and at MW-09 during the May sampling event at 1.55 ug/L. The three detections for chloroform are all below the respective GWQC of 6 ug/L

1,1-Dichloroethane was detected at two monitoring wells; MW-05 during the June sampling event at 3.64 ug/L, and MW-07 during the May sampling event at 3.62 ug/L. Both of these detections are below the respective GWQC of 70 ug/L.

1,1,1-Trichloroethane (TCA) was detected during both sampling events at two monitoring wells; MW-05 at 10.09 ug/L and 43.71 ug/L, and MW-07 at 41.84 ug/L and 6.36 ug/L. The June detection at MW-05 (43.71 ug/L) and the May detection at MW-07 (41.84 ug/L) both exceeded the GWQC for TCA of 30 ug/L.

A total of 16 VOC were detected at MW-04 during both sampling events: 1,1-dichloroethene, acetone, carbon disulfide, cis-1,2-dichloroethene, trans-1,2-dichloroethene, 2-butanone, benzene, trichloroethene, 4-methyl-2-pentanone, toluene, tetrachloroethene, 2-hexanone, ethylbenzene, m+p-xylenes, and o-xylene and vinyl chloride (VC). Carbon disulfide (addressed previously), 2-hexanone, m+p-xylenes, and o-xylene do not have established GWQC. However, a GWQC of 40 ug/L does exist for Total Xylenes (i.e., the sum of o+m+p-xylenes).

Seven of the 16 VOC were detected above their respective GWQC during both sampling events and the cumulative results of m+p-xylenes, and o-xylene exceeded the GWQC during both sampling events (see the table below).

Monitoring Well MW-4 VOC detected above GWQC	**May 2000 Result (µg/L)**	**June 2000 Result (µg/L)**	**NJDEP GWQC (µg/L)**
1,1-dichloroethene	6.51	8.11	2
Cis-1,2-dichloroethene	10,397.69D[1]	10,436.18 D[1]	10
Trans-1,2-dichloroethene	615.87 D[1]	450.06 D[1]	100
Benzene	8.84	9.99	1
Trichloroethene	5.25	4.7	1
Tetrachloroethene	2.35	2.64	1
Vinyl Chloride	126.45 D[1]	147.57 D[1]	5
Total Xylenes [2]	556.55	657.18	40

Note (1): D – Analytical value from sample dilution.
Note (2): GWQC do not exist separately for m+p-xylenes and o-xylene.

Given the exceedences of the respective GWQC during both sampling events at MW-04, MW-05, and MW-07, the following seven VOC and total xylenes are identified as COC at Site 812:

1,1,1-trichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, benzene, trichloroethene, tetrachloroethene, and VC. **Figure 10** shows the detections from the groundwater monitoring program at Site 812 for the identified COC. The analytical results for each sample detected above the respective GWQC have then been highlighted on **Figure 10.**

Semi-Volatile Organic Compounds

SVOC were detected in four monitoring wells (MW-03, MW-04, MW-10, and MW-12) and only during the June 2000 sampling event at Site 812. At MW-03, butylbenzylphthalate was detected at 3.47 ug/L, which is below the respective GWQC of 100 ug/L. At MW-04, five SVOC were detected. Phenol was detected at 38.32 ug/L, which is below the respective GWQC of 4000 ug/L. In addition, 2-methylphenol was detected at 13.13 ug/L, 4-methylphenol was detected at 43.05 ug/L, naphthalene was detected at 38.76 ug/L, and 2-methylnaphthalene was detected at 19.13 ug/L. There is currently no established GWQC for 2-methylphenol, 4-methylphenol, naphthalene, and 2-methylnaphthalene. Bis(2-Ethylhexyl)phthalate was detected at MW-10 and MW-12 at 3.08 ug/L and 12.01 ug/L, respectively. Both detections are below the respective GWQC of 30 ug/L.

There are no SVOC identified as COC at Site 812.

Pesticides/PCB

There were no pesticides or PCB detected during either sampling event at any of the groundwater monitoring wells. Therefore, pesticides and PCB are not COC at Site 812.

Metals

Twenty-two (22) metals were detected during the two groundwater sampling rounds performed at Site 812 (May 2000 and June 2000). Of the 22 metals detected, seven metals (antimony, calcium, cobalt, magnesium, potassium, thallium, and vanadium) were measured at concentrations below their respective NJDEP GWQC or no GWQC exists for the specified metal. The 15 remaining metals detected during the sampling events (aluminum, arsenic, barium, beryllium, cadmium, chromium, copper, iron, lead, manganese, mercury, nickel, selenium, sodium, and zinc) were detected above their respective NJDEP GWQC. As presented in the SI Report (WESTON, 1995), several natural and anthropogenic factors contribute to the wide range in concentrations of metals in soils, which further impact the concentration of metals in groundwater. Soils derived from the glauconitic sands contain abundant aluminum, calcium, potassium, iron, magnesium, and manganese (among others), which are likely to be present at elevated concentrations in the groundwater, particularly when sediments are entrained in the collected groundwater samples. A low flow sampling methodology was proposed for use by the DPW and accepted by the NJDEP to assess the impact of entrained sediments on the dissolved phase metals concentrations at the site. Using a low flow sampling methodology to reduce the presence of entrained sediment yielded substantial reductions in the dissolved phase concentrations of metals, particularly for the constituents regarded as "non-native" (i.e., arsenic, antimony, beryllium, cadmium, chromium, cobalt, lead, mercury, selenium, silver, thallium, vanadium). Significant decreases in the concentrations of naturally occurring metals also were observed, including aluminum, barium, calcium, copper, iron, magnesium, manganese, nickel, potassium, sodium, and zinc. However, the native metal constituents (i.e., those indigenous to the soil types present at Fort Monmouth) were consistently present in the groundwater, even when the low-flow sampling methodology was employed.

The metals that were detected at concentrations exceeding the New Jersey GWQC are distinguished below into background and non-native metals. The indigenous metals are compared to the Main Post Maximum Background Concentrations (MBC), presented below. The non-native metals are discussed in relation to the New Jersey GWQC only.

Fort Monmouth Main Post – Maximum Background Concentrations (MBC) for Native Metals

Metals (Total)	**Fort Monmouth – Main Post Maximum Background Concentrations (ug/L)**
Aluminum	121,000
Antimony	20.7
Barium	699
Beryllium	2.1
Calcium	45,400
Cobalt	18.3
Copper	65.6
Iron	431,000
Magnesium	62,700
Manganese	331
Nickel	187
Potassium	137,000
Sodium	21,500
Thallium	5.5
Vanadium	108
Zinc	233

Source: Table 4.1-6, WESTON, 1995

Of the 15 metals detected that exceeded the NJDEP GWQC, nine metals (aluminum, barium, beryllium, copper, iron, manganese, nickel, sodium, and zinc) are common background constituents in Monmouth County and the Main Post area soils. For these native metals, the groundwater analytical results are compared to the respective MBC. There were six non-native metals that exceeded the NJDEP GWQC (arsenic, cadmium, chromium, lead, mercury, and selenium). The analytical results for each of these 15 metals are discussed below.

Background Metals:

Aluminum was detected in each of the 28 monitoring well samples (two sampling events at each of the 14 monitoring wells) at concentrations above the NJDEP GWQC of 200 ug/L. Aluminum was detected in one of the 28 samples at a concentration above the MBC of 121,000 ug/L. In May 2000, aluminum was detected in MW-4 at a concentration of 408,000 ug/L. Based upon this single exceedence of the MBC, aluminum is not identified as a COC.

Barium was detected in one of the 28 monitoring well samples at a concentration above both the NJDEP GWQC of 2,000 ug/L and the MBC of 699 ug/L. In May 2000, barium was detected in MW-4 at a concentration of 4,250 ug/L. Based upon this single exceedence of the GWQC and the MBC, barium is not identified as a COC.

Beryllium was detected in two of the samples collected from monitoring well MW-4 at concentrations above the NJDEP GWQC of 20 ug/L and the MBC of 2.1 ug/L. In May and June 2000, beryllium was detected at well MW-4 at concentrations of 46.7 and 6.02 ug/L, respectively. Based upon the single exceedence of the GWQC, and the MBC, beryllium is not identified as a COC.

Copper was detected in one of the 28 monitoring well samples at a concentration above both the NJDEP GWQC of 1,000 ug/L and the MBC of 65.6 ug/L. In May 2000, copper was detected in MW-4 at a concentration of 1,670 ug/L. Based upon this single exceedence of the GWQC and the MBC, copper is not identified as a COC.

Iron was detected in each of the 28 monitoring well samples (two sampling events at each of the 14 monitoring wells) at concentrations above the NJDEP GWQC of 300 ug/L. Iron was detected in one of the 28 samples at a concentration greater than the MBC of 431,000 ug/L. In May 2000, iron was detected in MW-4 at a concentration of 1,360,000 ug/L. Based upon this single exceedence of the MBC, iron is not identified as a COC.

Manganese was detected in 22 of the 28 monitoring well samples at concentrations above the NJDEP GWQC of 50 ug/L. In six of the 28 samples (two samples each from MW-4, MW-9 and MW-10), manganese was detected at the following concentrations above the MBC of 331 ug/L:

- In May and June 2000, manganese was detected in MW-4 at concentrations of 4,510 and 590 ug/L, respectively, exceeding both the GWQC and the MBC.
- In May and June 2000, manganese was detected in MW-9 at concentrations of 772 and 698 ug/L, respectively, exceeding both the GWQC and the MBC.
- In May and June 2000, manganese was detected in MW-10 at concentrations of 470 and 499 ug/L, respectively, exceeding both the GWQC and the MBC.

Based upon the magnitude of the exceedences and the low frequency of occurrences of manganese in groundwater at the site, manganese is not identified as a COC.

Nickel was detected in one of the 28 monitoring well samples at a concentration above both the NJDEP GWQC of 100 ug/L and the MBC of 187 ug/L. In May 2000, nickel was detected in MW-4 at a concentration of 495 ug/L. Based upon this single exceedence of the GWQC and the MBC, nickel is not identified as a COC.

Sodium was detected in 11 monitoring well samples (two samples each from MW-4, MW-5, MW-7, MW-8, MW-14, and one sample from MW-10) at concentrations above the NJDEP GWQC of 50,000 ug/L and the MBC of 21,500 ug/L, as follows:

- In May and June 2000, sodium was detected in MW-4 at concentrations of 225,000 and 185,000 ug/L, respectively, exceeding both the GWQC and the MBC.
- In May and June 2000, sodium was detected in MW-5 at concentrations of 61,800 and 85,200 ug/L, respectively, exceeding both the GWQC and the MBC.
- In May and June 2000, sodium was detected in MW-7 at concentrations of 85,500 and 64,100 ug/L, respectively, exceeding both the GWQC and the MBC.

- In June 2000, sodium was detected in MW-10 at a concentration of 52,800 ug/L, exceeding both the GWQC and the MBC.
- In May and June 2000, sodium was detected in MW-14 at concentrations of 77,10 and 71,100 ug/L, respectively, exceeding both the GWQC and the MBC.

Based upon the magnitude of the exceedences and the frequency of occurrences of sodium in groundwater at the site, as well as the high potential for saltwater/tidal influences on water quality, sodium is not identified as a COC.

Zinc was detected in one of the 28 monitoring well samples at a concentration above both the NJDEP GWQC of 5,000 ug/L and the MBC of 223 ug/L. In May 2000, zinc was detected in MW-4 at a concentration of 27,000 ug/L. Based upon this single exceedence of the GWQC and the MBC, zinc is not identified as a COC.

Non-Native Metals:

Arsenic was detected above the NJDEP GWQC of 8 ug/L in the following three monitoring well samples collected from two distinct monitoring wells:

- In May 2000, arsenic was detected in MW-1 at a concentration of 9.26 ug/L.
- In May and June 2000, arsenic was detected in MW-4 at concentrations of 546 and 88.4 ug/L, respectively.

Cadmium was detected in two samples collected from monitoring well MW-4 at concentrations above the NJDEP GWQC of 4 ug/L:

- In May and June 2000, cadmium was detected at concentrations of 145 and 18.6 ug/L, respectively.

Chromium was detected in two samples collected from monitoring well MW-4 at concentrations above the NJDEP GWQC of 100 ug/L.

- In May and June 2000, chromium was detected in MW-4 at concentrations of 3,250 and 454 ug/L, respectively.

Lead was detected in nine of the 28 monitoring well samples at concentrations above the NJDEP GWQC of 10 ug/L:

- In May 2000, lead was detected in MW-1 at a concentration of 11.1 ug/L.
- In May 2000, lead was detected in MW-3 at a concentration of 25.7 ug/L.
- In May and June 2000, lead was detected in MW-4 at concentrations of 17,600 and 2,400 ug/L, respectively.
- In May 2000, lead was detected in MW-9 at a concentration of 12.7 ug/L.
- In June 2000, lead was detected in MW-12 at a concentration of 60.8 ug/L.
- In June 2000, lead was detected in MW-13 at a concentration of 14.4 ug/L.

Mercury was detected in one of the 28 monitoring well samples at a concentration exceeding the NJDEP GWQC of 2 ug/L:

- In May 2000, mercury was detected in MW-4 at a concentrations of 3.8 ug/L.

Selenium was detected in one of the 28 monitoring well samples at a concentration exceeding the NJDEP GWQC of 50 ug/l:

- In May 2000, selenium was detected in MW-4 at a concentration of 75.1 ug/L.

During evaluation of Quarterly Groundwater Monitoring Program results performed at other locations at Fort Monmouth, the DPW has attempted to determine if the detected metal concentrations observed in the groundwater samples are a function of contaminated sediments entrained in the monitoring well during the course of well purging and sampling activities, or an accurate representation of aquifer/groundwater conditions. The DPW proposed to sample various wells throughout the Main Post area using a low flow sampling technique. The proposal was accepted by the NJDEP, and the DPW performed low flow sampling at several other sites within the Main Post area. The results of the low flow sampling have shown that the reported metal concentrations are most likely attributable to sediment entrained in the samples during the sampling event, and are not representative of actual groundwater conditions. This result is particularly true for the metals regarded as uncharacteristic (i.e., non-native) of the site soils (arsenic, antimony, beryllium, cadmium, chromium, cobalt, lead, mercury, selenium, silver, thallium, vanadium). Significant reductions in the concentrations of metals also have been observed for many of the more commonly occurring soil constituents, such as aluminum, barium, calcium, copper, iron, magnesium, manganese, nickel, potassium, sodium, and zinc. However, the more common constituents are consistently observed in groundwater, even when the low-flow sampling methodology is used. The DPW expects that similar results will prevail at Site 812, and will begin using the low-flow sampling approach to substantiate the assumption that the detected metals are not contaminants at Site 812. A long-term groundwater monitoring program encompassing low flow sampling will be included as part of the remedial action program for the site, which will allow the DPW to prove this assertion. In addition, lead results for two subsequent Quarterly sampling events (September and December 1999) at MW-4 were as follows: 36.3 ug/L and 38.6 ug/L. While these results still exceed the respective GWQC of 10 ug/L, they represent successive detections that are an order-of-magnitude lower than the first two Quarterly results for lead at MW-4, and suggest that the low-flow sampling methodology may eliminate lead as a potential COC in groundwater at MW-4.

Based on the magnitude of the exceedences, the frequency of occurrences, and the wide-ranging results for the non-native metals, no single metal constituent is identified as a COC at Site 812. Furthermore, the proposed long-term groundwater monitoring program will recommend the use of low-flow sampling to ensure that the detected metals are not contaminants. Therefore, arsenic, cadmium, chromium, lead, mercury and selenium are not given further consideration in this RIR/RAW.

3.2.3 Hydraulic Conductivity Testing

Rising-head aquifer hydraulic conductivity tests (slug tests) were conducted in wells MW-2,

MW-3, MW-5, MW-8, and MW-12 on May 19, 2000. Each test was conducted by inserting a bailer of known volume into the well and then quickly withdrawing the bailer while monitoring the dynamic water level. The test was continued until the water level recovered to at least 80 percent of the initial static level. The water level was monitored using an electronic data recorder linked to pressure transducer.
Water-level data from slug tests were analyzed by two methods: (1) the method developed by Bouwer (Bouwer and Rice, 1976; Bouwer, 1989); and (2) the Hvorslev method (Hvorslev, 1951). The equations used for these methods, the input parameters used for each test, and graphs of the data are presented in **Appendix D**. The two methods yielded comparable results, discussed in the following paragraphs.

3.2.3.1 Shallow Wells (MW-5, MW-8, and MW-12)

Using the Bouwer and Rice method, hydraulic conductivity was determined to range from 8.34E-04 centimeters per second (cm/sec) to 2.28E-03 cm/sec (2.36 to 6.46 ft per day (ft/d)), with an arithmetic mean of 1.50E-03 cm/sec (4.25 ft/d). Using the Hvorslev method, it was found to range from 7.52E-04 cm/sec to 2.82E-03 cm/sec (2.13 to 7.99 ft/d), with an arithmetic mean of 1.63E-03 cm/sec (4.62 ft/d). The average hydraulic conductivity for shallow wells is 1.56E-03 cm/sec (4.42 ft day). These values are consistent with the hydrogeologic conditions encountered at the Site.

3.2.3.2 Deep Wells (MW-2 and MW-3)

Using the Bouwer and Rice method, hydraulic conductivity was found to range from 2.49E-04 cm/sec to 2.74E-04 cm/sec (0.71 to 0.78 ft/d), with an arithmetic mean of 2.63-04 cm/sec (0.75 ft/d). Using the Hvorslev method, it was found to range from 2.75E-04 cm/sec to 3.36E-04 cm/sec (0.78 to 0.95 ft/d), with an arithmetic mean of 3.05E-04 cm/sec (0.86 ft/d).

The average hydraulic conductivity for deep wells is 2.84E-04 cm/sec (0.81 ft/day). Again, these values are consistent with the hydrogeologic conditions encountered at Site 812.]

3.2.4 Sensitive Receptors & Well Search Summary

Searches were performed using various databases and historical information to identify sensitive receptors and groundwater wells that may be potentially affected by soil and groundwater conditions at Site 812. Groundwater quality data from the monitoring wells at the Site indicate that organic compounds and metals were detected in concentrations above the New Jersey GWQC. Based on hydrogeologic principles, groundwater flow could result in the migration of contaminants to potential downgradient receptors.

An Offsite Receptor Report (dated 27 June 2000) was prepared for Site 812 by Environmental Data Resources, Inc. (EDR). In addition, a search of the comprehensive well database maintained by the NJDEP – Well Permitting and Regulations Section of the Bureau of Water

Allocation was performed. The search was performed for a one mile radius surrounding the center point of Site 812. A copy of the sensitive receptor survey is provided in **Appendix E** and a copy of the Well Search Summary is provided in **Appendix F**.

The results of the well search summary identified 228 database records within a one-mile radius of Site 812, and include the following relevant wells:

- Monitoring Wells: 159 monitoring wells were identified within one mile of Site 812. The well depths ranged from 4 to 50 ft.
- Domestic Wells: 32 total domestic wells were identified within one mile of Site 812. The well depths ranged from 46 to 350 ft.
- Irrigation Wells – 8 irrigation wells were identified within one mile of Site 812. The wells ranged from 20 – 200 ft.
- Public Supply Wells – No public supply, public non-community, or non-public [supply] wells were identified within one mile of Site 812.

Regarding potential human and ecological receptors, the most proximate sensitive receptor is Husky Brook which flows north of Site 812. The database search results indicate that two schools (Steelman School and Meadowbrook Elementary School) are located within one-mile south-southeast of Site 812. These schools are not receptors for the groundwater migration pathway because groundwater use has not been documented and the schools are located opposite the direction of natural groundwater flow.

In the case of Site 812, potential receptors are not expected to be impacted because of the following:

1. Site 812 is located on an Army-controlled installation that restricts access to the site. The majority of the site is paved. No surface water bodies (i.e., creeks, ponds, wetlands, etc.) traverse Site 812.
2. Based upon the findings of the well search, no public supply, public non-community, or non- public [supply] wells are identified within one mile of Site 812. Further, there are no domestic, irrigation, industrial, or supply wells existing within the boundaries of Site 812, nor will any be installed in the future. Since no groundwater use is occurring or is anticipated to occur, the groundwater beneath the Site 812 is not considered to be a potential receptor pathway.
3. There are no expected concerns regarding direct human exposure to impacted soils. The majority of the Site is paved. No VOC were detected in soil above the RDCSCC and the relatively low concentrations of dissolved phase VOC and the absence of free product suggest that accumulation and migration of hazardous vapors is highly unlikely. The current institutional controls will be maintained to limit direct contact with the Site.

3.3 SUMMARY AND DISCUSION (SITE CONCEPTUAL MODEL)

3.3.1 Hydrogeologic Characteristics

Based on the subsurface investigation program, the Site is underlain by two distinct stratigraphic units. The uppermost unit is generally a sand and gravel material with trace amounts of silt.

This unit is approximately 25 ft thick, and is underlain by a gradational uniform silt layer, the thickness of which exceeded the depth of our exploration. Fill material consisting of bricks, wood debris, and concrete was identified in the area of boring B-5, MW-1, and MW-4. This fill material is approximately seven ft deep and begins at grade. A geologic cross-section is presented in **Figure 11.**

Water level measurements collected in May and June of 2000 (see **Figures 12 and 13**) suggest that groundwater flows to the north. Depth to water from the ground surface ranges from 4.11 ft bgs to 11.03 ft bgs. Anomalies in the water level data were noted for wells MW-4, MW-5, and MW-7. These anomalies are likely the result of fill material, underground utilities, or well construction that have altered the static water level in the proximity of these wells. This is evident in MW-4, which is screened in fill material and exhibits a perched water condition within the fill (see **Figure 11**). This results in a questionable high water level elevation. A large portion of the Site is paved, thereby diminishing infiltration and percolation of precipitation and surface runoff. However, there are landscaped areas on the Site that allow precipitation to infiltrate. This is evident over the fill material proximate to the locations of MW-1, MW-4, and boring B-5. Precipitation would likely maintain the perched water table condition.

Based on the water level measurements in the deep wells (MW-1, MW-2, and MW-3) when compared to the adjacent shallow wells, there appears to be a single water-bearing zone, although the lower reaches of the unconfined aquifer may have a reduced permeability based on the hydraulic conductivity tests. In general, the hydraulic conductivities (K) of the deeper wells (MW-2 and MW-3) were less than the shallow wells (MW-8 and MW-12). Note that MW-5 has anomalous water level data (possibly due to the fill material). It is not representative of the shallow zone conductivity and, subsequently, was not used for comparison.

Based on the proximity of the Site to tidal estuaries, the Site is likely minimally influenced by tidal fluctuations; however, a quantitative evaluation was not conducted as part of this study.

3.3.2 Contaminant Distribution

Soil

No VOC were detected in soil above the RDCSCC standard. Therefore, it is unlikely that a significant source area of contamination exists on the Site. The existence of free product (NAPL) is unlikely and was not discovered during any investigation activities.

No SVOC were detected above the respective RDCSCC in the soil samples collected from B-5.

TPHC contamination was identified at seven locations (B-61, B-64, B-71, B-106, B-136, B-138, and B-144). The concentration of the contamination ranged from 1,042.12 mg/Kg to 7,099.80 mg/Kg and occurred in the uppermost 1 to 5 ft of soil. No associated VOC concentrations were identified at these locations suggesting that the TPHC contaminants are likely the result of heavier hydrocarbons such as oil and grease, fuel oil, diesel fuel, or similar petroleum compounds. The distribution of TPHC contamination in the soil suggests isolated areas of impact. Several areas of TPHC contamination exist proximate to the Site of the apparent historic fuel station (MW-61, MW-71, and MW-106), suggesting that past operations near this area could be the source of the TPHC contamination. However, none of the TPHC concentrations encountered at the Site exceeded the 10,000 mg/Kg standard for TOC, and as a result, TPHC is not identified as a COC.

During the SI, lead was detected at Boring B-5 at 601.75 mg/Kg which exceeds the respective RDCSCC of 400 mg/Kg by less than one order of magnitude. TAL metals (which includes lead) were then analyzed at the Boring B-5 location during the expanded SI and no detections above the respective RDCSCC were reported. Metals were then not included in the RI and are not considered a COC.

Groundwater

The results of the SI and the expanded SI identified the Boring B-5 location as a potential source area for VOC and metals groundwater contamination requiring further investigation. In addition, VOC were detected during the RI at concentrations above their respective GWQC at seven boring locations (Boring Nos. 8, 19. 41, 62, 63, 148, and 149). These detections formed the basis for the planning and implementation of the groundwater installation and monitoring program at Site 812.

Groundwater samples (collected from MW-1 through MW-14) were analyzed for VOC, SVOC, pesticides/PCB, and metals during each of two sampling events (May and June 2000). A total of 19 VOC were detected in five monitoring wells (MW-04, MW-05, MW-07, and MW-09) during the May and June 2000 sampling events. Seven of the 16 VOC were detected above their respective GWQC during both sampling events and the cumulative results of m+p-xylenes, and o-xylene exceeded the GWQC during both sampling events. Given the exceedences of the respective GWQC during both sampling events at MW-04, MW-05, and MW-07, the following seven VOC and total xylenes are identified as COC at Site 812: 1,1,1-trichloroethane, 1,1-dichloroethene, cis-1,2-dichloroethene, trans-1,2-dichloroethene, benzene, trichloroethene, tetrachloroethene, and VC.

No SVOC or pesticides/PCB were detected above respective GWQC in any of the wells sampled and are not identified as COC at Site 812.

Metals concentrations above New Jersey GWQC were detected in all of the groundwater samples; however, the majority of these metals are consistent with the mineralogy of the geologic formations. Elevated concentrations of aluminum, calcium, iron, magnesium, manganese, potassium, and sodium were detected. These compounds can all be attributed to the natural geologic and hydrogeologic conditions at the Site, as described above.

Cadmium, chromium, copper, lead, and mercury were all identified in the MW-4 sample. However, concentrations have fluctuated near or below the GWQC based on the two sampling events. Future, low-flow groundwater monitoring will be used to assess if these metals are due to suspended sediments in the groundwater samples.

Lead was identified above New Jersey GWQC in several of the other monitoring well locations (MW-1, MW-5, MW-9, MW-12, and MW-13); however, the concentrations did not significantly exceed the GWQC. It is possible that the lead is naturally occurring because of the geologic mineralogy, or higher concentrations were induced as the result of the sampling procedure (i.e., turbidity). As previously discussed, future low-flow sampling events will be used to evaluate the significance, if any, of the detected lead.

Primarily based on VOC results of the RI, three areas of environmental impact have been defined at three separate well locations (MW-4, MW-5, and MW-7). These well locations were identified with contaminant concentrations exceeding the GWQC. For remedial purposes, three separate Areas of Concern have been defined: Area 1 for MW-4, Area 2 for MW-5, and Area 3 for MW-7 (see **Figure 10** for the locations and contaminant concentrations and **Figure 14** for the defined Areas of Concern).

Area 1 – MW-4

MW-4 and the proximate groundwater grab sample at Boring B-5 detected VOC contaminant concentrations, consisting primarily of cis-1,2-dichlorethene and, to a lesser degree, trans-1,2-dichloroethene, VC, trichloroethene, 1,1-dichloroethene, PCE, and total xylenes. Benzene was also identified at this location slightly above the GWQC. While concentrations of these VOC exceed the respective GWQC, groundwater grab samples collected in several borings (B-43, B-44, B-45, B-46,B-47, B-59, and B-71),located adjacent to MW-5 and Boring B-5 contained only one VOC detection (Boring B-7 for toluene at 1.47 ug/L) that was below the GWQC, suggesting that the extent of the migration is laterally limited.

The contamination observed at MW-4 appears to be confined to the fill material in which MW-4 is screened (see **Figure 11**). A suspect high water level is exhibited in this well suggesting perched water table conditions within the fill material. Based on the geologic data (i.e., the presence and extent of fill material) coupled with the elevated VOC concentrations in this zone, it is likely that the perched water within the fill material or the fill material itself is the source of the contamination. The vertical extent of this contamination is limited to the upper sandy zone, since the sample collected from a well (MW-1) located near MW-4 and screened directly below this zone had no detectable concentrations of VOC constituents. The black silt (strata in which MW-1 is screened) may be acting as a semi-impermeable barrier, preventing the downward migration of the dissolved phase contaminants from the upper zone (see **Figure 11**).

Anomalous concentrations of bromoform were identified in aqueous samples B-148 and B-149. These concentrations barely exceed the New Jersey GWQC and do not cause significant environmental concern. In addition, a groundwater monitoring well (MW-12) was located in the vicinity of these borings and no VOC were detected during the May and June 2000 sampling events. The concentrations of the chlorinated solvents identified in MW-4 are well below the solubility of those compounds in water, suggesting that no DNAPL exists. In addition, no detectable PID measurements were recorded in MW-1 below the contaminated fill zone, further supporting the absence of dense non-aqueous phase liquids (DNAPL).

In summary, based on the distribution of groundwater contamination in this area, a limited source of contamination may exist within the fill material, resulting in contamination of the perched water within this material. The contaminated perched water then infiltrates downward into the sandy zone diminishing in concentration with depth because of dispersion and dilution. The apparent extent of groundwater contamination is minimal and significant migration is absent, both horizontally and vertically.

Area 2 - MW-5

Concentrations of 1,1,1-TCA were detected at MW-5 during the May and June 2000 sampling events at 10.09 ug/L and 43.71 ug/L, respectively and at the proximate groundwater grab sample collected at Boring B-8 (84.32 ug/L). The June groundwater detection at MW-5 and the groundwater grab sample at Boring B-8 both exceed the New Jersey GWQC for 1,1,1-TCA of 30 ug/L. Contaminant concentrations may decline to less than the New Jersey GWQC by natural degradation processes and dilution if the area remains undisturbed. Groundwater grab samples collected in several borings (B-7, B-15, B-16, B-23, and B-24) adjacent to the periphery of the impacted area contained only one detection of 1,1,1-TCA (Boring B-7 at 7.41 ug/L) that was below the GWQC, suggesting that the extent of the migration is laterally limited. Similar to the MW-1 area, the vertical extent of contamination is likely impeded by the presence of the silt layer at approximately 25 ft bgs.

Area 3 - MW-7

Concentrations of 1,1,1-TCA were detected at MW-7 during the May and June 2000 sampling events at 41.84 ug/L and 6.36 ug/L, respectively with the May result exceeding the GWQC of 30 ug/L. Groundwater grab samples collected in several borings adjacent to the periphery of the impacted area (Borings B-41, B-42, B-161A, and B-162) contained only one detection of 1,1,1-TCA (Boring B-42 at 4.69 ug/L) that was below the GWQC, suggesting that the extent of the migration is laterally limited. Concentrations may decline to less than the New Jersey GWQC by natural degradation processes and dilution if the area remains undisturbed. Similar to the MW-1 area, the vertical extent of contamination is likely impeded by the presence of the silt layer at approximately 25 ft bgs.

The data from the most recent sampling indicate that the following VOC analytes are present at concentrations above the GWQC in one or more wells: (1) benzene; (2) 1,1,1-trichloroethane, and (3) tetrachloroethene and its daughter products (trichloroethene, cis-1,2-dichloroethene and VC). The results of the groundwater monitoring program show that VOC concentrations have decreased over time and have not migrated off-site. The fact that there is no increase in concentrations of the contaminants detected above the GWQC with time indicates that no new sources of contamination have impacted the plume. It should be noted that groundwater is the only apparent media that has been impacted. Soils appear relatively clean suggesting a small source area of contamination.

The results of the monitoring program at Site 812 indicate that the groundwater contaminant plume is relatively stable and exists in three defined areas: (1) Area 1 (MW-4); (2) Area 2 (MW-5); and Area 3 (MW-7). Evaluation of the soil and groundwater data indicates that Area 1 contaminants (cis-1,2-dichloroethene) are unrelated to the Area 2 and 3 contaminants (1,1,1-trichloroethane), and that the Area 1 plume is more likely to result in the migration of contaminants with time.

Monitoring wells MW-5 and MW-7 (Areas 2 and 3) have each been impacted by the same contaminant (1,1,1-trichloroethane), potentially the result of the same source material. Through natural degradation or dilution, the low-level contamination in these areas will quickly degrade to concentrations below New Jersey GWQC. Based on the results of borings proximate to MW-5 and MW-7, it is unlikely that the extent of contamination extends significantly beyond the actual sampling locations of MW-5 and MW-7. Treatment of soil and/or groundwater at these locations is arguable based on the low contaminant concentrations. The focus of potential remedial alternatives target MW-4 (Area 1) and the potential migration of COC to the north, i.e., in the direction of groundwater flow.

For Area 1 (MW-4), the vertical distribution of contamination suggests that a contaminant source may exist in the fill material in which MW-4 is screened (see **Figures 3, 9, and 12 of Appendix H**). A suspect high water table is exhibited in this well suggesting perched water conditions within the fill material. Based on the geologic data (i.e., the presence and extent of fill material) combined with the elevated VOC concentrations in this zone, it is likely that the perched water within the fill material or the fill material itself is the source of the contamination. The vertical extent of contamination is limited to the upper sandy zone (Tinton and Upper Red Bank Formation). The sample collected from nearby MW-1, which is completed in the deeper formations directly below MW-4, had no detectable VOC. Area 1 may be considered a source location for the isolated benzene plume and tetrachloroethene "parent – daughter" plumes.
In a proactive effort to augment the natural attenuation process, Fort Monmouth is proposing to implement a remedial action for the groundwater at Site 812. The following section details the proposed remedial action.

SECTION 4.0
REMEDIAL ACTION WORKPLAN

4.1 CHECK LIST

The RAW was prepared in accordance with the applicable sections of N.J.A.C. 7:26E-6.2 and contains all the applicable requirements listed in that subchapter. Items required for the RAW that have been previously addressed in the remedial investigation sections of this document are referenced or restated as necessary. Specifically, this RAW submittal addresses, as applicable and appropriate:

- Remedial Investigation Report pursuant to N.J.A.C. 7:26E-4.8;
- Soil Remediation Plan
  a) Description of remedial action and remedial technology for each area of concern (N.J.A.C. 7:26E-6.2(a)(5))
  b) Post-remedial sampling (N.J.A.C. 7:26E-6.3 & 6.4)
  c) Compound-specific cleanup goals (N.J.A.C. 7:26E-6.2(a)(4))
  d) Scaled Site maps (N.J.A.C. 7:26E-4.9 & 6.2(a)(6))
  e) Permit requirements/applications (N.J.A.C. 7:26E-6.2(a)8)
  f) System specifications and construction information (N.J.A.C. 7:26E-6.2(a)(9))
  g) Soil erosion and sediment control plan (N.J.A.C. 7:26E-6.2(a)(10))
  h) Soil disposal/soil re-use plan (N.J.A.C. 7:26E-6.4(b));
- Groundwater Remediation Plan
  a) Plume(s) delineated
  b) Wells properly constructed
  c) Flow direction defined, including groundwater elevation contour maps
  d) Description of remedial action and remedial technology for each area of concern (N.J.A.C. 7:26E-6.2(a)(5))
  e) Compound-specific cleanup goals (N.J.A.C. 7:26E-6.2(a)(4))
  f) Remedial monitoring plan/effectiveness evaluation plan
  g) Hydraulic control information/maintenance
  h) Treated water discharge location
  i) Scaled Site maps (N.J.A.C. 7:26E-4.9 & 6.2(a)(6))
  j) Permit requirements/applications (N.J.A.C. 7:26E-6.2(a)8)
  k) System specifications and construction information (N.J.A.C. 7:26E-6.2(a)(9));
- Data presentation format and quality assurance project plan (N.J.A.C. 7:26E-6.2(a)(7));
- Site Specific Health and Safety Plan (N.J.A.C. 7:26E-6.2(a)(11));
- Site restoration plan and remedial system dismantling plan (N.J.A.C. 7:26E-6.2(a)(12) &(13));
- Cost estimate (N.J.A.C. 7:26E-6.2(a)(14); and
- Schedule of implementation (N.J.A.C. 7:26E-6.2(a)(15)).

4.2 SITE SUMMARY

Site 812 is located on the southwestern corner of the Main Post area and covers approximately 2.75 acres. The Site is located in an area of the installation encompassing office and administration buildings and paved parking lots. Building 812 currently contains the Army Community Service Center for Fort Monmouth. While Site 812 is located on an Army controlled installation, there are currently no specific engineering or institutional controls in-place. The conceptual model for Site 812 suggests areas of flat to gently sloping surface soils underlain by fill material consisting of debris mixed with organic material and silty, clayey sandy soil. The fill is underlain by natural soil consisting of low permeability silty, clayey sand. The saturated zone is unconfined (water table conditions) and groundwater flows in a northerly direction.

4.2.1 Summary of Areas of Environmental Concern

Based on the results of the RI, three (3) areas of concern at Site 812 are evident. The first area (Area 1), and the area of most concern, is proximate to monitoring wells MW-1and MW-4 and Boring B-5 and encompasses approximately 1,400 square ft (sq ft). To a lesser degree of concern is Area 2, which is proximate to monitoring well MW-5 and Boring B-8, encompassing approximately 875 sq ft, and Area 3, which is proximate to monitoring well MW-7 and encompasses approximately 500 sq ft. Although these areas all have contaminants that exceed the New Jersey GWQC, only Area 1 significantly exceeds the standards (by several orders of magnitude). Areas 2 and 3 do not significantly exceed the standards. At these concentrations, the VOC contaminants in Areas 2 and 3 will likely degrade, dilute, or disperse to concentrations less than the GWQC in a relatively short time period. Based on the soil and groundwater data, it is apparent that the Area 1 COC plume (1,2-DCE) is isolated and unrelated to the COC plume (1,1,1-TCA) present in Areas 2 and 3.

The extent of Area 1 contamination appears to be confined to a small area in the upper 5 to 10 ft of soil and groundwater. A groundwater sample collected below this area (MW-1) had no detectable concentrations of chlorinated organics contamination. The lateral extent of contamination is also minimal since soil borings on the periphery of Area 1 (less than 20 ft from the area inclusive of borings B-42, B-44, B-46, B-59) are not impacted. The extent of contamination is indicative of a small release in the near-surface.

Monitoring wells MW-5 and MW-7 (Areas 2 and 3) have each been impacted by the same contaminant (1,1,1-TCA). Through natural degradation or dilution, the low-level contamination in these areas is predicted to quickly degrade to concentrations below New Jersey GWQC. Based on the results of borings proximate to MW-5 and MW-7, it is unlikely that the extent of contamination extends significantly beyond the actual sampling locations of MW-5 and MW-7. Treatment of soil and/or groundwater at these locations is arguable based on the low contaminant concentrations. The focus of potential remedial alternatives target groundwater monitoring well MW-4 (Area 1) and the potential migration of COC to the north of Area 1, i.e., in the direction of groundwater flow.

4.2.2 Summary of Proposed Remedial Action(s)

Based on the summary of the areas of environmental concern presented above and the conceptual model for Site 812 developed in the RI, the following remedial action approach will be evaluated:

- Continued groundwater monitoring to demonstrate contaminant degradation due to ongoing natural attenuation.
- The natural attenuation occurring at Site 812 will be evaluated against the implementation of potentially applicable remedial technologies to enhance/accelerate the ongoing natural attenuation and/or more directly mitigate the residual levels of chlorinated organics.

Based on the localized areas of contamination and relatively low concentrations of contaminants discussed above, an in-situ chemical or bioremediation treatment of the three affected areas will be evaluated to enhance/accelerate the natural attenuation process and/or more directly mitigate the residual levels of chlorinated organics. It is expected that compliance with NJDEP GWQC can be achieved relatively easily and within a reasonable period.

4.2.2.1 Area(s) Proposed for Remedial Action

The three (3) delineated areas of concern at Site 812 (Area 1, Area 2, and Area 3) are the areas proposed for remediation at Site 812. Area 1 is proximate to groundwater monitoring wells MW-1, MW-4, and Boring B-5 and encompasses approximately 1,400 sq ft. Area 2 is approximate to groundwater monitoring well MW-5 and Boring B-8 encompassing approximately 875 sq ft, and Area 3, is proximate to groundwater monitoring well MW-7 encompassing approximately 500 sq ft.

4.2.2.2 Identification of Applicable Remediation/Cleanup Standards

The COC and media proposed for remedial action at Site 812 are the eight (8) VOC detected above the New Jersey GWQC at Areas 1, 2, and 3 in the shallow groundwater. The applicable remediation/cleanup standards are the respective New Jersey GWQC:

VOC Parameter	**NJDEP GWQC (µg/L)**
1,1-Dichloroethene	2
Benzene	1
Cis-1,2-Dichloroethene	10
Tetrachloroethene	1
Trans-1,2-Dichloroethene	100
Trichloroethene	1
Vinyl Chloride	5
1,1, 1-Trichloroethane	30

4.2.2.3 Description of Proposed Remedial Actions/Technologies

The proposed remedial actions/technologies to be evaluated at Site 812 include chemical treatment, bioremediation, and monitored natural attenuation. A discussion of each of these technologies is provided below.

Chemical Treatment

In-situ chemical treatment (oxidation) involves the introduction of one or more chemicals (primarily oxidizers such as dissolved oxygen, peroxide, potassium permanganate, or ozone) into the subsurface, which react with the COC in an exothermic reduction/oxidation (redox) chemical reaction to degrade the contaminants into non-toxic end products (usually carbon dioxide, water and fatty acids). The two primary in-situ chemical treatment (oxidation) methods used within soils and groundwater in the degradation of organic contaminants are:

1. Dilute hydrogen, magnesium and/or calcium peroxide, also known as oxygen release compounds; and
2. Fenton reagents, a proprietary blend of iron catalysts, peroxides, detergents, and buffers.

In-situ chemical treatment (oxidation) can be undertaken in conjunction with other treatments, such as pump-and-treat, soil vapor extraction, and bioremediation, to degrade residual contaminants. A brief overview of the two in-situ chemical treatment (oxidation) methods is provided below.

<u>Oxygen Release Compounds (ORC)</u>

Oxygen release compounds (ORC) degrade (reduce) to water or hydroxides, therein releasing free oxygen to the system. The free oxygen subsequently is utilized by organisms in the soil/groundwater to break down organic molecules (contaminants) into smaller, simpler, non-toxic substances, such as water and fatty acids. Most ORC blends on the market are too dilute for safety concerns to produce enough free oxygen to create a substantial redox chemical degradation. They serve only as sources of additional oxygen to indigenous microbes in their bioremedial degradation of organic substances (see Bioremediation section below).

<u>Fenton Reagents</u>

The Fenton reagent reaction is a straightforward oxidation process in which larger organic molecules are oxidized or chemically cleaved into simpler, environmental-friendly substances, such as water and carbon dioxide. “Daughter products,” or intermediate breakdown products, may be created as the result of the Fenton reagent reaction. However, these daughter products are eventually broken down by the Fenton reagent reaction. The process is extremely rapid, approximately days or weeks, as opposed to bioremediation or natural attenuation, which typically occur over periods of months or years.

The process uses a standard Fenton's reagent procedure that combines hydrogen peroxide and iron (Fe^{+2}). The catalyzed decomposition of hydrogen peroxide to form hydroxyl radicals (OH-), a strong oxidant, occurs as follows:

$$H_2O_2 + Fe^{+2} \text{ þ } OH + OH^{-} + Fe^{+3}$$

The hydroxyl radical (OH-) attacks the carbon-carbon bonds, resulting in cleavage fragments as follows:

$$\text{contaminants} + OH^{-} \text{ þ } \text{daughter products} + H_2O_2 + OH^{-}$$

Subsequent oxidation results in a breakdown of the contaminant fragments to carbon dioxide and water as follows:

$$\text{daughter products} + OH^{-} \text{ þ } H_2O + OH + CO_2$$

The Fenton reagent reaction selectively attacks carbon bonds based upon their complexity. Specifically, the presence of the carbon-carbon (C=C) double bonds in the benzene ring of molecules facilitates the propagation of the hydroxyl radical (OH-) addition reaction followed by ring cleavage to final by-products such as carbon dioxide and water. In short, Fenton reagents are especially reactive with benzene-type compounds. Furthermore, they can be used in the oxidation of chlorinated and non-chlorinated hydrocarbons, as well as semi-volatile organic compounds, including pesticides, and polycyclic aromatic hydrocarbons (PAHs).

The volume and chemical composition of individual treatments are based on the contaminant levels and volumes, subsurface characteristics, and pre-application laboratory test results. The methods for delivery of the chemicals may vary. The Fenton reagents are injected through a well or injector head (GeoProbe®) directly into the subsurface or combined with extract (i.e., liquid) from the site and then recirculated.

Bioremediation

Bioremediation is a treatment process that uses naturally occurring microorganisms (yeast, fungi, or bacteria) to breakdown or degrade hazardous substances into less toxic or non-toxic substances. The microorganisms consume and digest organic substances for nutrients and energy. In general, the microorganisms break down the organic contaminants into harmless products – mainly carbon dioxide and water. Once the contaminants are degraded, the microorganism population is reduced (i.e., die) with the declining food source. The dead microorganisms or small residual populations of microbes in the absence of food pose no contamination risk.

For bioremediation to occur, the microorganisms must be active and healthy. Bioremediation technologies assist microorganisms' growth and increase microbial populations by creating the optimum environmental conditions for detoxification of the maximum mass of contaminants. The specific bioremediation technology used is determined by several factors, including the type of microorganisms present, site conditions, and the quantity and toxicity of the contaminant chemicals. Different microorganisms degrade different types of compounds and survive under different conditions.

Indigenous microorganisms are those microbes that are naturally present at the site. To stimulate the growth of these indigenous microorganisms, the proper soil temperature, moisture content, oxygen, pH, soil redox potential, and nutrient content may need to be provided. An additional carbon source, such as molasses or other inexpensive simple carbon chain sugar, may be added to promote rapid growth of the indigenous microbial populations.

If the biological activity needed to degrade a particular contaminant is not present in the soil at the site, microorganisms from other locations or special commercially available, cultured microbes or enzymes, whose effectiveness has been tested and documented, can be added to the contaminated media. These are called exogenous microbes and enzymes. The conditions at the site must be adjusted to ensure that the exogenous microbes will thrive.

Bioremediation can take place under aerobic and anaerobic conditions. In aerobic conditions, microorganisms use available atmospheric oxygen to function. With sufficient oxygen, and the proper environmental conditions, the microbes will convert many organic contaminants to carbon dioxide and water. Anaerobic conditions support biological activity when no oxygen is present. The microorganisms break down chemical compounds in the soil via beta-oxidation to release methane and carbon dioxide. Sometimes, during the aerobic and anaerobic processes of breaking down the original contaminants, intermediate products that are less toxic, equally toxic, or more toxic than the original contaminants are created.

Bioremediation applications fall into two broad categories: in-situ (in-place) or ex-situ (removed, out-of-place). In-situ bioremediation treats the contaminated soil or groundwater where originally detected. Consequently, it may be less expensive, create less dust, and cause less release of contaminants than ex-situ techniques. In addition, it is possible to treat a large volume of media at one time using in-situ methods. In-situ techniques, however, are generally slower than ex-situ techniques, but are more cost effective at sites with permeable (i.e., sandy or uncompacted) soil and transmissive aquifers. Ex-situ bioremediation processes require removal of the contaminated soil or groundwater (e.g., excavation of contaminated soil or pumping of groundwater) before treatment. In the case of this Fort Monmouth RAW, only in-situ bioremediation was considered and evaluated.

The goal of aerobic in-situ bioremediation is to supply oxygen and nutrients to microorganisms in the soil. Aerobic in-situ techniques can vary in the way they supply oxygen to the microbes that degrade the contaminants. Two most common methods are bioventing and the injection of hydrogen peroxide. Oxygen can be provided naturally in well-vented soils, by pumping air into the soil above the water table (bioventing) or below the water table (air sparging), or by delivering oxygen in liquid or solid form as hydrogen peroxide or a peroxide salt to the subsurface. In-situ bioremediation may not work well in clays or in highly layered subsurface environments because oxygen cannot be evenly distributed throughout the area. In-situ remediation typically requires years to reach cleanup goals, depending mainly on the biodegradability of the specific contaminant. Less time is generally required with easily degradable contaminants.

Bioventing/Air Sparging Systems

These systems deliver air (oxygen) from the atmosphere into the soil and/or groundwater through injection wells placed in the ground where the contamination exists. The number, location, and depth of the wells depend on many geological factors and engineering considerations.

An air blower may be used to introduce air into the soil/groundwater through the injection wells. Air (oxygen) flowing through the soil/groundwater is used by the microorganisms in the oxidation of the contaminants. Nutrients, soil moisture, pH, and soil Redox potential-adjusting chemical agents, and/or commercially available cultured microbes or enzymes, may be applied to the surface or pumped into the injection wells. Nitrogen, phosphorous, and supplemental carbon sources may also be required to increase the growth rate of the microorganisms.

Hydrogen Release Compounds

This method uses hydrogen release compounds (HRC) to enhance in-situ anaerobic bioremediation using proprietary polyacetate esters specially formulated for slow release of lactic acid. Bioremediation using HRC is a multi-step process. Indigenous anaerobic microbes metabolize the lactic acid generated by HRC, thereby producing hydrogen. The resulting hydrogen can be used by reductive dehalogenators (e.g., a type of microbe), which are capable of metabolizing chlorinated hydrocarbons via a process called reductive dechlorination. Major target compounds in this group include the chlorinated aliphatic hydrocarbons, such as PCE, TCE, trichloroethane (TCA), and their derivatives. By providing a long-lasting, time-release hydrogen source, HRC enhances anaerobic reductive dechlorination of chlorinated hydrocarbons via anaerobic bioremediation.

Biodegradation is useful for many types of organic wastes, particularly petroleum related compounds (aerobic bioremediation) and chlorinated hydrocarbons (anaerobic bioremediation), and is a cost-effective, natural process. The extent and success of biodegradation is highly dependent on the toxicity and initial concentrations of the contaminants, their respective biodegradability, the properties of the contaminated soil, the particular treatment system and associated operation of the system to control the soil environment and growth of microorganisms. The effectiveness of bioremediation is limited at sites with high concentrations of metals, highly chlorinated organics, or inorganic salts because these compounds are toxic to microorganisms. In addition, the soil must be carefully controlled and monitored to ensure the proper oxygen content, moisture levels, soil nutrients and optional outside carbon source levels, soil pH, soil redox potential, and temperature are maintained to optimize environmental conditions to promote and enhance the growth of microorganisms. Seasonal changes in temperature will also slow or possibly stop the biological process during winter months, as microorganisms are temperature sensitive.

Monitored Natural Attenuation

The term “monitored natural attenuation” refers to the reliance on the *natural attenuation process* (within the context of a carefully controlled and monitored site cleanup approach) to achieve site-specific remediation objectives within a period that is “reasonable” compared to that offered by other more active methods.

The term “monitored natural attenuation” became EPA policy under OSWER Directive (9200.4-17P) with the objective to emphasize and require that a long-term monitoring program become *an important component of a remedy where natural processes are to be relied upon to achieve the cleanup objectives. The intent of the directive was to distinguish between the case where "monitored natural attenuation"(MNA) is used as a remedy, as opposed to the case where "natural attenuation" processes are occurring as part of a no-action remedy and are not being relied upon to attain a remedial objective. The NJDEP has also accepted "monitored natural attenuation" as an optional remedy for the cleanup of a contaminated Site, particularly in the case of underground storage tanks.*

"Natural attenuation" is the effect of natural processes (i.e., those which do not require human intervention such as engineered enhancement or controls) which reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. It is a passive method of treatment; however, the U.S. Environmental Protection Agency (USEPA) and NJDEP expect that source control and long-term performance monitoring will be fundamental components of any remedy that relies primarily on natural attenuation processes. MNA generally includes the use and maintenance of reliable institutional controls to prevent the use of the contaminated groundwater. USEPA and NJDEP do not view MNA to be a "no action" or "walk-away" approach, but rather consider it to be an alternative means of achieving remediation objectives that may be appropriate for specific, well-documented site circumstances where it meets the applicable statutory and regulatory requirements.

In the majority of cases where MNA is proposed as a remedy, its use may be appropriate as one component of the total remedy, that is either in conjunction with active remediation or as a follow-up measure. In general, MNA should be used cautiously as the sole remedy at contaminated sites.

The "natural attenuation processes" that are in operation in such a remediation approach include a variety of physical, chemical, or biological processes that, under favorable conditions, act without human intervention to reduce the mass, toxicity, mobility, volume, or concentration of contaminants in soil or groundwater. These in situ processes encompass biodegradation; dispersion; dilution; sorption; volatilization; radioactive decay; and chemical or biological stabilization, transformation, or destruction of contaminants.

MNA is appropriate as a remedial approach where it can be demonstrated capable of achieving a site's remediation objectives within a timeframe that is considered "reasonable" compared to that offered by other methods and where it meets applicable remedy selection criteria. Therefore, sites where the contaminant plumes are no longer increasing in extent, or are shrinking, would be the most appropriate candidates.

The timeframe required for MNA remedies is often longer than that required for remedies that are more active. Consequently, the uncertainty associated with the natural attenuation processes increases dramatically, as well as the ability to establish the performance monitoring standards capable of verifying the performance expected from natural attenuation in a timely manner (e.g., five to ten year monitoring period).
Potential advantages of using MNA include:

- As with any in-situ process, generation of lesser volume of remediation wastes, reduced potential for cross-media transfer of contaminants commonly associated with ex-situ

treatment, and reduced risk of human exposure to contaminants, contaminated media, and other hazards, and reduced disturbances to ecological receptors;
- Some natural attenuation processes may result in in-situ destruction of contaminants;
- Less intrusion as few surface structures are required;
- Potential for application to all or part of a given site, depending on site conditions and remediation objectives; and
- Potentially lower overall remediation costs than those associated with active remediation.

The potential disadvantages of using MNA include:

- Longer time frames may be required to achieve remediation objectives, compared to active remediation measures at a given site;
- Site characterization is expected to be more complex and costly;
- Toxicity and/or mobility of transformation products may exceed that of the parent compound;
- Long-term performance monitoring will generally be more extensive and for a longer time frame;
- Institutional controls may be necessary to ensure long term protectiveness;
- Potential exists for continued contamination migration, and/or cross-media transfer of contaminants; and
- Hydrologic and geo-chemical conditions amenable to natural attenuation may change over time and could result in renewed mobility of previously stabilized contaminants (or naturally occurring metals), adversely influencing the remedial effectiveness.

While MNA could be implemented at Site 812, a more active remedy will be pursued to reduce the time required to reach the identified remediation cleanup standards.

4.2.3 Proposed Remedial Alternative

The DPW proposes using biological enhancement agents (i.e., HRC) at the three affected areas to directly enhance/accelerate the naturally occurring in-situ anaerobic bioremediation at the Site and retard the generation and extent of VC migration in the groundwater. The proposed remedial alternative at Site 812 encompasses the implementation of HRC at the three identified areas of concern. Placement of the treatment areas is intended to provide direct treatment of the areas of highest groundwater impact, as well as limit downgradient migration of impacted groundwater. By reducing the source of contaminants, the volume and migration of generated degradation products, specifically VC, will also be reduced. HRC will be injected to 4-8 ft bgs in a 10-foot interval treatment grid in the three established hot spot areas, centered on the three monitoring wells (MW-4, MW-5, and MW-7).

The total number of injection locations is estimated as follows:

- Area 1 – 25 locations
- Area 2 – 20 locations
- Area 3 – 12 locations

In addition, to maintain subsurface anaerobic conditions within the treatment area, an upgradient injection of HRC will be performed approximately 30 days following the initial HRC application. The anaerobic barrier will be installed approximately 15-20 ft upgradient of the three treatment areas and will be approximately 90 ft in length. The barrier will be injected in two rows offset by 5 ft (creating a "picket fence" pattern) on 10-foot centers. **Figure 14** depicts the approximate locations of the three proposed remedial treatment areas and the infiltration barrier. Approximately 4,200 pounds of HRC will be applied to the Site and the enhanced bioremediation is expected to continue for a minimum of 12 months. HRC will be applied at a rate of approximately 13½ pounds per vertical foot. The HRC will be applied using direct push technology via a mobile, truck-mounted GeoProbe®. Injection points will be terminated at approximately 10 ft bgs. After the completion of each injection point, a high-pressure pump will be used to inject the HRC from 4 – 8 ft bgs.

Quarterly groundwater monitoring of MW-01 through MW-08 and MW-12 through MW-14 will be continued following the initial HRC injection. Further, one or more additional downgradient monitoring wells will be located near Husky Brook and incorporated into the groundwater sampling program to monitor performance of the remedial action and retardation of the defined contaminant plume. The monitoring wells will be sampled for VOC+15 and TAL metals. Twelve months following the initial HRC injection, the results and findings will be presented in a Remedial Action Report.

Site 812 exists within the boundary of Fort Monmouth, and as such, is a Federal facility with controlled access. The DPW will continue to maintain a groundwater use restriction within the impacted area. The DPW is the lead agency for all land use issues at Fort Monmouth. The Installation Master Plan resides in the Engineering Services and Planning Division of the DPW. There are no additional institutional controls proposed as part of this Remedial Action.

4.2.3.1 Required Permits and Approvals

Requested Authorization for Discharge to Ground Water by Permit-By-Rule
As provided in N.J.A.C. 7:14A-7.5 (Authorization of Discharges to Ground Water By Permit-By-Rule), Subsection (b), any person responsible for discharges to groundwater listed in 3i through v are deemed to have a permit-by-rule if the discharge occurs when: 1) NJDEP is remediating a contaminated site as defined in N.J.A.C. 7:26C-1.3, pursuant to the rules at N.J.A.C. 7:14B implementing the Underground Storage of Hazardous Substances Act (N.J.S.A 13:1K-6 *et seq.*), or when the owner or operator of a contaminated site is conducting remediation under NJDEP oversight, or the requirements of the Spill Compensation and Control Act (N.J.S.A. 58:10-23.11), or the Procedures for Department Oversight of the Remediation of Contaminated Sites at N.J.A.C. 7:26C; and 2) the person is in receipt of written approval from NJDEP.
The groundwater discharges authorized by permit-by-rule, N.J.A.C. 7:14A-7.5, under Subsection (b) include:

(iv). Discharges to groundwater not to exceed 180 calendar days from any other facility or equipment associated with monitoring, engineering, remedial activities, or design studies necessary to evaluate a contaminated site.

By submittal of this RAW, Fort Monmouth is requesting written approval for Permit-by-Rule discharge for the proposed remedial action, including discharges to groundwater, at Site 812.

4.2.3.2 Deed Notification

Fort Monmouth is a Federal facility and as such, no deed exists. Fort Monmouth proposes to implement active remediation of the shallow groundwater at Site 812 and the DPW will continue to maintain a groundwater use restriction within the impacted area. Site 812 exists within the boundary of Fort Monmouth, and as such, is a Federal facility with controlled access. The DPW is the lead agency for all land use issues at Fort Monmouth. The Installation Master Plan resides in the Engineering Services and Planning Division of the DPW. There are no additional institutional controls proposed as part of this Remedial Action.

4.2.3.3 Location of Proposed Remedial Treatment Units/ Planned Remedial Construction Activities

There will be no temporary or long term structures required regarding the proposed remedial action. The HRC application and confirmatory sampling will be performed utilizing a mobile, truck-mounted GeoProbe®. The anaerobic barrier will be installed, also using a GeoProbe®, approximately 15-20 ft upgradient of the three treatment areas and will be approximately 90 ft in length. Groundwater monitoring wells MW-4, MW-5, and MW-7 already exist.

4.2.3.4 Treatment and Disposal Methods

There is no waste stream generated resulting from this proposed remedial action that would require treatment and disposal.

4.2.3.5 Implementation Schedule

Following approval of this RIR/RAW by NJDEP, the implementation schedule for the proposed remedial action will be as follows:

- Preparation of required plans (e.g., Site-Specific Health and Safety Plan) – 14 days.
- Procurement and delivery to the Site of the HRC biological enhancement products – 30 days.
- Site mobilization/utility clearances – 5 days.
- Establish and survey injection grid – 2 days.
- HRC application – 5 days.
- Installation of anaerobic barrier (performed 30 days following the initial HRC injection) – 3 days.
- Demobilization – 2 days.
- Continued groundwater monitoring of wells MW-01 through MW-08 and MW-12 through MW-14, and one or more downgradient monitoring wells – quarterly for VOC+15 and TAL metals.

Progress reports will be prepared and submitted quarterly to the NJDEP for the duration of the proposed remedial action.

4.2.3.6 Soil and Sediment Erosion

As described within this document, the proposed remedial measures will be accomplished using a GeoProbe®. There is no planned disturbance of the soil as part of the proposed remedial measures. Soil and sediment erosion control measures will be implemented to minimize the transport of soil onto the installation from vehicles entering and exiting the site roadways (e.g., placement of straw, gravel). In addition, protective barriers (e.g., hay, silt fencing) will be placed around storm sewer inlets that are in close proximity to the proposed remedial efforts.

4.2.3.7 Quality Assurance Project Plan

Field sampling activities will be conducted in accordance with the NJDEP Field Sampling Manual. Fort Monmouth Environmental Testing Laboratory (NJDEP Certification #13461) will conduct all analyses in accordance with the New Jersey Laboratory Certification Program. A separate Quality Assurance Project Plan will not be submitted for the planned HRC implementation.

4.2.3.8 Site-Specific Health and Safety Plan

As required under N.J.A.C.7:26E-1.9, a Site-Specific Health and Safety Plan (SHSP) will be prepared for the proposed remediation activities. The SHSP will be prepared in accordance with the most recently adopted and applicable general industry (29 CFR 1910) and construction (29 CFR 1926) standards of the Federal Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, as well as any other Federal, State, or local applicable statutes or regulations. All personnel involved in the remediation activities will adhere to the SHSP.

4.2.4 Site Restoration and Remedial System Dismantling Plan

There will be no temporary or long term structures required regarding the proposed remedial action. The HRC application and confirmatory sampling will be performed utilizing a mobile, truck-mounted GeoProbe®.

4.2.5 Remedial Action Costs

The estimated order of magnitude costs for implementation of the proposed bioremediation utilizing HRC at Site 812 are provided below. The primary assumptions utilized in estimating the order of magnitude costs are as follows:

- There will be three (3) areas of coverage for the HRC injection program: Area 1 – 1,400 sq. ft, Area 2 – 875 sq. ft, and Area 3 – 500 sq. ft. The depth of injection will be 4-8 ft bgs.
- Approximately 57 injection points will be installed to an approximate depth of 10 ft below land surface within the three areas of concern and 20 additional injection points will be required to establish the anaerobic barrier. An application rate of 15 injections per day is assumed. HRC will be applied at a rate of approximately 13½ pounds per vertical foot.
- There are no proposed capital costs associated with the planned remedial action.
- DPW will utilize TVS to support the planned remedial action.
- Analysis Performance samples will be conducted in accordance with the NJ Laboratory Certification Program by the Fort Monmouth Environmental Testing Laboratory (NJDEP Certification #13461).

Estimated Order of Magnitude Costs [1]
Proposed Bioremediation at Site 812 Utilizing HRC

TASK	**ESTIMATED COSTS [1]**
1. Site Mobilization	$2,500
2. GeoProbe® Injection and HRC Application [2]	
Hydrogen Release Compound – 4,200 lbs.	$ 23,800
Materials	$520
Labor	$3,840
3. Quarterly Groundwater Monitoring (Labor only)	$9,200 [3, 4]
4. Confirmatory Sampling and Analysis	$2,300 [3, 4]
5. Preparation of Remedial Action Report	$15,000
TOTAL ESTIMATED COSTS	$57,160

NOTES: (1) These activities are to be performed directly by the Government.
(2) The Government owns a GeoProbe® and Injection Trailer to be used during the planned remedial action. No costs have been shown for these items.
(3) Quarterly groundwater monitoring costs have been estimated for Four (4) Quarters.
(4) Analyses are performed by the Fort Monmouth Environment Environmental Testing Laboratory.

4.2.5 Maintenance and Evaluation Schedule for Engineering and Institutional Controls

Site 812 is located on an Army controlled installation. Upon completion of the proposed Remedial Action, there are no specific engineering controls proposed for Site 812. The DPW will incorporate a document equivalent to a DER into the Fort Monmouth Installation Master

Plan to restrict future use of groundwater at Site 812, and recognize the planned long-term monitoring of this area.

4.3 PROGRESS REPORTS

As required by N.J.A.C. 7:26E-6.5(b) Remedial Action Progress (RAP) Reports will be prepared and submitted Quarterly. The RAP Reports will include the following information:

- Summary of the remedial actions accomplished during the reporting period;
- Deviations from and/or proposed modifications to the approved RAW;
- Reporting of problems/delays in the implementation of the RAW, as well as proposed corrective actions with, as applicable/appropriate, changes to the approved project schedule;
- A revised project schedule, including the status of all permit applications;
- Identification of planned remedial actions for the next reporting period, and
- Supporting documentation (e.g., photographs).

In addition, on an annual basis the actual costs of remediation that have been incurred to date will be summarized and maintained on file at the Fort Monmouth Engineering Services and Planning Division of the DPW.

4.4 POST-REMEDIAL ACTION EVALUATION

Twelve months after the initial HRC injection, the results and findings of the Remedial Action will be reviewed and four potential follow-on scenarios evaluated:

1. No Further Action may be proposed;
2. Further source area treatment i.e., a second HRC injection, may be performed;
3. If the Class III-A aquifer designation is applicable, establishment of Alternate groundwater quality criteria may need to be developed; and/or
4. If it is determined that the Class II GWQC are applicable, establishment of a Classification Exception Area (CEA) may be proposed.

The DPW proposes to implement remedial action at the three affected areas of concern to directly enhance/accelerate naturally occurring in-situ anaerobic bioremediation and retard the generation and extent of VOC contamination in the groundwater. By implementing source control/remediation, the volume and migration of contaminants and potentially generated degradation products will also be reduced. Quarterly groundwater monitoring will be continued.

SECTION 5.0
REFERENCES

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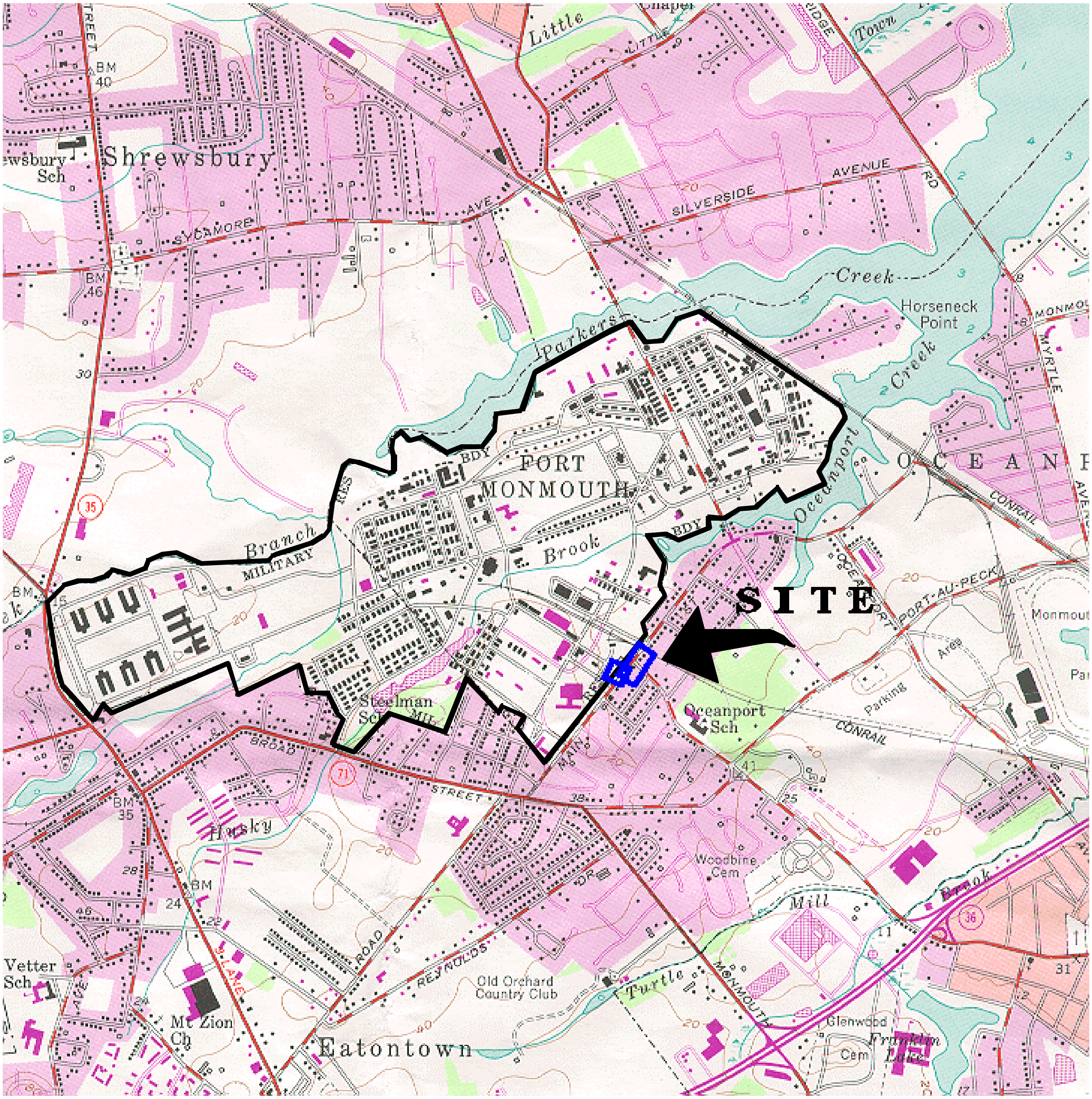
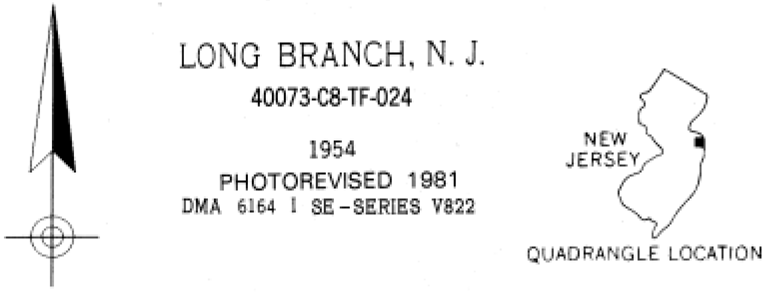
Figures





Mapped, edited and published by the Geological Survey

FIGURE 1

LOCATION MAP
Site 812
Fort Monmouth Army Base
Fort Monmouth, NJ

VERSAR
Engineers, Managers, Scientists, & Planners
Bristol, PA

Scale: 1" = 2000'

Date: August 2000

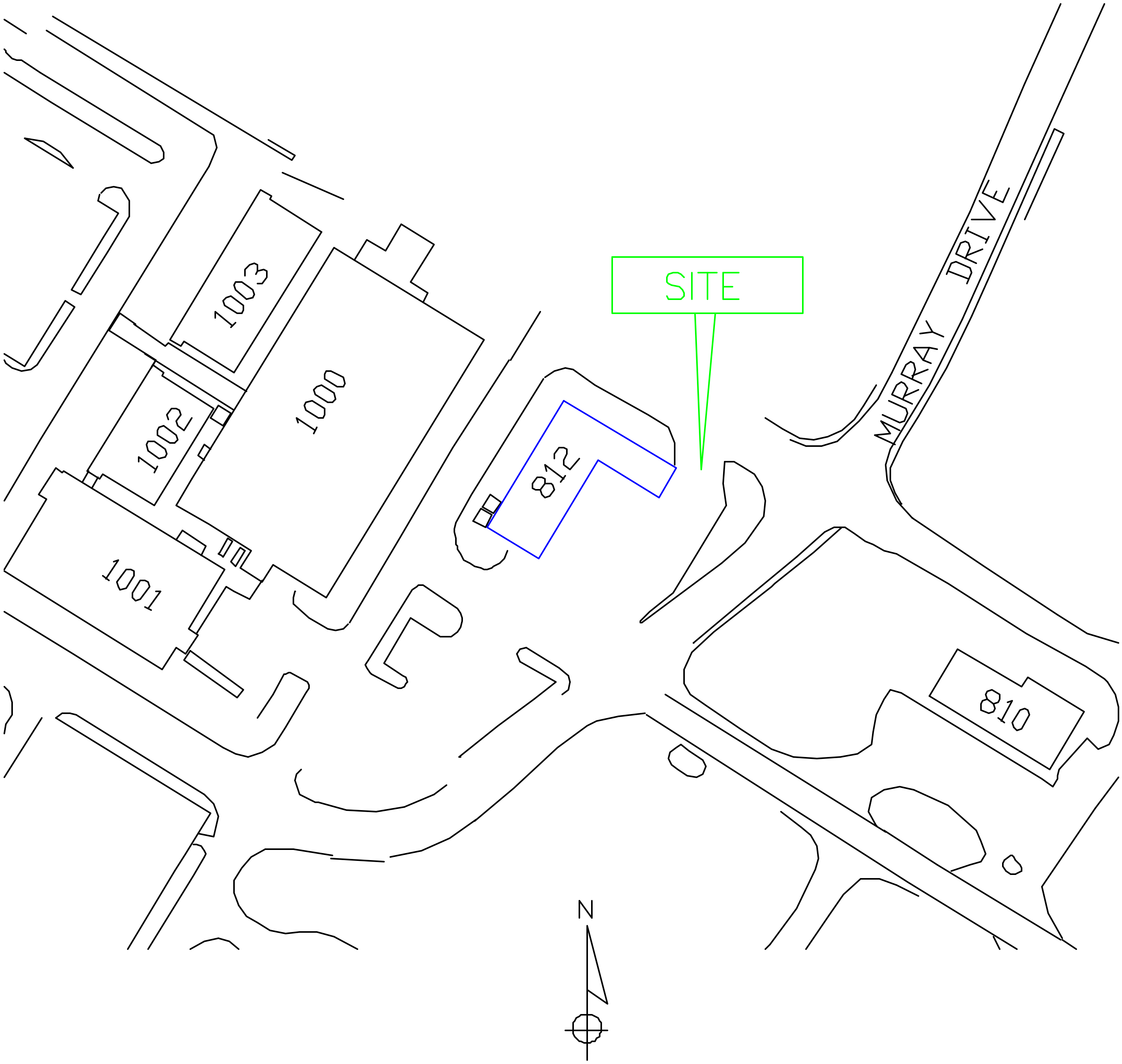
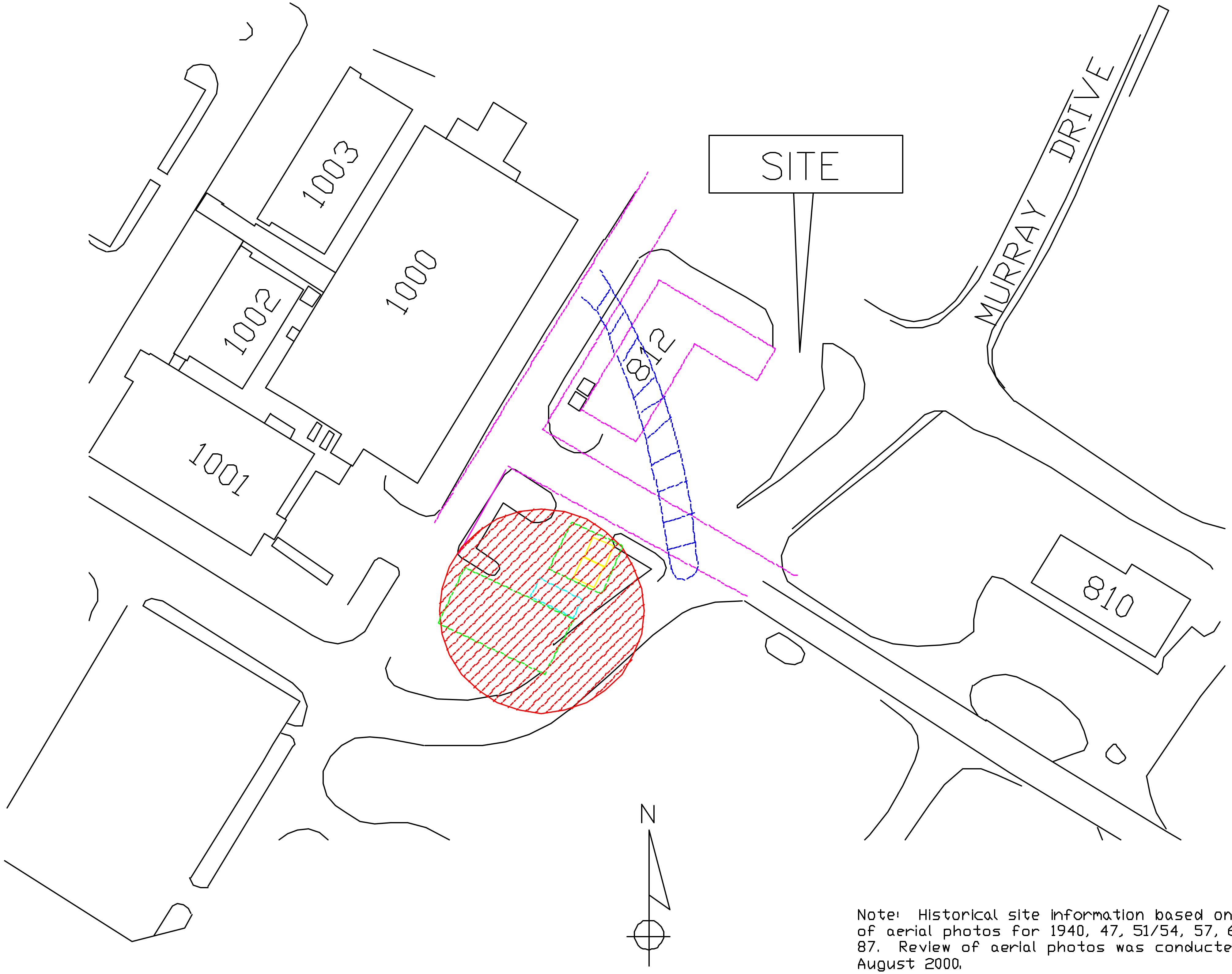


FIGURE 2
SITE MAP
BUILDING 812
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

VERSAR
ENGINEERS, MANAGERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

SCALE: 1"=100'	DATE: JULY 1994

812 FIG2



KEY

- - - Lingation observed in 1940 aerial photograph (not observed in 1947).
— Paved roadways and building structures existing as of 1947 aerial photograph to present.
▭ Rectangular building and concrete pad observed in 1951/54 aerial photograph.
▭ Building addtion observed in in 1957 aerial photograph (concrete pad no longer exists).
□ Unknown objects observed in 1961 aerial photo in vicinity of former concrete pad.
▨ Area of disturbed soil observed in 1971 aerial photpgraphs. Rectangular building and unknown objects no longer observed. Area of disturbed soil paved before 1987.

Note: Historical site information based on review of aerial photos for 1940, 47, 51/54, 57, 61, 71, & 87. Review of aerial photos was conducted on August 2000.
All renderings are schematic and not to scale.

FIGURE 2a
HISTORICAL SITE MAP
BUILDING 812

FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

Versar
ENGINEERS, MANAGERS, SCIENTISTS & PLANNERS
BRISTOL, PA.

NOT TO SCALE

DATE: AUGUST 2000

Geologic Map of New Jersey

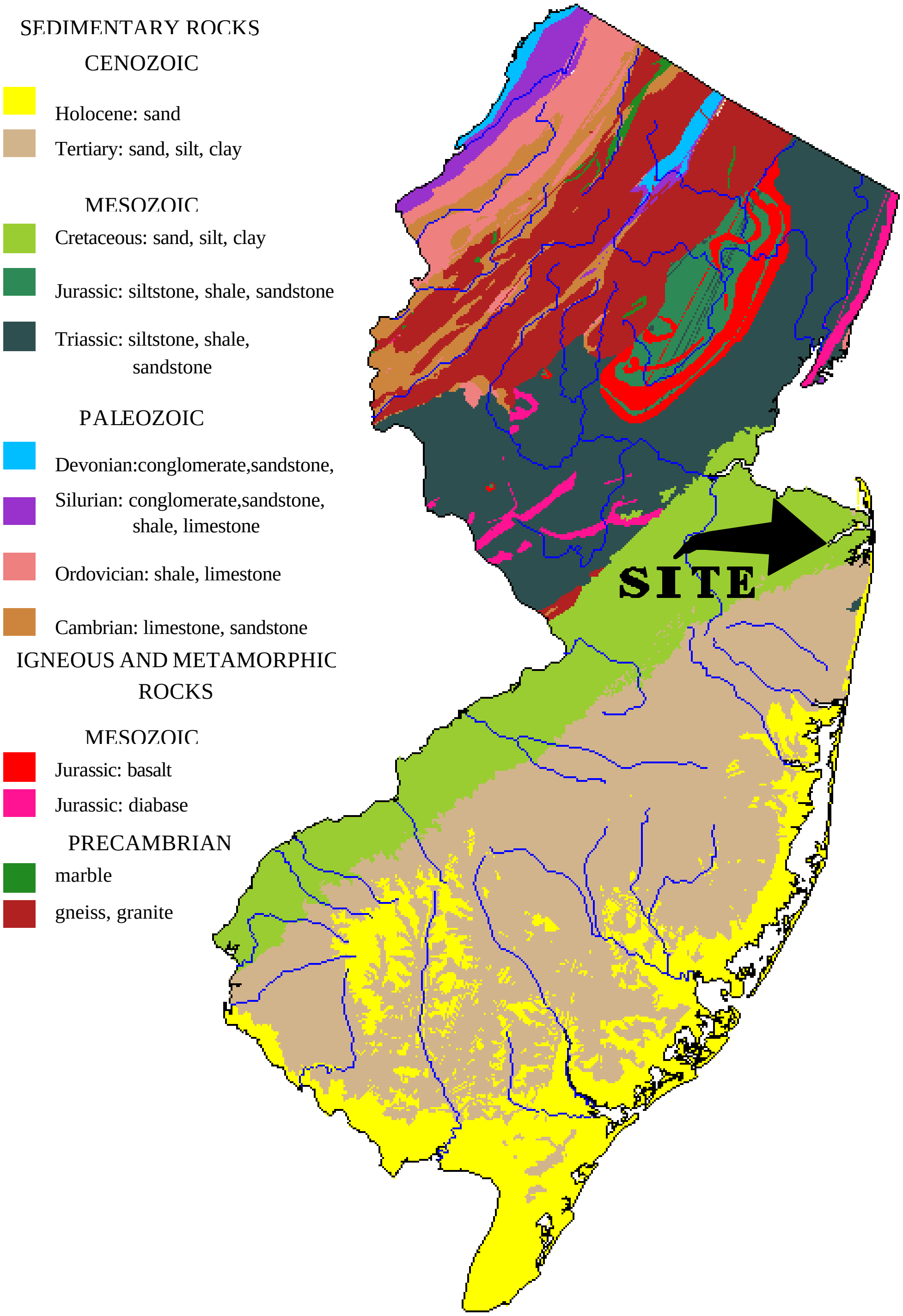
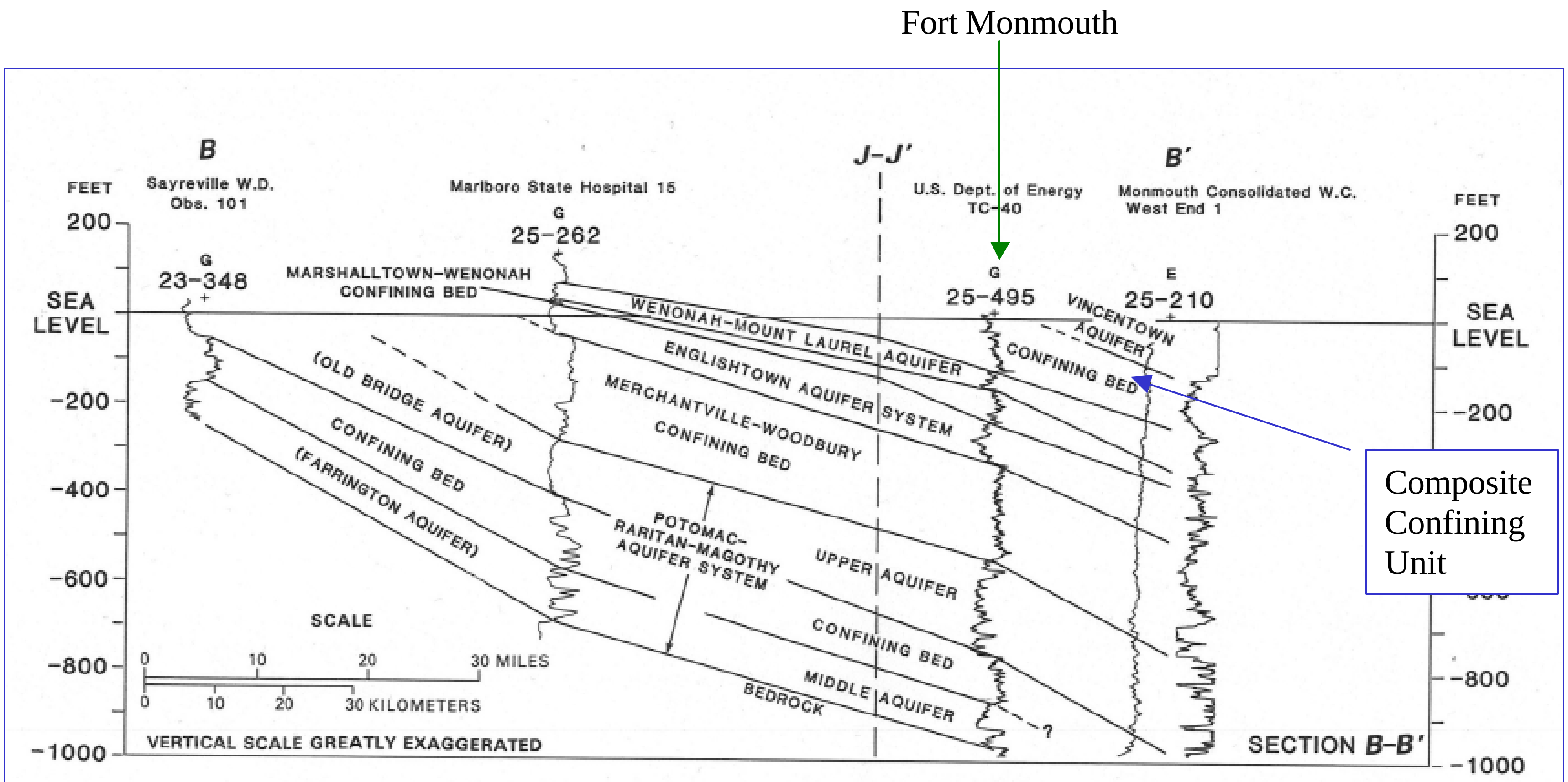
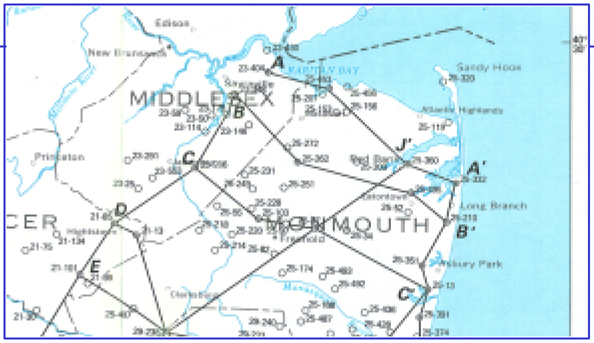


FIGURE 3
Geological Map of New Jersey
Site 812
Fort Monmouth, New Jersey

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, Pennsylvania



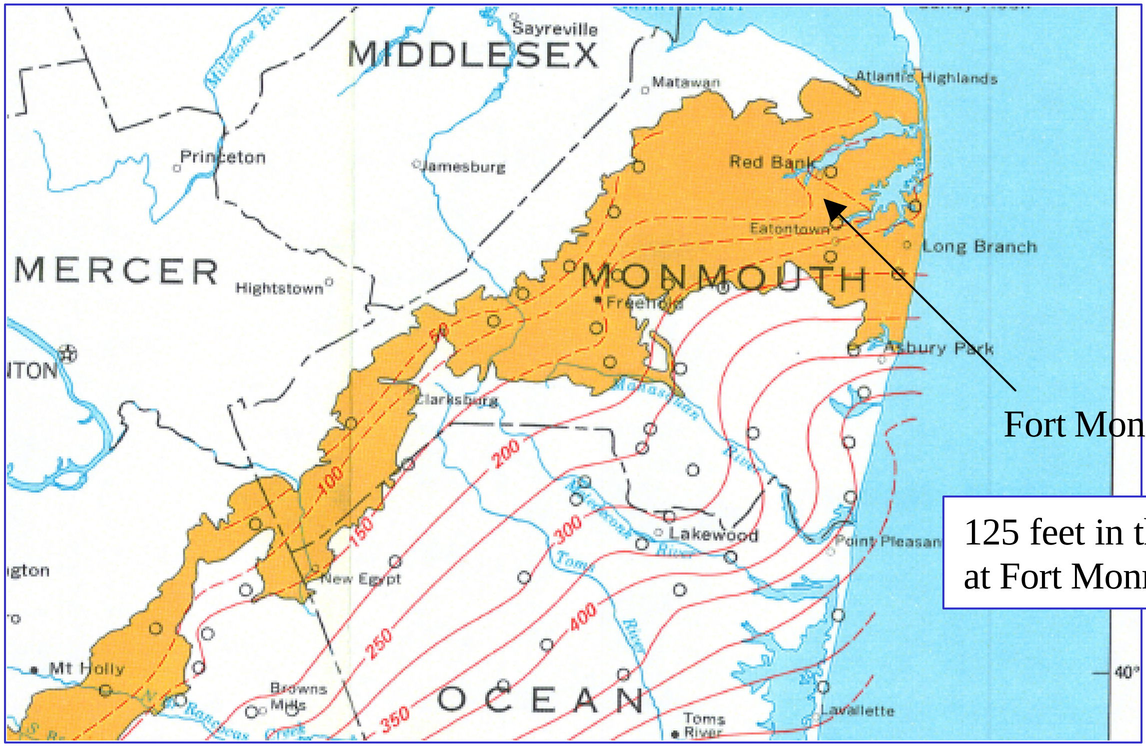


Source: Zapecza, O. 1989. *Hydrogeologic Framework of the New Jersey Coastal Plain.* USGS Professional Paper 1404-B. U.S. Government Printing Office, Washington, DC.

FIGURE 4

Geologic Cross-Section
Site 812
Fort Monmouth, New Jersey

Versar INC.
2558 Pearl Buck Road, Suite 1
Bristol, PA 19007
(215) 788-7844



Fort Monmouth

125 feet in thickness
at Fort Monmouth

EXPLANATION

🟧	Outcrop area of the Navesink Formation, Red Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, and Manasquan Formation
—600—	Line of equal thickness of the composite confining bed Dashed where approximately located. Interval 50 feet
○	Well location

Source: Zapecza, O. 1989. *Hydrogeologic Framework of the New Jersey Coastal Plain.* USGS Professional Paper 1404-B. U.S. Government Printing Office, Washington, DC.

FIGURE 5

Outcrop and Thickness of Composite Confining Unit Site 812 Fort Monmouth, New Jersey

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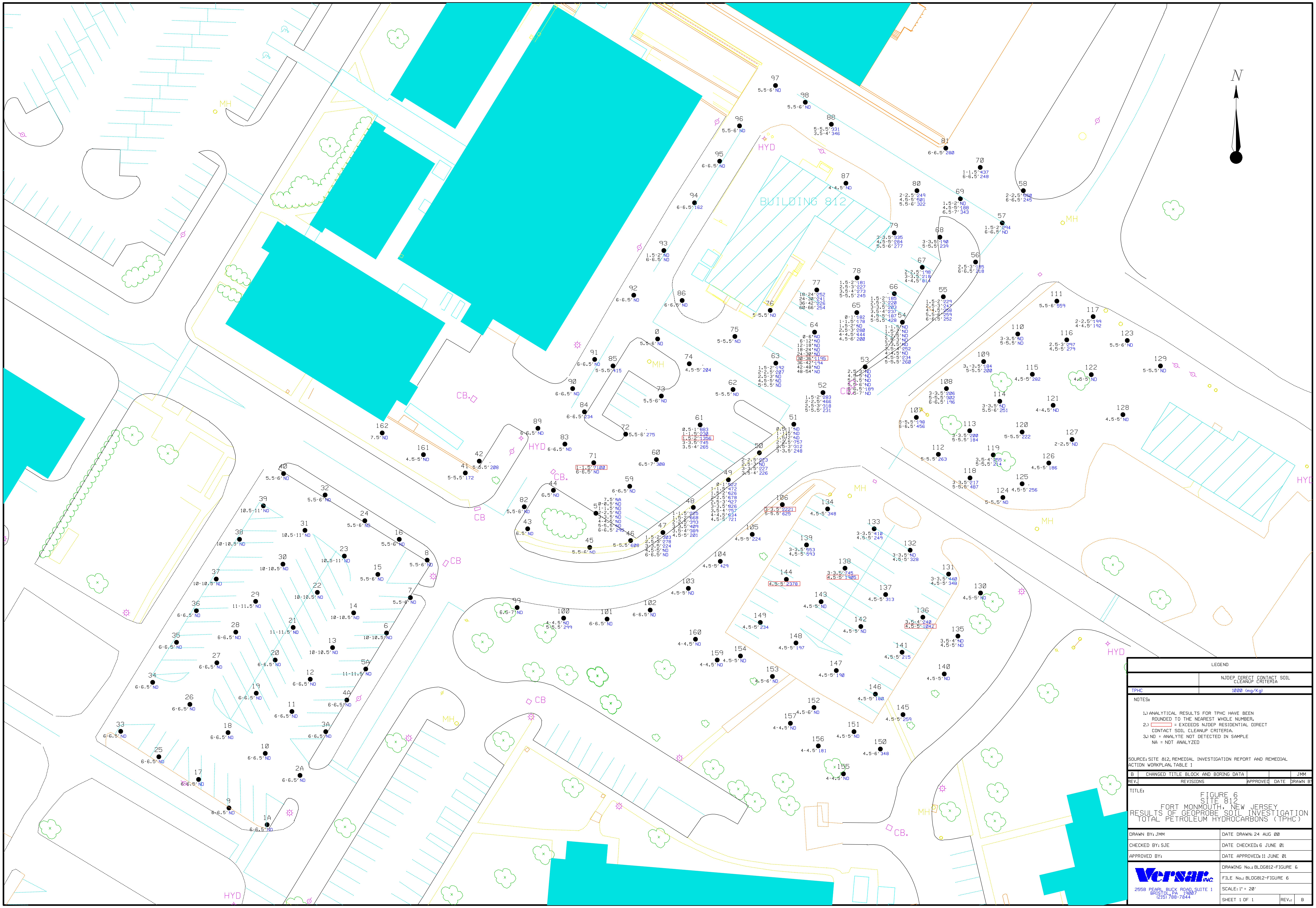
Bristol, PA 19007
(215) 788-7844



LEGEND

	NJDEP DIRECT CONTACT SOIL CLEANUP CRITERIA
TPHC	1000 (mg/Kg)

NOTES:

1.) ANALYTICAL RESULTS FOR TPHC HAVE BEEN ROUNDED TO THE NEAREST WHOLE NUMBER.
2.) 🟥 = EXCEEDS NJDEP RESIDENTIAL DIRECT CONTACT SOIL CLEANUP CRITERIA.
3.) ND = ANALYTE NOT DETECTED IN SAMPLE
NA = NOT ANALYZED

SOURCE: SITE 812, REMEDIAL INVESTIGATION REPORT AND REMEDIAL ACTION WORKPLAN, TABLE 1

B	CHANGED TITLE BLOCK AND BORING DATA			JMM
REV.	REVISIONS	APPROVED	DATE	DRAWN BY

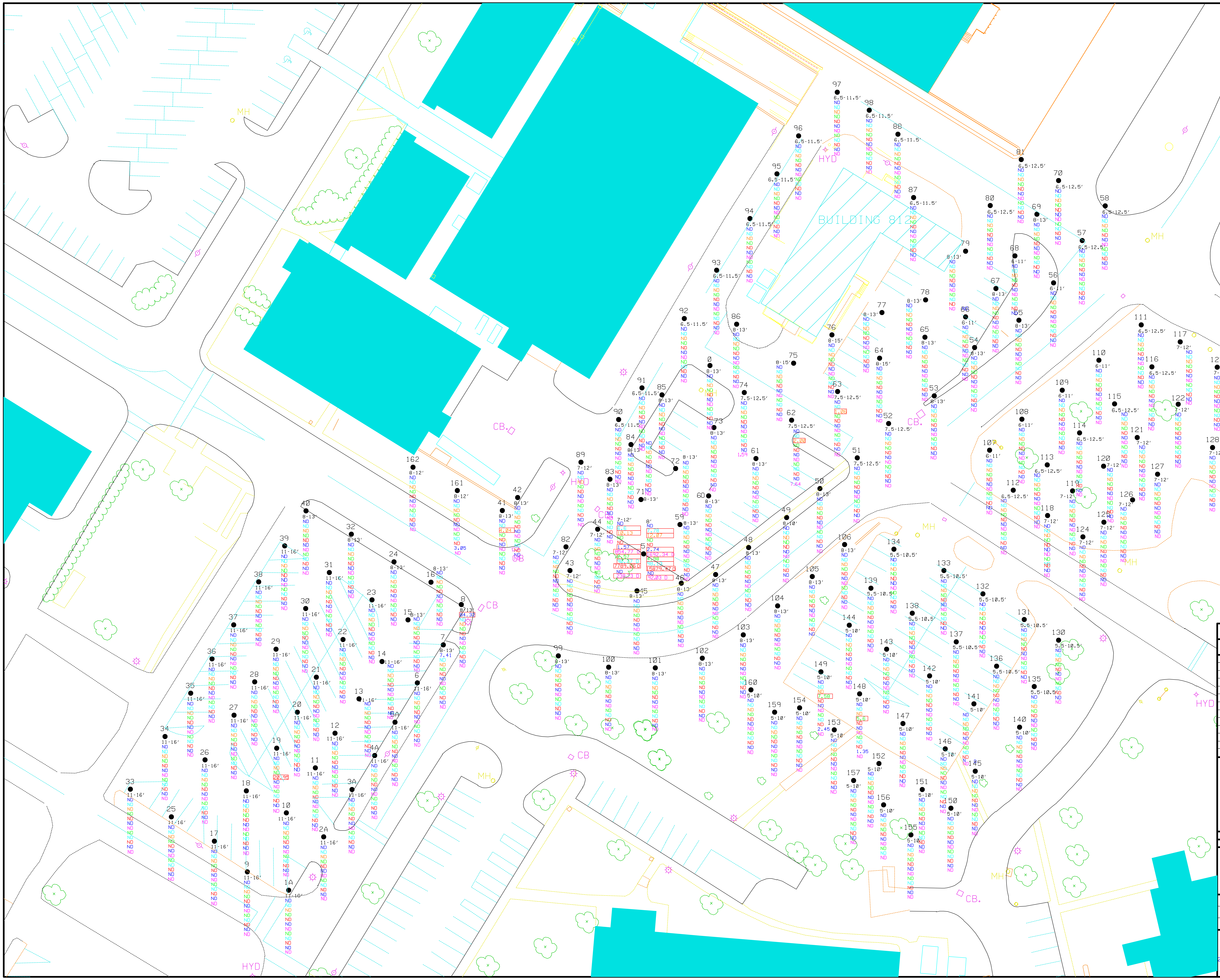
TITLE:

FIGURE 6
SITE 812
FORT MONMOUTH, NEW JERSEY
RESULTS OF GEOPROBE SOIL INVESTIGATION
TOTAL PETROLEUM HYDROCARBONS (TPHC)

DRAWN BY: JMM	DATE DRAWN: 24 AUG 00
CHECKED BY: SJE	DATE CHECKED: 6 JUNE 01
APPROVED BY:	DATE APPROVED: 11 JUNE 01

Versar INC.
2558 PEARL BUCK ROAD, SUITE 1
BRISTOL, PA 19007
(215) 788-7844

DRAWING No.: BLDG812-FIGURE 6
FILE No.: BLDG812-FIGURE 6
SCALE: 1" = 20'
SHEET 1 OF 1 REV.: B



LEGEND

VOLATILE ORGANIC COMPOUNDS	NJDEP GROUNDWATER QUALITY CRITERIA
DEPTH	FT (')
1,1,1-TRICHLOROETHANE	30 (ug/L)
1,1-DICHLOROETHENE	2 (ug/L)
BENZENE	1 (ug/L)
BROMOFORM	4 (ug/L)
METHYLENE CHLORIDE	2 (ug/L)
TETRACHLOROETHENE (PCE)	1 (ug/L)
TRANS-1,2-DICHLOROETHENE	100 (ug/L)
TRICHLOROETHANE (TCE)	1 (ug/L)
VINYL-CHLORIDE	5 (ug/L)
CIS-1,2-DICHLOROETHENE	10 (ug/L)
CHLOROFORM	6 (ug/L)
TOTAL XYLENES	40 ug/L

NOTES:

1.) ▭ = EXCEEDS NJDEP GROUNDWATER QUAILTY CRITERIA.
2.) NLE = NO GWQC EXISTS FOR THIS ANALYTE
ND = ANALYTE NOT DETECTED IN SAMPLE
NA = NOT ANALYZED

B	CHANGED TITLE BLOCK INFORMATION			JMM
REV.	REVISIONS	APPROVED	DATE	DRAWN BY

TITLE:
FIGURE 7
SITE 812
FORT MONMOUTH, NEW JERSEY
RESULTS OF GEOPROBE
GROUNDWATER INVESTIGATION
VOLATILE ORGANIC COMPOUNDS

DRAWN BY: JMM	DATE DRAWN: 24 AUG 00
CHECKED BY: SJE	DATE CHECKED: 6 JUNE 01
APPROVED BY:	DATE APPROVED: 11 JUNE 01

Versar INC.
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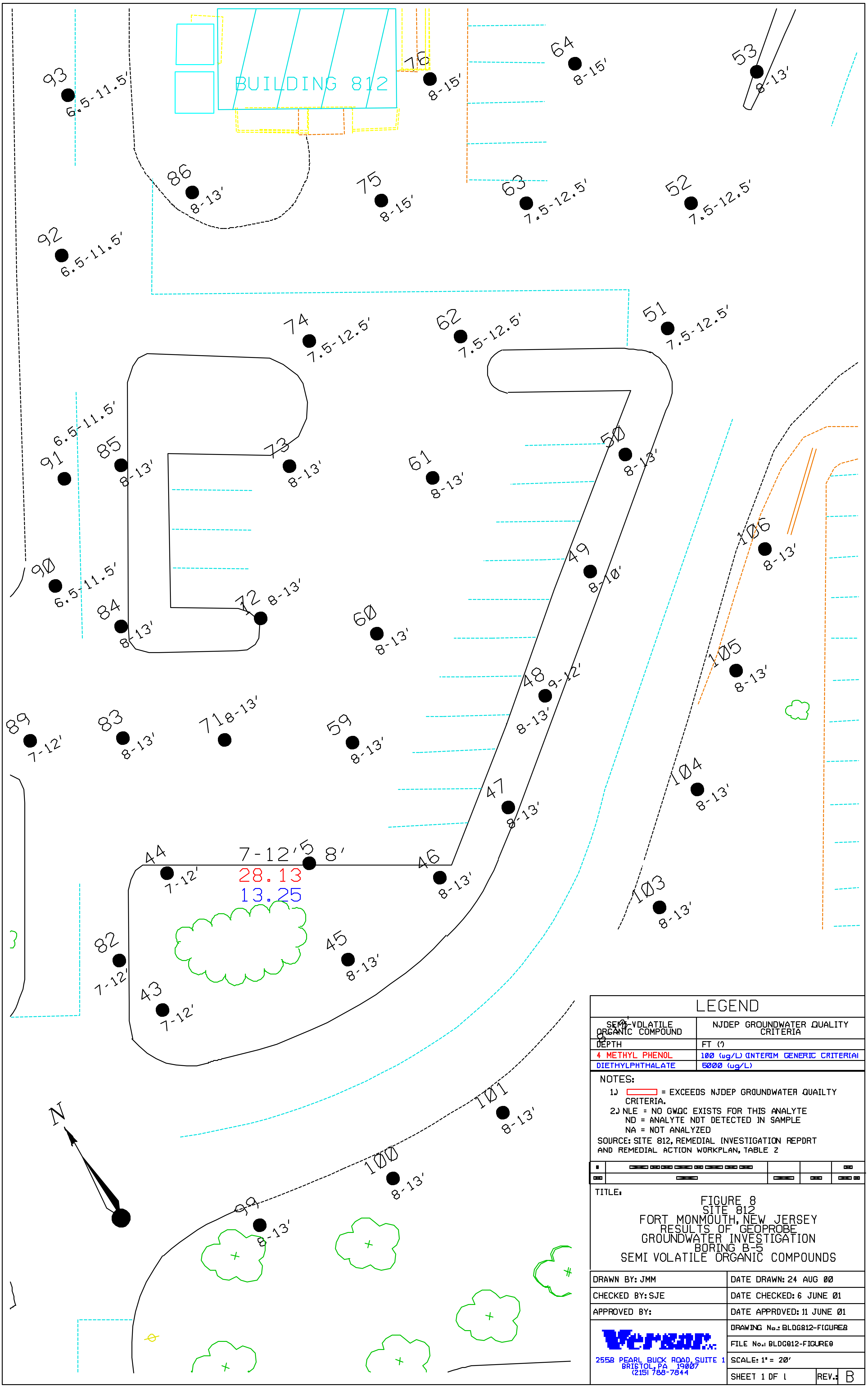
BRISTOL, PA 19007
(215) 788-7844

DRAWING No.: BLDG812-FIGURE7
FILE No.: BLDG812-FIGURE7
SCALE: 1" = 20'
SHEET 1 OF 1
REV.: B



LEGEND

SEMI-VOLATILE ORGANIC COMPOUND	NJDEP GROUNDWATER QUALITY CRITERIA
DEPTH	FT (')
4 METHYL PHENOL	100 (ug/L) (INTERIM GENERIC CRITERIA)
DIETHYLPHTHALATE	5000 (ug/L)

NOTES:

1.) ▭ = EXCEEDS NJDEP GROUNDWATER QUAILTY CRITERIA.

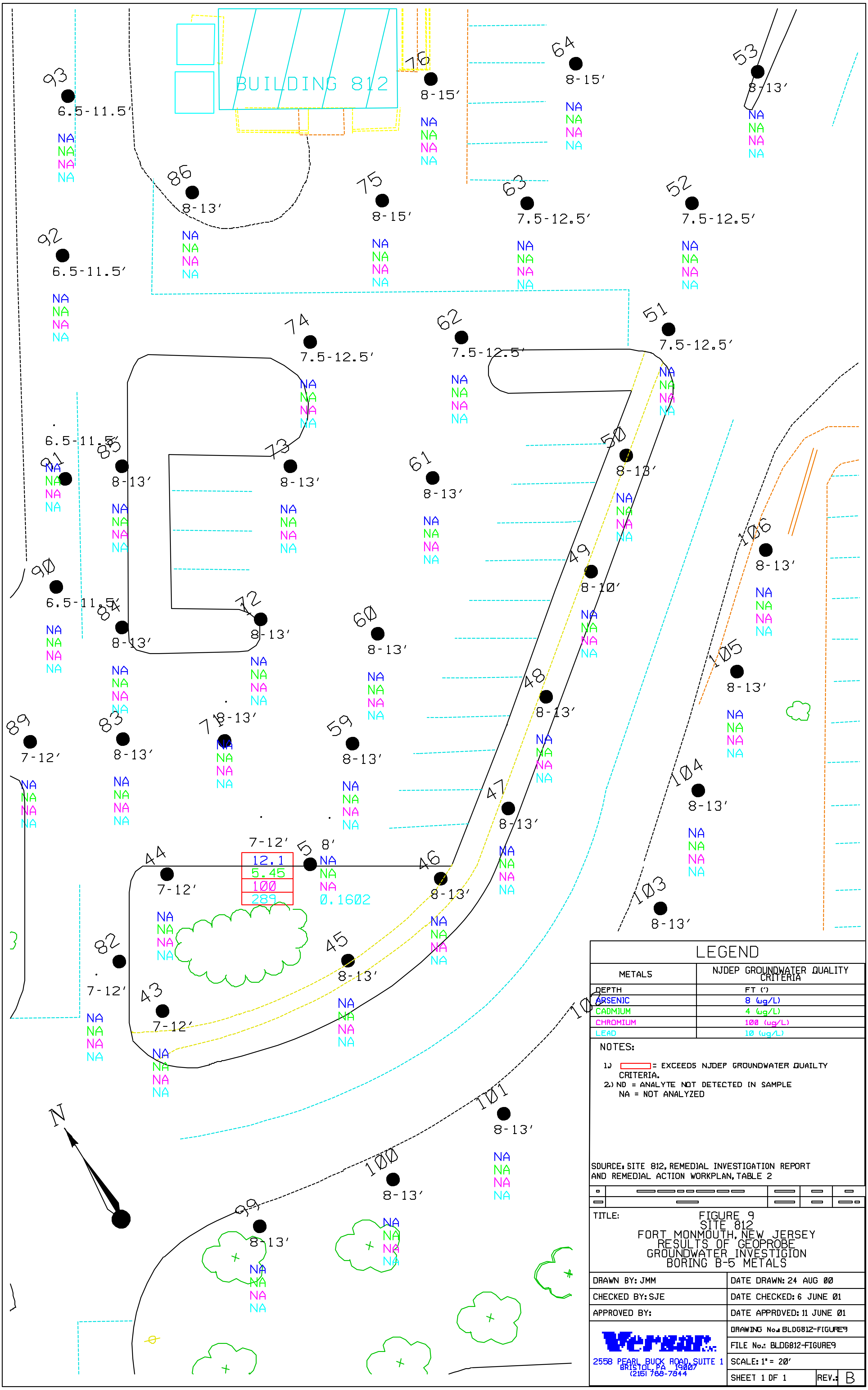
2.) NLE = NO GWQC EXISTS FOR THIS ANALYTE
ND = ANALYTE NOT DETECTED IN SAMPLE
NA = NOT ANALYZED

SOURCE: SITE 812, REMEDIAL INVESTIGATION REPORT AND REMEDIAL ACTION WORKPLAN, TABLE 2

TITLE:

FIGURE 8
SITE 812
FORT MONMOUTH, NEW JERSEY
RESULTS OF GEOPROBE GROUNDWATER INVESTIGATION
BORING B-5
SEMI VOLATILE ORGANIC COMPOUNDS

DRAWN BY: JMM	DATE DRAWN: 24 AUG 00
CHECKED BY: SJE	DATE CHECKED: 6 JUNE 01
APPROVED BY:	DATE APPROVED: 11 JUNE 01
Versar, Inc. 2558 PEARL BUCK ROAD, SUITE 1 BRISTOL, PA 19007 (215) 788-7844	DRAWING No.: BLDG812-FIGURE8
	FILE No.: BLDG812-FIGURE8
	SCALE: 1" = 20'
	SHEET 1 OF 1 REV.: B



LEGEND

METALS	NJDEP GROUNDWATER QUALITY CRITERIA
DEPTH	FT (')
ARSENIC	8 (ug/L)
CADMIUM	4 (ug/L)
CHROMIUM	100 (ug/L)
LEAD	10 (ug/L)

NOTES:

1.) 🟥 = EXCEEDS NJDEP GROUNDWATER QUAILTY CRITERIA.
2.) ND = ANALYTE NOT DETECTED IN SAMPLE
NA = NOT ANALYZED

SOURCE: SITE 812, REMEDIAL INVESTIGATION REPORT AND REMEDIAL ACTION WORKPLAN, TABLE 2

TITLE:
FIGURE 9
SITE 812
FORT MONMOUTH, NEW JERSEY
RESULTS OF GEOPROBE
GROUNDWATER INVESTIGION
BORING B-5 METALS

DRAWN BY: JMM	DATE DRAWN: 24 AUG 00
CHECKED BY: SJE	DATE CHECKED: 6 JUNE 01
APPROVED BY:	DATE APPROVED: 11 JUNE 01
Versar inc. 2558 PEARL BUCK ROAD, SUITE 1 BRISTOL, PA 19007 (215) 788-7844	DRAWING No.: BLDG812-FIGURE9
	FILE No.: BLDG812-FIGURE9
	SCALE: 1" = 20'
	SHEET 1 OF 1 REV.: B

MW-14

SAMPLE DATE	5/26/00	6/9/00
VOLATILES	NDCOC	NDCOC

MW-10

SAMPLE DATE	5/25/00	6/9/00
VOLATILES	NDCOC	NDCOC

MW-9

SAMPLE DATE	5/25/00	6/9/00
VOLATILES	NDCOC	NDCOC

MW-11

SAMPLE DATE	5/25/00	6/9/00
VOLATILES	NDCOC	NDCOC

MW-2

SAMPLE DATE	5/30/00	6/12/00
VOLATILES		
	NDCOC	NDCOC

MW-7

	SAMPLE DATE	5/26/00	6/9/00
VOLATILES	NJDEP CRITERIA		
1,1,-DICHLOROETHANE	7 (ug/L)	3.62	ND
1,1,1,-TRICHLOROETHANE	30 (ug/L)	41.84 🟨	6.36

MW-8

SAMPLE DATE	5/26/00	6/9/00
VOLATILES	NDCOC	NDCOC

MW-4

SAMPLE DATE	5/30/00	6/12/00
VOLATILES	NDCOC	NDCOC

MW-1

	SAMPLE DATE	5/26/00	6/9/00
VOLATILES	NJDEP CRITERIA		
1,1-DICHLOROETHENE	2 (ug/L)	6.51 🟨	8.11 🟨
BENZENE	1 (ug/L)	8.84 🟨	9.99 🟨
CIS-1,2,-DICHLOROETHENE	10 (ug/L)	10397.69 🟨	10436.18 🟨
TETRACHLOROETHENE	1 (ug/L)	2.35 🟨	2.64 🟨
TRANS-1,2-DICHLOROETHENE	100 (ug/L)	615.87 🟨	450.06 🟨
TRICHLOROETHENE	1 (ug/L)	5.25 🟨	4.7 🟨
VINLY CHLORIDE	5 (ug/L)	126.45 🟨	147.57 🟨

MW-6

SAMPLE DATE	5/25/00	6/9/00
VOLATILES		
	NDCOC	NDCOC

MW-3

SAMPLE DATE	5/30/00	6/12/00
VOLATILES		
	NDCOC	NDCOC

MW-5

	SAMPLE DATE	5/26/00	6/9/00
VOLATILES	NJDEP CRITERIA		
1,1-DICHLOROETHANE	7 (ug/L)	ND	3.64
1,1,1-TRICHLOROETHANE	30 (ug/L)	10.09	43.71 🟨

MW-12

SAMPLE DATE	5/25/00	6/9/00
VOLATILES	NDCOC	NDCOC

MW-13

SAMPLE DATE	5/26/00	6/9/00
VOLATILES	NDCOC	NDCOC

N

LEGEND

NOTES:

1.) 🟨 = EXCEEDS NJDEP GROUNDWATER QUALITY CRITERIA
2.) NLE = NO LIMIT ESTABLISHED
3.) NDCOC = NO DETECTED CONSTITUENTS OF CONCERN
4.) ND = NOT DETECTED
5.) ⊗ = DEEP GROUNDWATER MONITORING WELL
6.) ⊗ = SHALLOW GROUNDWATER MONITORING WELL

SOURCE: SITE 812, REMEDIAL INVESTIGATION REPORT AND REMEDIAL ACTION WORKPLAN, TABLE 3

B	REMOVED SEMI-VOLATILES AND METALS			JMM
REV.	REVISIONS	APPROVED	DATE	DRAWN BY

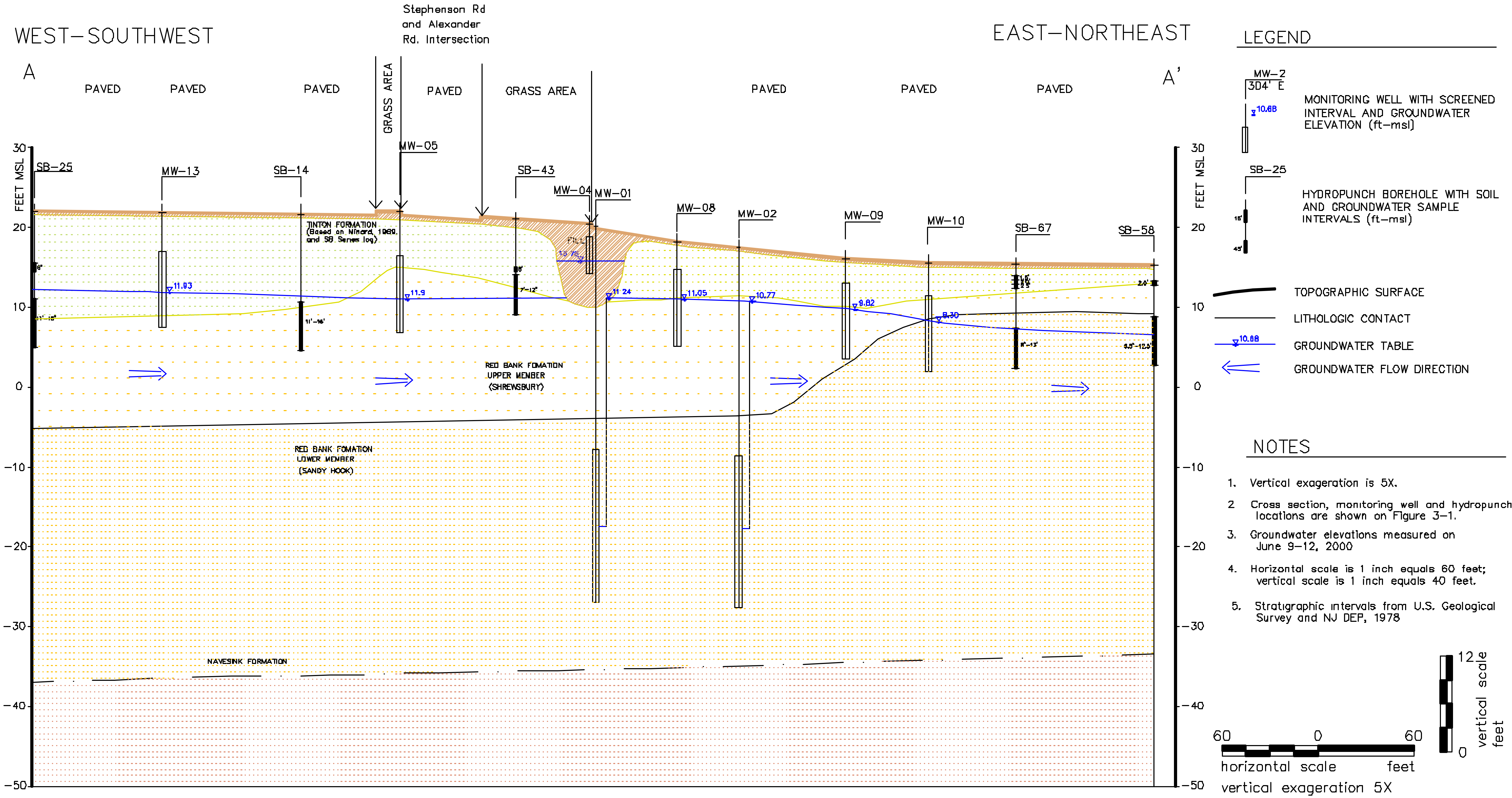
TITLE:

FIGURE 10
SITE 812
FORT MONMOUTH, NEW JERSEY
GROUNDWATER MONITORING
WELL SAMPLING
IDENTIFIED CONSTITUENTS OF CONCERN
VOLATILE ORGANIC COMPOUNDS

DRAWN BY: JMM	DATE DRAWN: 22 AUG 00
CHECKED BY: SJE	DATE CHECKED: 6 JUNE 01
APPROVED BY:	DATE APPROVED: 11 JUNE 01

Versar INC.
2558 PEARL BUCK ROAD, SUITE 1
BRISTOL, PA 19007
(215) 788-7844

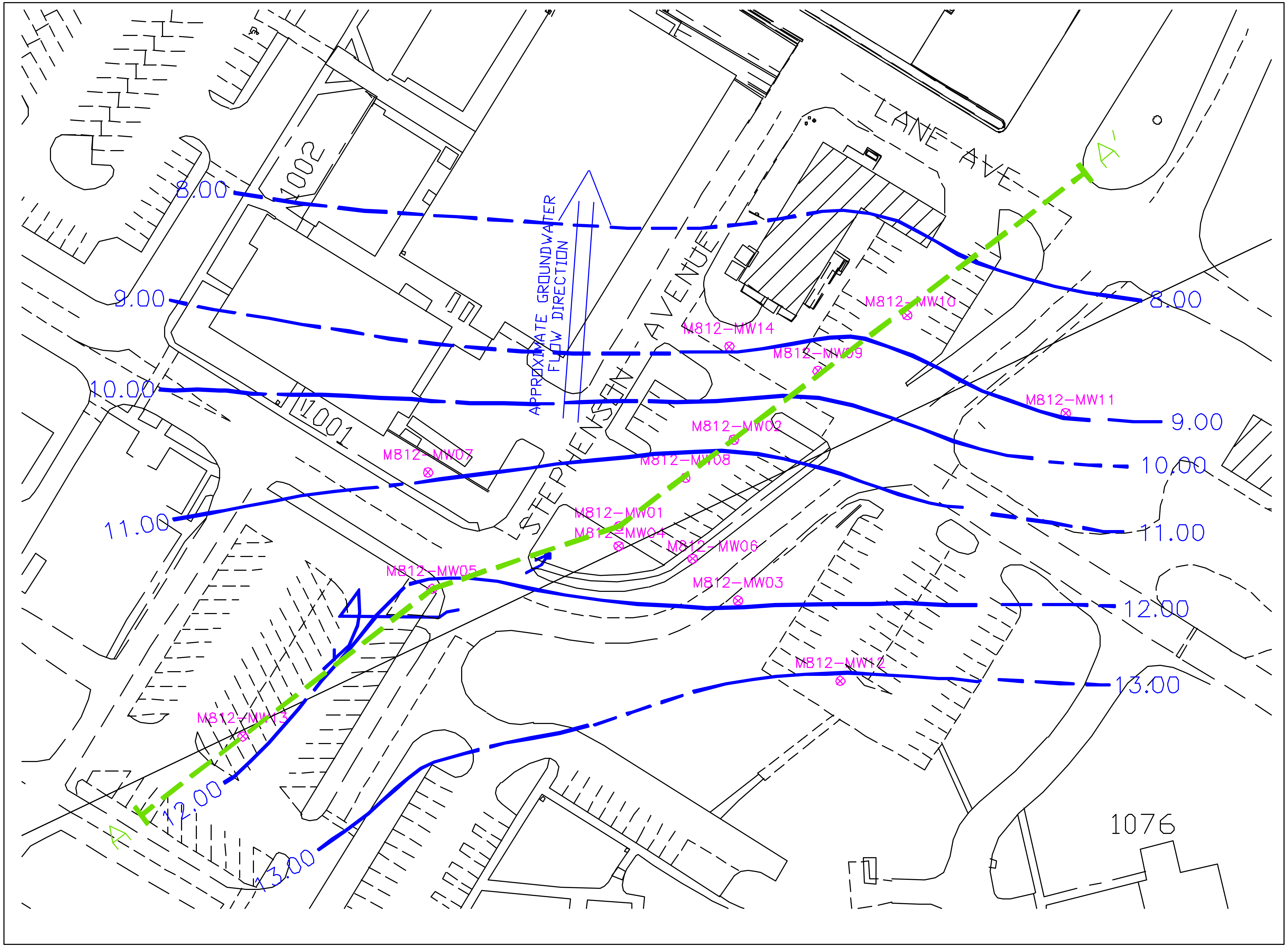
DRAWING No.: BLDG812-FIGURE8
FILE No.: BLDG812-FIGURE8
SCALE: 1" = 16'
SHEET OF REV.: B



NOTES

1. Vertical exageration is 5X.
2. Cross section, monitoring well and hydropunch locations are shown on Figure 3-1.
3. Groundwater elevations measured on June 9-12, 2000
4. Horizontal scale is 1 inch equals 60 feet; vertical scale is 1 inch equals 40 feet.
5. Stratigraphic intervals from U.S. Geological Survey and NJ DEP, 1978

CLIENT: US Army Fort Monmouth - DPW	JOB No: 4936-105	SCALE: AS SHOWN	CROSS SECTION A - A'
	DRAWN: MJ	DATE: 08/28/00	
	CHECKED: SSV	DWG No: XSEC.DWG	
PREPARED BY: VERSAR INC.	PROJECT: Site 812 - Ft. Monmouth		FIGURE 11



Fortmon2\D05_SITE812

ROAD (PAVED)	═	A' —— A'	CROSS SECTION
MONITORING WELL	⊗		
BUILDING	⊓		
GROUNDWATER ELEVATION CONTOUR (DASHED WHEN INFERRED)	~8.00~		

NOTES:

GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL

REV.	REVISIONS	APPROVED	DATE	DRAWN BY
1		SJE	02/15/01	TJV

TITLE:

FIGURE 12
GROUNDWATER ELEVATION
CONTOUR MAP (MAY 30, 2000)

DRAWN BY: JMM	DATE DRAWN: 15 JAN 00
CHECKED BY: SJE	DATE CHECKED: 02/15/01
APPROVED BY:	DATE APPROVED:

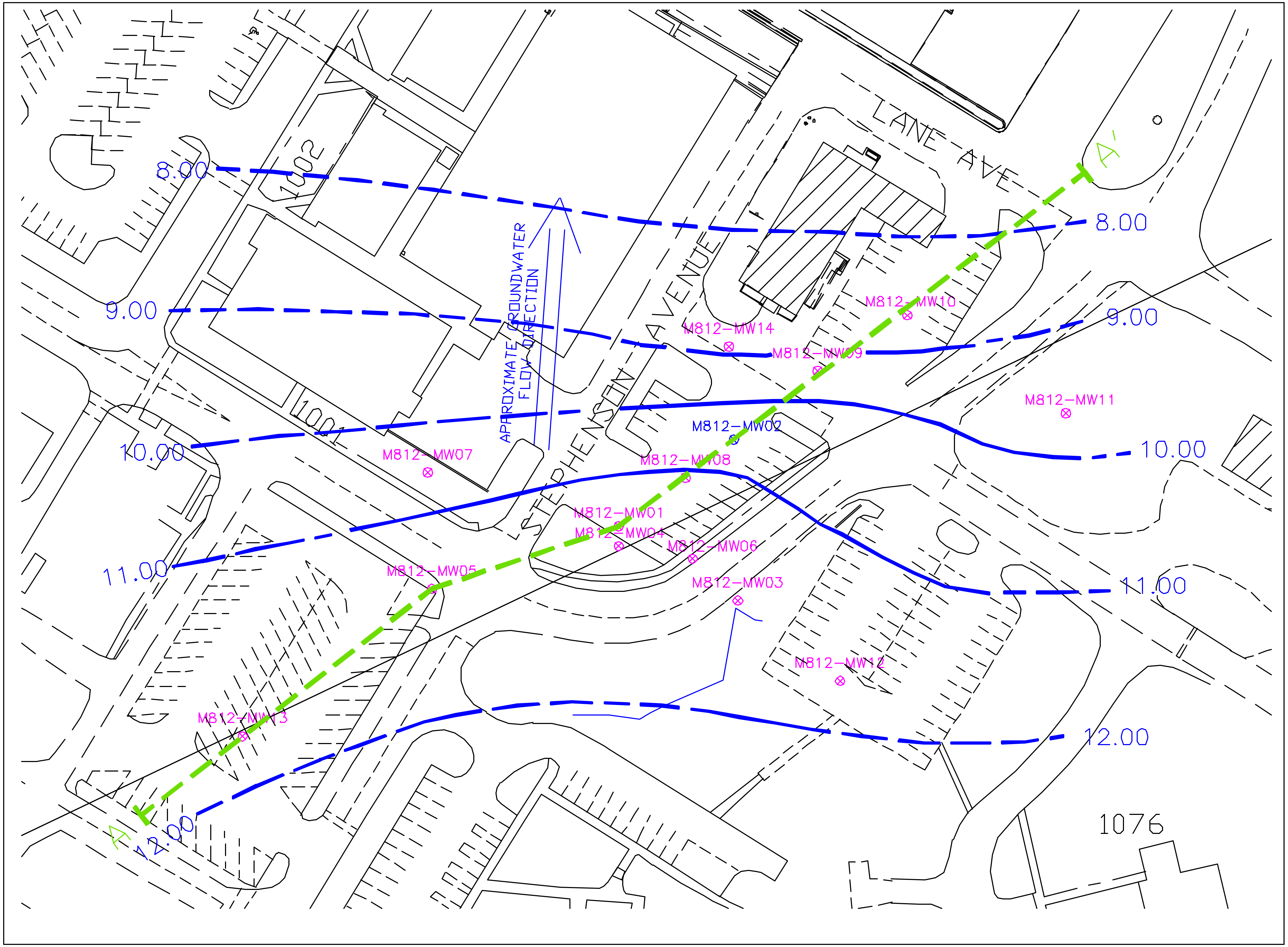
Versar inc.
2558 PEARL BUCK ROAD, SUITE 1
BRISTOL, PA 19007
(215) 788-7844

FIGURE 12

SITE 812 FIG 12

SCALE: NTS

SHEET 1 OF 1 REV.: B



FortMon2\DD5Site 812

ROAD (PAVED)	═	A' ——— A'	CROSS SECTION
MONITORING WELL	⊗		
BUILDING	⊓		
GROUNDWATER ELEVATION CONTOUR (DASHED WHEN INFERRED)	~8.00~		

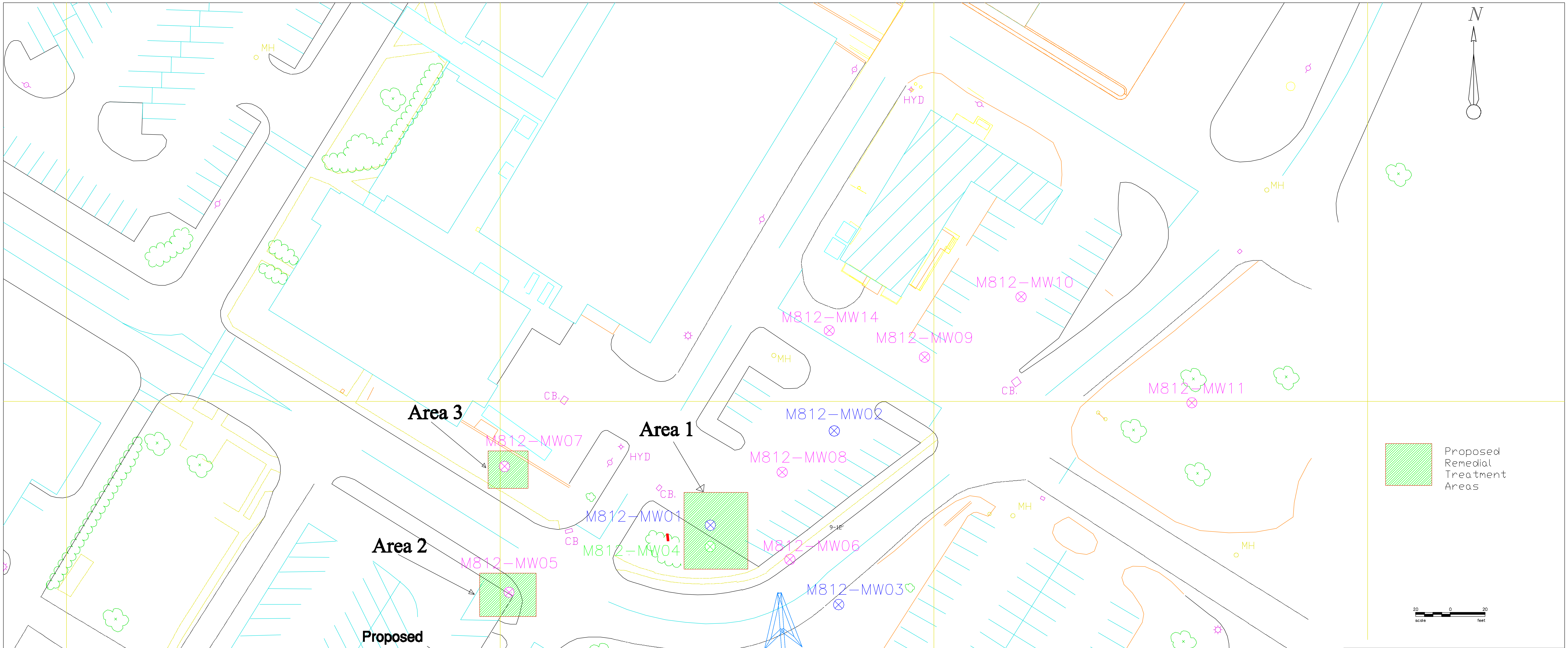
NOTES:

REV.	REVISIONS	APPROVED	DATE	DRAWN BY
1		SJE	02/15/01	TJV

TITLE:

FIGURE 13
GROUNDWATER ELEVATION
CONTOUR MAP (JUNE12, 2000)

DRAWN BY: JMM	DATE DRAWN: 15 JAN 00
CHECKED BY: SJE	DATE CHECKED: 02/15/01
APPROVED BY:	DATE APPROVED:
Versar inc. 2558 PEARL BUCK ROAD, SUITE 1 BRISTOL, PA 19007 (215) 788-7844	FIGURE 13
	SITE 812 FIG 13
	SCALE: NTS
	SHEET 1 OF 1 REV.: B



LEGEND

M812–MW04 ⊗ GROUNDWATER MONITORING WELL SCREENED IN THE FILL

M812–MW04 ⊗ GROUNDWATER MONITORING WELL SCREENED IN SHALLOW NATURAL SEDIMENTS

M812–MW04 ⊗ GROUNDWATER MONITORING WELL SCREENED IN DEEP NATURAL SEDIMENTS

REV.	REVISIONS	APPROVED	DATE	DRAWN BY

TITLE:

FIGURE 14

SITE 812 – PROPOSED REMEDIAL ACTION

DRAWN BY: JMM	DATE DRAWN: 10 OCT 00
CHECKED BY: SJE	DATE CHECKED: 6 JUNE 01
APPROVED BY:	DATE APPROVED: 11 JUNE 01
	DRAWING No.: FIG 14
	FILE No.: SITE 812 FIG 14
2558 PEARL BUCK ROAD, SUITE 1 BRISTOL, PA 19007 (215) 788-7844	SCALE: 1" = 20'
	SHEET 1 OF 1 REV.: A

Tables

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	4810.03	4810.04	4810.05	4810.06	4810.07	4810.09	4998.03	4998.04	4998.05	4998.06	4998.07	4998.08	4998.09	5003.03	5003.04
Sample Location		1	2	3	4	4	5	5	5	5	5	5	5	5	43	44
Sample Depth		8.5 '	9'	9'	4'	9'	7.5'	0-0.5'	1-1.5'	2-2.5'	3-3.5'	4-4.4'	5-5.5'	6-6.5'	6.5'	6.5'
Sample Date		9/23/99	9/23/99	9/23/99	9/23/99	9/23/99	9/23/99	12/9/99	12/9/99	12/9/99	12/9/99	12/9/99	12/9/99	12/9/99	12/10/99	12/10/99
Volatiles																
2-Butanone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	ND	ND	ND	ND	ND	ND	0.33	ND	ND	ND	ND	0.29	0.31	0.33	ND
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	3.7	ND	ND	ND	ND	ND	ND	0.37	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	2.2	0.92	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	0.47	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	0.28	0.55	0.17	0.2	0.19	0.24	0.54	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	0.11	ND	ND	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	1.1	0.42	0.91	0.17	0.14	0.44	1.2	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	0.13	ND	0.15	ND	ND	ND	ND	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	294.86	ND	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	0.004	ND	0.011	ND	0.008	0.004	ND	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	0.01	0.004	0.013	ND	ND	0.007	ND	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	0.054	0.023	0.022	ND	ND	0.020	ND	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	12700	7000	6620	10100	9350	10600	12700	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	3.61	1.49	1.32	1.75	2.65	1.66	1.74	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	13.8	4.89	5.44	8.10	8.68	8.32	6.55	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	44.7	18.4	16.6	23.7	27.7	22.8	23.9	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	1.08	0.694	0.713	1.21	1.25	1.23	1.18	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	0.768	0.483	0.525	1.04	0.867	1.08	0.731	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	1320	838	820	1290	4900	3600	5010	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	59.8	52.4	55.1	88.8	83.0	102	92.0	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	4.07	2.44	1.91	2.89	3.71	3.30	3.53	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	26.0	9.54	5.96	5.89	5.45	6.04	3.08	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	33100	20600	21400	34000	30300	36200	37400	NA	NA
Lead	400	ND	5.47	ND	5.66	ND	**601.75**	32.9	25.0	21.9	21.8	19.9	21.7	7.79	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	3170	2030	2160	3590	3210	4060	4100	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	118	51.6	43.0	62.6	56.1	64.1	79.5	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	0.086	0.023	0.038	0.047	0.038	0.035	0.042	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	10.1	5.96	4.83	7.45	7.29	8.50	7.92	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	6110	4150	4350	7610	6740	8710	7680	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	454	267	161	450	321	617	1070	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	49.3	35.7	38.2	62.2	55.5	70.9	61.0	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	62.3	33.8	38.7	53.9	53.2	73.4	42.4	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5012.03	5012.04	5012.05	5012.06	5012.07	5012.08	5012.09	5012.10	5012.11	5012.12	5012.13	5012.14	5012.15	5012.16	5012.17
Sample Location		45	46	46	99	100	100	47	47	47	47	47	59	71	71	101
Sample Depth		5.5-6'	5-5.5'	5.5-6'	6.5-7'	4-4.5'	6-6.5'	1.5-2'	2.5-3'	3-3.5'	4.5-5'	6-6.5'	6-6.5'	1-1.5'	6-6.5'	6-6.5'
Sample Date		12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99	12/13/99
Volatiles																
2-Butanone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	0.36	0.36	0.58	0.33	ND	0.29	ND	ND	0.26	ND	ND	0.46	ND	ND	ND
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.47	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.49	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	608.13	ND	ND	ND	298.69	302.73	277.59	223.96	ND	ND	ND	**7099.8**	ND	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5012.18	5012.19	5012.20	5016.03	5016.04	5016.05	5016.06	5016.07	5016.08	5016.09	5016.10	5016.11	5016.12	5016.13	5016.14
Sample Location		102	103	104	48	48	48	48	48	48	88	105	106	106	60	72
Sample Depth		6-6.5'	4.5-5'	4.5-5'	1-1.5'	1.5-2'	2-2.5'	3-3.5'	3.5-4'	4.5-5'	5-5.5'	4.5-5'	3-3.5'	5-5.5'	6.5-7'	5-5.5'
Sample Date		12/13/99	12/13/99	12/13/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99
Volatiles																
2-Butanone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.1	5.4	4.9	4.2
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	ND	ND	ND	ND	ND	ND	0.34	0.29	0.28	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	ND	429.4	224.88	667.8	393.25	409.5	388.55	201.25	330.6	223.71	**2221.44**	625.14	307.69	275.08
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
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Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5016.15	5016.16	5016.17	5016.18	5016.19	5016.20	5016.21	5016.22	5016.23	5016.24	5016.25	5016.26	5019.03	5019.04	5019.05
Sample Location		42	41	49	49	49	49	49	49	49	49	49	84	50	50	50
Sample Depth		5-5.5'	5-5.5'	0.5-1'	1-1.5'	1.5-2'	2-2.5'	2.5-3'	3-3.5'	3.5-3'	4-4.5'	4.5-5'	5-5.5'	2-2.5'	2.5-3'	3-3.5'
Sample Date		12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/16/99	12/16/99	12/16/99
Volatiles																
2-Butanone	1000	4.6	4.3	3.8	5.9	4.6	5.1	5.4	4.5	5.0	4.4	4.4	4.7	4.3	3.9	3.8
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	ND	ND	ND	0.37	0.26	0.26	0.29	0.28	0.32	0.33	ND	0.33	0.32	0.32	0.31
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	3.9	0.95	0.56	0.42	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	208.31	171.63	522.49	472.12	626.25	677.6	926.94	826.43	757.12	834.54	721.44	233.81	223.52	ND	226.85
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5019.06	5019.07	5019.09	5019.10	5019.11	5019.12	5019.13	5019.14	5023.03	5023.04	5023.05	5023.06	5023.07	5023.08	5023.09
Sample Location		50	85	73	61	61	61	61	61	51	51	51	51	51	51	62
Sample Depth		3.5-4'	5-5.5'	5.5-6'	0.5-1'	2-2.5'	2.5-3'	3-3.5'	3.5-4'	0.5-1'	1-1.5'	1.5-2'	2-2.5'	2.5-3'	3-3.5'	5-5.5'
Sample Date		12/16/99	12/16/99	12/16/99	12/16/99	12/16/99	12/16/99	12/16/99	12/16/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99
Volatiles																
2-Butanone	1000	4.9	3.8	5.4	5.1	5.7	5.8	6.7	5.5	6.0	7.3	6.3	6.1	7.6	7.7	6.6
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	0.4	0.33	0.42	0.42	0.57	0.65	0.78	0.66	0.26	0.32	0.27	0.27	0.35	0.35	0.28
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	0.51	0.36	ND	0.32	0.36	0.27	0.42	0.4	ND	ND	ND	0.55	0.45
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	226.25	414.67	ND	883.43	229.77	**1356.52**	744.58	265.32	ND	ND	ND	757.39	312.31	248.11	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5023.10	5023.11	5023.12	5023.13	5023.14	5023.15	5023.16	5023.17	5023.18	5023.19	5023.20	5036.03	5036.04	5036.05	5036.06
Sample Location		0	74	63	63	63	63	63	52	52	52	52	53	53	53	53
Sample Depth		5.5-6'	5-5.5'	1.5-2'	2-2.5'	2.5-3'	4.5-5'	5-5.5'	1.5-2'	2-2.5'	2.5-3'	5-5.5'	2.5-3'	4.5-5'	5-5.5'	5.5-6'
Sample Date		12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/20/99	12/20/99	12/20/99	12/20/99
Volatiles																
2-Butanone	1000	5.4	3.7	ND	5.5	6.2	7.0	6.8	6.5	7.4	9.3	6.5	ND	ND	8.0	3.1
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.3
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	0.37	0.68	ND	0.49	0.51	0.51	0.54	0.43	ND	0.57	ND	ND	ND	0.63	0.33
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	204.35	192.36	207.22	ND	ND	ND	283.22	465.69	317.99	230.73	ND	ND	ND	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
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ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5036.07	5036.08	5036.09	5036.10	5036.11	5036.12	5036.13	5036.14	5036.15	5036.16	5036.17	5036.18	5036.19	5036.20	5036.21
Sample Location		53	53	86	76	64	64	64	64	64	64	64	64	64	75	54
Sample Depth		6-6.5'	6.5-7'	6-6.5'	5-5.5'	0-0.5'	0.5-1'	1-1.5'	1.5-2'	2-2.5'	2.5-3'	3-3.5'	3.5-4'	4-4.5'	5-5.5'	1-1.5'
Sample Date		12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99
Volatiles																
2-Butanone	1000	5.3	6.0	4.4	5.0	5.2	4.3	5.3	4.8	5.7	5.0	4.9	5.8	2.0	6.3	6.9
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	0.33	0.31	0.22	ND	ND	0.67	ND	ND	ND	ND	ND	ND	0.27	0.39	0.41
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	0.32	ND	ND	0.28	0.32	0.61	0.29	0.24	0.28	ND	0.23	0.3	ND	0.34	0.47
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	188.58	ND	ND	ND	ND	ND	ND	ND	ND	**1194.58**	194.21	ND	ND	ND	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:

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All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
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ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5036.22	5036.23	5036.24	5036.25	5036.26	5036.27	5036.28	5036.29	5041.03	5041.04	5041.05	5041.06	5041.07	5041.08	5041.09
Sample Location		54	54	54	54	54	54	54	54	77	77	77	77	55	55	55
Sample Depth		1.5-2'	2-2.5'	2.5-3'	3-3.5'	3.5-4'	4-4.5'	4.5-5'	5-5.5'	1.5-2'	2-2.5'	3-3.5'	5-5.5'	1.5-5'	2.5-3'	4-4.5'
Sample Date		12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/20/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99
Volatiles																
2-Butanone	1000	5.7	5.8	5.8	7.0	6.8	7.2	6.9	6.1	5.1	5.7	4.9	5.1	5.5	6.0	6.0
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	0.37	0.36	0.38	0.43	0.4	0.45	0.42	0.4	0.55	0.5	0.43	0.46	ND	0.51	0.59
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	0.46	0.45	0.45	0.53	0.51	ND	ND	0.47	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	ND	ND	ND	252.06	ND	234.05	260.32	251.83	240.93	226.13	254.47	229.01	247.28	258.48
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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Only analytes with detections have been shown.
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Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5041.10	5041.11	5041.12	5041.13	5041.14	5041.15	5041.16	5041.17	5041.18	5041.19	5041.20	5041.21	5041.22	5041.23	5041.24
Sample Location		55	55	65	65	65	65	65	65	66	66	66	66	66	66	78
Sample Depth		5.5-6'	6-6.5'	0.5-1'	1-1.5'	1.5-2'	2.5-3'	4-4.5'	4.5-5'	1.5-2'	2.5-3'	3-3.5'	3.5-4'	4.5-5'	5-5.5'	1.5-2'
Sample Date		12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99
Volatiles																
2-Butanone	1000	6.5	6.4	5.4	5.5	7.6	6.8	6.7	6.9	4.9	5.7	6.2	7.9	7.2	6.1	6.7
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	0.57	ND	0.45	0.46	ND	ND	ND	ND	0.4	0.54	ND	ND	0.57	0.5	0.54
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	258.75	252.18	182.35	177.95	ND	280.2	443.85	199.83	184.78	219.83	203.52	237.41	187.04	427.9	180.66
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5041.25	5041.26	5041.27	5041.28	5041.29	5041.30	5041.31	5041.32	5041.33	5059.03	5059.04	5059.05	5059.06	5059.07	5059.08
Sample Location		78	78	78	67	67	67	79	79	79	108	108	108	56	56	107
Sample Depth		2.5-3'	3.5-4'	5-5.5'	2-2.5'	3-3.5'	4-4.5'	3-3.5'	4.5-5'	5.5-6'	3-3.5'	5-5.5'	6-6.5'	2.5-3'	6-6.5'	5-5.5'
Sample Date		12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	1/3/00	1/3/00	1/3/00	1/3/00	1/3/00	1/3/00
Volatiles																
2-Butanone	1000	6.5	6.5	6.4	7.0	6.7	6.1	6.2	6.6	5.8	7.0	6.0	5.4	4.8	6.2	5.8
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	ND	0.51	0.48	0.55	0.49	0.39	0.39	ND	0.39	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	0.7	0.49	0.49	0.5	0.48	0.6	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	226.66	272.75	245.4	198.28	218.18	814.12	335.13	283.63	277.1	205.93	301.75	196.16	184.58	218.26	198.1
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5059.09	5059.10	5059.11	5059.12	5059.13	5059.14	5059.15	5065.03	5065.04	5065.05	5065.06	5065.07	5065.08	5065.09	5065.10
Sample Location		107	109	109	110	110	68	68	69	69	69	57	57	111	112	113
Sample Depth		6-6.5'	3-3.5'	5-5.5'	2.5-3'	5-5.5'	3-3.5'	5-5.5'	1.5-2'	4.5-5'	6.5-7'	1.5-2'	6-6.5'	4.5-5'	5-5.5'	3-3.5'
Sample Date		1/3/00	1/3/00	1/3/00	1/3/00	1/3/00	1/3/00	1/3/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00
Volatiles																
2-Butanone	1000	9.2	5.9	5.1	7.0	5.5	5.0	6.9	ND	1.5	1.4	1.1	1.2	1.2	1.2	1.2
Acetone	1000	ND	ND	ND	ND	ND	ND	ND	1.4	ND	1.9	ND	1.5	ND	ND	ND
Chloroform	19	ND	ND	ND	ND	ND	ND	ND	0.66	0.78	0.79	0.37	0.86	0.72	0.66	0.64
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	0.34	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	456.11	183.69	200.16	ND	ND	190.08	239.54	ND	188.18	342.8	293.58	ND	558.75	262.93	199.9
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5065.11	5065.12	5065.13	5065.14	5065.15	5065.16	5065.17	5065.18	5065.19	5065.20	5065.21	5065.22	5065.23	5065.24	5071.03
Sample Location		113	114	114	58	58	70	70	81	115	116	116	80	80	80	87
Sample Depth		5-5.5'	3-3.5'	5.5-6'	2-2.5'	6-6.5'	1-1.5'	6-6.5'	6-6.5'	4.5-5'	2.5-3'	4.5-5'	2-2.5'	4.5-5'	5.5-6'	4-4.5'
Sample Date		1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/5/00
Volatiles																
2-Butanone	1000	1.2	1.3	1.7	1.4	1.5	1.9	1.5	1.4	1.5	1.4	ND	1.2	1.2	ND	ND
Acetone	1000	ND	2.4	3.1	2.7	2.7	3.7	2.8	2.2	2.7	2.5	2.5	1.8	ND	ND	1.7
Chloroform	19	0.65	0.46	0.67	0.53	0.65	0.63	ND	0.55	ND	0.55	0.56	0.45	ND	0.51	0.54
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	1.79	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	183.96	ND	251.46	549.82	245.47	437.38	247.5	279.79	282.13	297.49	278.95	249.1	501.35	321.63	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5071.04	5071.05	5071.06	5071.07	5071.08	5071.09	5071.10	5071.11	5071.12	5071.13	5071.14	5071.15	5071.16	5071.17	5076.03
Sample Location		117	117	88	119	119	118	118	120	121	122	123	97	98	96	94
Sample Depth		2-2.5'	4-4.5'	3.5-4'	3.5-4'	5-5.5'	3-3.5'	5-5.5'	5-5.5'	4-4.5'	4.5-5'	4.5-5'	5.5-6'	5.5-6'	5.5-6'	6-6.5'
Sample Date		1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/6/00
Volatiles																
2-Butanone	1000	1.3	1.2	1.4	1.3	1.4	1.2	ND	ND	1.3	1.1	1.5	1.2	1.4	ND	0.82
Acetone	1000	2.1	1.8	2.1	ND	2.3	2.1	ND	ND	ND	2.0	2.8	2.2	2.5	2.6	1.4
Chloroform	19	0.66	0.31	0.69	0.61	0.65	0.64	0.68	0.63	0.67	0.48	0.52	0.41	0.48	0.47	0.5
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	0.65	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	199.19	192.36	345.77	255.18	213.8	216.75	486.96	222.27	ND	ND	ND	ND	ND	ND	162.24
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5076.04	5076.05	5076.06	5076.07	5076.08	5076.09	5076.10	5076.11	5076.12	5076.13	5076.14	5076.15	5078.03	5078.04	5078.05
Sample Location		95	125	126	92	93	93	91	128	127	124	129	90	82	89	16
Sample Depth		6-6.5'	4.5-5'	4.5-5'	6-6.5'	1.5-2'	6-6.5'	6-6.5'	4.5-5'	2-2.5'	5-5.5'	5-5.5'	5-5.5'	6-6.5'	5-5.5'	5.5-6'
Sample Date		1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/7/00	1/7/00	1/7/00
Volatiles																
2-Butanone	1000	0.79	0.97	ND	1.3	0.66	0.74	0.77	0.85	0.97	0.91	1.3	0.85	ND	ND	ND
Acetone	1000	1.4	1.7	1.6	2.4	1.2	1.2	1.3	1.4	1.7	1.6	2.3	1.6	ND	ND	ND
Chloroform	19	0.51	0.6	0.57	0.77	0.46	0.45	0.46	0.54	0.58	0.51	0.74	0.47	0.51	0.49	0.43
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	256.31	185.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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Only parameters with detections have been shown.
All concentrations are given in milligrams per kilogram (mg/Kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5078.06	5078.07	5078.08	5078.09	5078.10	5078.14	5086.02	5086.03	5086.04	5090.03	5090.04	5090.05	5090.06	5090.07	5090.08
Sample Location		8	7	15	24	32	40	23	31	39	29	21	5A	38	6	14
Sample Depth		5.5-6'	5.5-6'	5.5-6'	5.5-6'	5.5-6'	5.5-6'	10.5-11'	10.5-11'	10.5-11'	11-11.5'	11-11.5'	11-11.5'	10-10.5'	10-10.5'	10-10.5'
Sample Date		1/7/00	1/7/00	1/7/00	1/7/00	1/7/00	1/7/00	1/10/00	1/10/00	1/10/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00
Volatiles																
2-Butanone	1000	ND	ND	ND	ND	ND	1.5	1.0	0.82	0.9	0.75	0.7	0.84	ND	0.86	ND
Acetone	1000	ND	ND	1.9	ND	ND	2.9	1.8	1.5	1.5	1.4	1.3	1.5	1.5	1.6	1.8
Chloroform	19	0.67	0.52	0.49	0.42	0.48	0.57	0.52	0.44	0.44	0.52	0.5	0.54	0.53	0.61	0.57
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.3	3.4	2.4	ND	9.2
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
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NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5090.09	5090.10	5090.11	5090.12	5097.03	5097.04	5097.05	5097.06	5097.07	5097.08	5097.09	5097.10	5097.11	5097.12	5101.03
Sample Location		30	22	13	37	4A	36	12	28	20	27	35	11	19	3A	2A
Sample Depth		10-10.5'	10-10.5'	10-10.5'	10-10.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'
Sample Date		1/11/00	1/11/00	1/11/00	1/11/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/13/00
Volatiles																
2-Butanone	1000	0.89	0.9	0.78	0.87	0.77	0.78	0.61	0.91	0.75	0.8	0.9	0.83	1.4	1.7	1.7
Acetone	1000	2.0	1.9	1.6	1.9	1.4	1.5	1.2	1.8	1.4	1.6	1.6	1.5	2.5	2.5	1.8
Chloroform	19	0.5	0.47	0.42	0.48	0.73	0.67	0.55	0.8	0.74	0.8	0.84	0.78	0.52	0.55	0.57
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	3.5	2.4	1.8	1.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.76
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pesticide/PCB																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5101.04	5101.05	5101.06	5101.07	5101.08	5101.09	5101.10	5101.11	5101.12	5105.03	5105.04	5105.05	5105.06	5105.07	5105.08
Sample Location		34	10	26	18	9	25	1A	33	17	130	135	135	132	132	131
Sample Depth		6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	4.5-5'	3.5-4'	4.5-5'	2.5-3'	4.5-5'	2.5-3'
Sample Date		1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00
Volatiles																
2-Butanone	1000	1.7	1.6	1.6	1.5	1.6	1.6	1.3	1.4	1.4	1.5	2.5	2.6	1.6	1.5	ND
Acetone	1000	2.1	2.0	1.9	2.2	2.3	1.8	1.9	ND	ND	3.2	5.6	5.6	4.1	3.4	3.4
Chloroform	19	0.54	0.53	0.51	0.49	0.56	0.54	0.51	0.51	0.55	0.54	0.47	0.48	0.52	0.53	0.39
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	0.71	0.66	0.64	0.66	0.74	0.68	0.72	0.64	0.72	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	328.24	440.43
Pesticide/PCBs																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5105.09	5105.10	5105.11	5105.12	5105.13	5105.14	5105.15	5105.16	5105.17	5105.18	5105.19	5108.03	5108.04	5108.05	5108.06
Sample Location		131	136	136	133	133	139	139	138	138	134	137	140	144	149	141
Sample Depth		4.5-5'	3.5-4'	4.5-5'	2.5-3'	4.5-5'	2.5-3'	4.5-5'	2.5-3'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'
Sample Date		1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/19/00	1/19/00	1/19/00	1/19/00
Volatiles																
2-Butanone	1000	ND	ND	1.8	1.4	1.8	1.8	2.0	0.92	1.3	2.2	2.1	1.6	1.6	1.7	1.8
Acetone	1000	4.0	4.1	4.2	3.2	2.6	2.5	2.3	ND	ND	2.8	ND	1.6	ND	2.5	2.2
Chloroform	19	0.43	0.46	0.41	0.53	0.63	0.6	0.55	0.4	0.44	0.55	0.55	0.44	0.46	0.45	0.5
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.4	ND	0.41	0.47
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	348.3	240.03	**1042.12**	410.31	248.7	553.51	592.62	745.47	**1905.14**	348.49	313.47	ND	**2377.56**	233.5	214.68
Pesticide/PCBs																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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NA: Not analyzed.
ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5108.07	5108.08	5108.09	5108.10	5108.11	5108.12	5108.13	5108.14	5108.15	5108.16	5108.17	5108.18	5109.03	5109.04	5109.05
Sample Location		148	145	143	146	142	147	150	154	161	153	151	152	155	156	157
Sample Depth		4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4.5-5'	4-4.5'	4-4.5'	4-4.5'
Sample Date		1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/20/00	1/20/00	1/20/00
Volatiles																
2-Butanone	1000	1.9	1.3	1.6	1.3	1.3	1.2	1.8	ND	1.2	1.5	1.1	1.3	1.3	ND	1.3
Acetone	1000	ND	1.8	2.5	2.2	2.0	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	19	0.44	0.46	0.53	0.47	0.47	0.43	0.63	0.62	0.51	0.62	0.53	0.61	0.51	0.51	0.49
cis-1,2-Dichloroethene	79	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	49	0.38	0.41	0.5	ND	0.4	0.4	0.56	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles																
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	196.95	258.61	ND	180.06	ND	189.99	347.87	ND	ND	ND	ND	ND	ND	181.16	ND
Pesticide/PCBs																
4,4'-DDD	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals																
Aluminum	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES:
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NLE: No RDCSCC exists for this analyte.

Table 1
Results of Geoprobe Soil Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab Sample ID	NJDEP RDCSCC * (mg/Kg)	5109.06	5109.07	5166.03	5166.05
Sample Location		159	160	161A	162
Sample Depth		4-4.5'	4-4.5'	7.5'	7.5'
Sample Date		1/20/00	1/20/00	2/14/00	2/14/00
Volatiles					
2-Butanone	1000	ND	1.1	ND	ND
Acetone	1000	ND	1.3	ND	ND
Chloroform	19	0.49	0.53	ND	ND
cis-1,2-Dichloroethene	79	ND	ND	ND	ND
Methylene Chloride	49	ND	ND	ND	ND
Tetrachloroethene (PCE)	4	ND	ND	ND	ND
Xylenes (Total)	410	ND	ND	ND	ND
Semi-Volatiles					
bis(2-Ethylhexyl)phthalate	49	NA	NA	NA	NA
Chrysene	9	NA	NA	NA	NA
Di-n-butylpthalate	5700	NA	NA	NA	NA
Pyrene	1700	NA	NA	NA	NA
Total Petroleum Hydrocarbons (TPHC)	1000	ND	ND	ND	ND
Pesticide/PCBs					
4,4'-DDD	3	NA	NA	NA	NA
4,4'-DDE	2	NA	NA	NA	NA
4,4'-DDT	2	NA	NA	NA	NA
Metals					
Aluminum	NLE	NA	NA	NA	NA
Antimony	14	NA	NA	NA	NA
Arsenic	20	NA	NA	NA	NA
Barium	700	NA	NA	NA	NA
Beryllium	2	NA	NA	NA	NA
Cadmium	39	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA
Chromium	NLE	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA
Copper	600	NA	NA	NA	NA
Iron	NLE	NA	NA	NA	NA
Lead	400	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA
Manganese	NLE	NA	NA	NA	NA
Mercury	14	NA	NA	NA	NA
Nickel	250	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA
Sodium	NLE	NA	NA	NA	NA
Vanadium	370	NA	NA	NA	NA
Zinc	1500	NA	NA	NA	NA

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).
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ND: Analyte not detected in sample.
NLE: No RDCSCC exists for this analyte.

Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID **Sample Location** **Sample Depth** **Sample Date**	Regulatory Level (ug/L)*	4810.08 4 9-12' 9/23/99	4810.10 5 8' 9/23/99	4998.10 5 7-12' 12/9/99	5003.05 43 7-12' 12/10/99	5003.06 44 7-12' 12/10/99	5012.21 45 8-13' 12/13/99	5012.22 46 8-13' 12/13/99	5012.23 47 8-13' 12/13/99	5012.24 59 8-13' 12/13/99	5012.25 71 8-13' 12/13/99	5012.26 99 8-13' 12/13/99	5012.27 100 8-13' 12/13/99	5012.28 101 8-13' 12/13/99	5012.29 102 8-13' 12/13/99
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	**7.78**	**6.6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	9.04	ND	ND	ND	ND	ND	ND	ND	10.35	14.46	4.28	7.79
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.42	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	15.23	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	3.26	18.82	ND	ND	ND	ND	5.35	ND	ND	ND	9.9	ND	ND
Benzene	1	ND	**12.07**	**10.13**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	2.95	6.13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	**15879.47D**	**7789.06D**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	1.29	73.64	77.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	74.67	66.36	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	**2.74**	**1.57**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	34.42	34.38	ND	ND	ND	ND	1.47	ND	ND	ND	1.31	ND	ND
trans-1,2-Dichloroethene	100	ND	**1692.34D**	**854.77D**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	**4.98**	**2.57**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	**98.13**	**90.27D**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	4.23	**92.03**	**238.23D**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	28.13	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	13.25	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	**10400**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	10.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	**12.1**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	107	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	**5.45**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	546000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	**100**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	4.84	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	86.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	**21000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	**20.4**	**160.2**	**289**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	60800	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	**213**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	0.46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	17.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	75900	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	22.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	5.46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	**264000**	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	45.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	428	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

* New Jersey Department of Environmental Protection Groundwater Quality Criteria (NJDEP GWQC).
Only detected analytes are shown, concentrations are reported in micrograms per liter (ug/L) or parts per billion (ppb).
Exceedances of the NJDEP GWQC are highlighted and printed in **bold-faced** type.
NA: Not analyzed
ND: Analyte not detected in sample.
NLE: No GWQC exists for this analyte.
D – Analytical value from sample dilution.

Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5012.30	5012.31	5016.27	5016.28	5016.29	5016.30	5016.31	5016.32	5016.33	5016.34	5019.15	5019.16	5019.17	5019.18
Sample Location		103	104	105	106	42	41	49	84	72	60	73	85	83	48
Sample Depth		8-13'	8-13'	8-13'	8-13'	8-13'	8-13'	8-10'	8-13'	8-13'	8-13'	8-13'	8-13'	8-13'	8-13'
Sample Date		12/13/99	12/13/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/15/99	12/16/99	12/16/99	12/16/99	12/16/99
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	4.69	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	**4.04**	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	1.2	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES
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Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5019.19	5019.20	5023.21	5023.22	5023.23	5023.24	5023.25	5023.26	5036.30	5036.31	5036.32	5041.34	5041.35	5041.36
Sample Location		61	50	51	62	74	0	52	63	75	76	64	77	65	78
Sample Depth		8-13'	8-13'	7.5-12.5'	7.5-12.5'	7.5-12.5'	7.5-12.5'	7.5-12.5'	7.5-12.5'	8-15'	8-15'	8-15'	8-13'	8-13'	8-13'
Sample Date		12/16/99	12/16/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/17/99	12/20/99	12/20/99	12/20/99	12/21/99	12/21/99	12/21/99
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	9.96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	**2.00**	ND	ND	ND	**1.06**	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	1.65	21.07	ND	1.72	1.49	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	6.13	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	7.64	1.59	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES
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Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5041.37	5041.38	5041.39	5041.40	5041.41	5041.42	5059.16	5059.17	5059.18	5059.19	5059.20	5059.21	5065.25	5065.26
Sample Location		79	86	53	54	55	67	56	68	107	108	109	110	57	58
Sample Depth		8-13'	8-13'	8-13'	8-13'	8-13'	8-13'	6-11'	6-11'	6-11'	6-11'	6-11'	6-11'	6.5-12.5'	6.5-12.5'
Sample Date		12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	12/21/99	1/3/00	1/3/00	1/3/00	1/3/00	1/3/00	1/3/00	1/4/00	1/4/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	14.88	22.59	10.99	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

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Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5065.27	5065.28	5065.29	5065.30	5065.31	5065.32	5065.33	5065.34	5065.35	5065.36	5071.18	5071.19	5071.20	5071.21
Sample Location		69	70	80	81	111	112	113	114	115	116	87	88	96	97
Sample Depth		6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-12.5'	6.5-11.5'	6.5-11.5'	6.5-11.5'	6.5-11.5'
Sample Date		1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/4/00	1/5/00	1/5/00	1/5/00	1/5/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	22.13	8.61	ND	ND	ND	ND	ND	ND	9.2	ND	14.37	21.74	22.09
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

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Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5071.22	5071.23	5071.24	5071.25	5071.26	5071.27	5071.28	5071.29	5076.16	5076.17	5076.18	5076.19	5076.20	5076.21
Sample Location		98	117	118	119	120	121	122	123	124	125	126	127	128	129
Sample Depth		6.5-11.5'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'	7-12'
Sample Date		1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/5/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00	1/6/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	ND	ND	ND	ND	ND	2.94	3.25	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

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D – Analytical value from sample dilution.

Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID **Sample Location** **Sample Depth** **Sample Date**	Regulatory Level (ug/L)*	5076.22 90 6.5-11.5' 1/6/00	5076.23 91 6.5-11.5' 1/6/00	5076.24 92 6.5-11.5' 1/6/00	5076.25 93 6.5-11.5' 1/6/00	5076.26 94 6.5-11.5' 1/6/00	5076.27 95 6.5-11.5' 1/6/00	5078.11 82 7-12' 1/7/00	5078.12 89 7-12' 1/7/00	5078.15 7 8-13' 1/7/00	5078.16 8 8-13' 1/7/00	5078.17 15 8-13' 1/7/00	5078.18 16 8-13' 1/7/00	5078.19 24 8-13' 1/7/00	5078.20 32 8-13' 1/7/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	7.41	**84.32**	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	13.13	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.85	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	3.44	22.03	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	5.11	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5078.22	5090.13	5090.14	5090.15	5090.16	5090.17	5090.18	5090.19	5090.20	5090.21	5090.22	5090.23	5090.24	5090.25
Sample Location		40	29	5A	23	21	31	39	37	13	14	22	6	30	38
Sample Depth		8-13'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'
Sample Date		1/7/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00	1/11/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	ND	2.21	2.49	ND	3.52	ND	ND	ND	2	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

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NA: Not analyzed
ND: Analyte not detected in sample.
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Table 2
Results of Geoprobe Groundwater Investigation - Site 812
September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5097.13	5097.14	5097.15	5097.16	5097.17	5097.18	5097.19	5097.20	5097.21	5097.22	5101.13	5101.14	5101.15	5101.16
Sample Location		3A	4A	11	12	19	20	27	28	35	36	1A	2A	9	17
Sample Depth		11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	11-16'
Sample Date		1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/12/00	1/13/00	1/13/00	1/13/00	1/13/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	**20.95**	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

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NA: Not analyzed

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Lab ID	Regulatory Level (ug/L)*	5101.17	5101.18	5101.19	5,101.20	5101.21	5101.22	5105.20	5105.21	5105.22	5105.23	5105.24	5105.25	5105.26	5105.27
Sample Location		18	25	26	33	34	10	130	131	132	133	134	135	136	137
Sample Depth		11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'
Sample Date		1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	1.62	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	ND	ND	ND	5.41	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.59	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

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September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5105.28	5105.29	5108.19	5108.20	5108.21	5108.22	5108.23	5108.24	5108.25	5108.26	5108.27	5108.28	5108.29	5108.30
Sample Location		138	139	140	141	142	143	144	145	146	147	148	149	150	151
Sample Depth		5.5-10.5'	5.5-10.5'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'
Sample Date		1/14/00	1/14/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00	1/19/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	2.7	3.33	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5.6**	**7.58**	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.35	2.45	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	5.78	1.75	ND	ND	ND	1.56	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	7.86	ND	ND	ND	ND	ND	4.81	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Lab ID	Regulatory Level (ug/L)*	5108.31	5108.32	5108.33	5108.34	5109.08	5109.09	5109.10	5109.11	5109.12	5125.01	5166.04	5166.06
Sample Location		152	153	154	161	155	156	157	159	160	66	161	162
Sample Depth		5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	5-10'	6-11'	8-12'	8-12'
Sample Date		1/19/00	1/19/00	1/19/00	1/19/00	1/20/00	1/20/00	1/20/00	1/20/00	1/20/00	1/28/00	2/14/00	2/14/00
Volatiles													
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	8.78	6.43	8.28	ND	ND	4.81	8.04	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	3.49	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.05	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	4.55	ND	ND	ND	4.42	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	2.25	1.36	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles													
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals													
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

* New Jersey Department of Environmental Protection Groundwater Quality Criteria (NJDEP GWQC).

Only detected analytes are shown, concentrations are reported in micrograms per liter (ug/L) or parts per billion (ppb).

Exceedances of the NJDEP GWQC are highlighted and printed in **bold-faced** type.

NA: Not analyzed

ND: Analyte not detected in sample.

NLE: No GWQC exists for this analyte.

D – Analytical value from sample dilution.

TABLE 3 (continued)
Groundwater Sampling Results
Monitoring Well MW-04
Site 812
Fort Monmouth, New Jersey
May - June 2000

Lab Sample ID Sample Date	5437.09 5/26/00	5465.04 6/9/00	**NJDEP GWQC (ug/L)***
Volatiles			
Vinyl Chloride	**126.45**	**147.57**	5
1,1-Dichloroethene	**6.51**	**8.11**	2
Acetone	172.62	221.22	700
Carbon Disulfide	20.25	8.43	NLE
trans-1,2-Dichloroethene	**615.87**	**450.06**	100
2-Butanone	58.76	75.82	300
cis-1,2,-Dichloroethene	**10397.69**	**10436.18**	10
Benzene	**8.84**	**9.99**	1
Trichloroethene	**5.25**	**4.7**	1
4-Methyl-2-Pentanone	157.45	147.75	400
Toluene	84.45	93.81	1000
Tetrachloroethene	**2.35**	**2.64**	1
2-Hexanone	5.93	7.44	NLE
Ethylbenzene	134.87	134.85	700
m+p-Xylenes	357.84	426.94	NLE
o-Xylene	198.71	230.24	NLE
Semi-Volatiles			
Phenol	ND	38.32	4000
2-Methylphenol	ND	13.13	NLE
4-Methylphenol	ND	43.05	NLE
Naphthalene	ND	38.76	NLE
2-Methylnaphthalene	ND	19.13	NLE
Pesticides/PCB			
Not Detected			
Metals			
Aluminum	**408000**	**56400**	200
Arsenic	**546**	**88.4**	20
Barium	**4250**	601	2000
Beryllium	**46.7**	6.02	20
Cadmium	**145**	**18.6**	4
Calcium	1300000	739000	NLE
Chromium	**3250**	**454**	100
Cobalt	365	51.2	NLE
Copper	**1670**	401	1000
Iron	**1360000**	**150000**	300
Lead	**17600**	**2400**	10
Magnesium	120000	29500	NLE
Manganese	**4510**	**590**	50
Mercury	**3.8**	0.6	2
Nickel	**495**	86.5	100
Potassium	163000	54800	NLE
Selenium	**75.1**	27.1	50
Sodium	**225000**	**185000**	50000
Vanadium	1590	233	NLE
Zinc	**27000**	3840	5000

NOTES:

Only detected analytes are shown.

All concentrations reported in micrograms per liter (ug/L) or parts per billion (ppb).

*NJDEP GWQC: New Jersey Department of Environmental Protection Groundwater Quality Criteria.

Exceedances of the NJDEP GWQC are highlighted and printed in **bold-faced** type.

ND: Analyte not detected in sample.

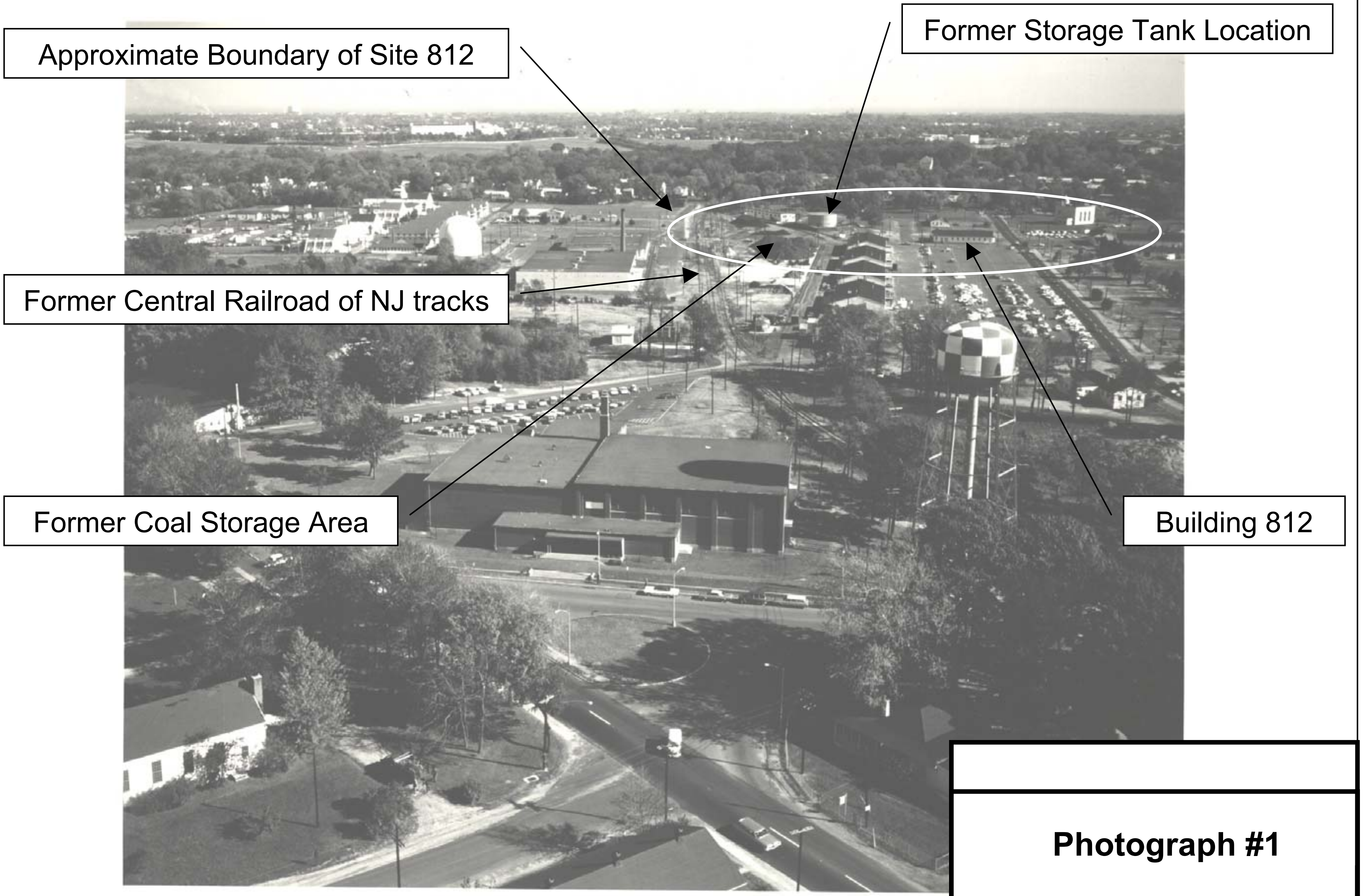
NLE: No GWQC exists for this analyte.

Table 4
Groundwater Monitoring Well Specifications
Site 812
Fort Monmouth, New Jersey

Groundwater Monitoring Well (MW) Specifications						Groundwater Elevations Sampling Conducted May 25-30 2000		Groundwater Elevations Sampling Conducted June 9-12 2000	
MW ID	Date of Installation	Well Diameter (inches)	Top of Casing (ft)	Total Depth (ft)	Screened Interval (ft)	Depth To Water (ft)	Groundwater Elevation (ft)	Depth To Water (ft)	Groundwater Elevation (ft)
MW-1	4-May-00	4	20.14	52	31.8 - 52.0	8.7	11.44	8.9	11.24
MW-2	26-Apr-00	4	17.47	50	30 - 50	6.6	10.87	6.7	10.77
MW-3	5-May-00	4	18.16	50.5	30.3 - 50.5	6.5	11.66	6.6	11.56
MW-4	26-Apr-00	4	20.48	7	2.0 - 7.0	4.43	16.05	4.72	15.76
MW-5	4-May-00	4	15.1	18	7.9 - 18.0	9.8	5.3	10.91	4.19
MW-6	26-Apr-00	4	19.27	16	5.9 - 16.0	7.64	11.63	7.73	11.52
MW-7	3-May-00	4	14.06	18	7.9 - 18.0	10.98	3.08	11.03	3.03
MW-8	1-May-00	4	18.22	16	5.9 - 16.0	7.1	11.12	7.17	11.05
MW-9	2-May-00	4	16.07	16	5.9 - 16.0	6.21	9.86	6.25	9.82
MW-10	3-May-00	4	15.51	16	5.9 - 16.0	7.15	8.36	7.21	8.3
MW-11	2-May-00	4	15.11	15	4.9 - 15.0	6.12	8.99	5.39	9.72
MW-12	3-May-00	4	17.2	16	5.9 - 16.0	4.11	13.09	5.27	11.93
MW-13	4-May-00	4	25.24	19	8.9 - 19.0	10.15	15.09	10.31	14.93
MW-14	3-May-00	4	17.52	15	4.9 - 15.0	8.62	8.9	8.65	8.87

APPENDIX A

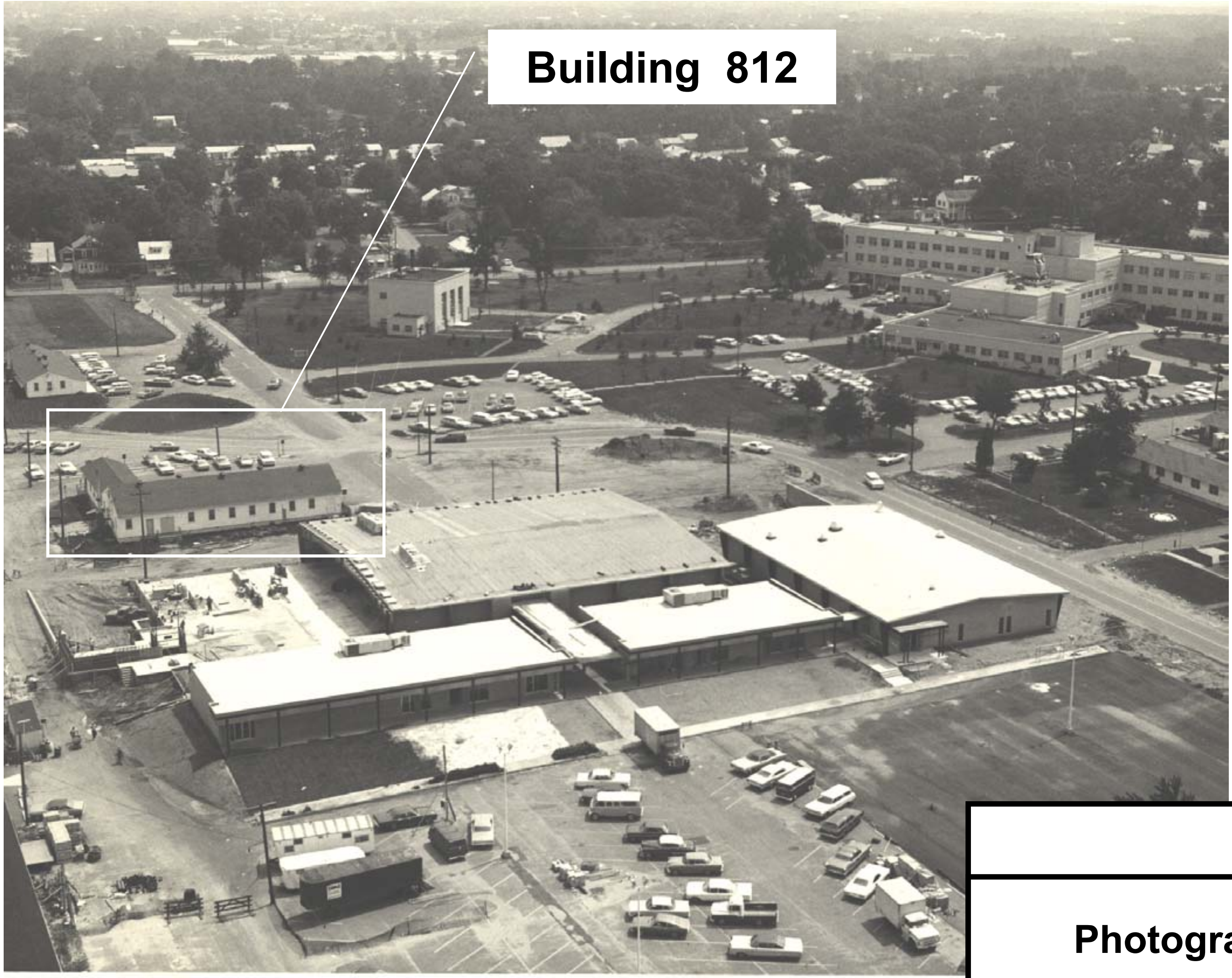
SITE 812
PHOTOGRAPHS



View of Site 812 and surrounding area, looking to the east
(circa, early to mid 1960’s)

Photograph #1

Versar INC.
2558 Pearl Buck Road
Suite 1
Bristol, PA 19007



Building 812 and surrounding area, looking to the east
(circa, early to mid 1960's)

Photograph #2

Versar INC.
2558 Pearl Buck Road
Suite 1
Bristol, PA 19007

APPENDIX B

FORT MONMOUTH STANDARD OPERATING PROCEDURES

SOP No.: SAM-0200 – Sample Containers, Preservation and Holding Times
Revision No.: 1, Dated: 28 July 1999

SOP No.: SAM-0201 – Sample Receiving, Log-In and Disposal
Revision No.: 2, Dated: 28 July 1999

SOP No.: SAM-0205 – Monitor Well Sampling for IRP Sites at Fort Monmouth
Revision No.: 1, Dated: 9 August 1999

SOP No.: SAM-0207 – Field Sampling/Methanol Extraction
Revision No.: New, Dated: 3 July 1999

SOP No.: SAM-0219 – GeoProbe® Sampling Methods for Site 812,
Revision No.: New, Dated: 12 November 1999

STANDARD OPERATING PROCEDURE

SOP No.: SAM-0200
Revision No.: 1
Date Revised: 7/28/99
Page 1 of 4

CATEGORY: Sample Handling
TITLE: Sample Containers, Preservation and Holding Times

1 PURPOSE: To document the sample containers, preservation and holding times requirements.

2 RESPONSIBILITY: Quality Assurance shall be responsible for maintaining and updating the sample containers, preservation and holding times SOP. These updates will occur annually at a minimum or as the methods' requirements change.

3 REFERENCES: Field Sampling Procedures Manual, May 1992. New Jersey Department of Environmental Protection.

4 SUMMARY: The following table is a summary of the sample containers, method required preservation and holding times of various analytical parameters. The summary will provide information to field sampling personnel and laboratory analysts. Additionally, this summary will aid individuals involved with data validation, quality assurance and sample receiving.

Table 1

Parameter	Container	Preservation	Holding Time*	Method
VOA AQ	2-40 ml septum, G Teflon lined cap	HCL, to pH <2 Cool, 4°C	14 days	624 (4), 8260 (2)
VOA Non-AQ	2 oz wide, G Teflon lined cap	Methanol, Cool, 4°C	14 days	8260 (2)
BNA AQ	1 L amber, G Teflon lined cap	Cool, 4°C	Extraction. 7 days Analysis 40 days	625 (4), 8270 (2)
BNA Non-AQ	4 oz wide, G Teflon lined cap	Cool, 4°C	Extraction. 14 days Analysis 40 days	8270 (2)

Prepared By ______________________ Date 7/25/99

Approved By ______________________ Date 7/29/99
QA Manager / Laboratory Director

CATEGORY: Sample Handling
TITLE: Sample Containers, Preservation and Holding Times

Parameter	Container	Preservation	Holding Time*	Method
Pest/PCB AQ	1 L amber, G Teflon lined cap	Cool, 4°C	Extraction. 7 days Analysis 40 days	608 (4), 8080 8081/8082 (2)
Pest/PCB Non-AQ	4 oz wide, G Teflon lined cap	Cool, 4°C	Extraction. 7 days Analysis 40 days	8081/8082 (2)
Herbicides AQ	1 L amber, G Teflon lined cap	Cool, 4°C	Extraction. 7 days Analysis 40 days	8151 (2)
TPHC AQ	1 L amber, G Teflon lined cap	Cool, 4°C	Extraction. 7 days Analysis 40 days	OQA-QAM-25
TPHC Non-AQ	4 oz wide, G Teflon lined cap	Cool, 4°C	Extraction. 14 days Analysis 40 days	OQA-QAM-25
Metals AQ Minus Hg, Cr^{+6}	500ml Plastic	HNO_3 to pH <2	6 Months	600 Series(4), SW846 (2)
Metals Non-AQ Minus Hg, Cr^{+6}	4 oz wide, G Teflon lined cap	None	6 Months	SW846 (2)
Hg AQ	500ml Plastic	HNO_3 to pH <2	28 Days	600 Series(4), SW846 (2)
Hg Non-AQ	4 oz wide, G Teflon lined cap	None	28 Days	SW846 (2)
TSS AQ	100 ml Plastic	Cool, 4°C	7 Days	160.2 (1)
TS AQ	100 ml Plastic	Cool, 4°C	7 Days	160.3 (1)
DO AQ	300 ml BOD bottle	Fix on Site Store in Dark	8 Hours	405.1 (1)
COD AQ	100 ml Plastic	Cool, 4°C H_2SO_4 to pH <2	28 Days	410.4 (1)
BOD_5 AQ	1 L Plastic	Cool, 4°C	48 Hours	5210B (5)
pH AQ	25 ml Plastic or Glass	None	Immediately	9040 (2) 150.1 (1)
pH Non-AQ	4 oz wide, G Teflon lined cap	None	Immediately	9045 (2)

*Holding time begins at time of sample collection.

Parameter	Container	Preservation	Holding Time*	Method
Total Organic Carbon (TOC) AQ	Glass Teflon lined cap	Cool, 4°C H_2SO_4 to pH <2	28 Days	415.1 (1)
Total Organic Carbon (TOC) Non AQ	4 oz Glass Teflon lined cap	Cool, 4°C	28 Days	9060 (2)
Ammonia AQ	1 L Plastic	Cool, 4°C H_2SO_4 to pH <2	28 Days	350.3 (1)
Chemical Oxygen Demand (COD) AQ	1 L Glass	Cool, 4°C H_2SO_4 to pH <2	28 Days	410.2 (1)
Cyanide, Total AQ	1 L Plastic	Cool, 4°C NaOH to pH>12	14 Days	335.2 (1)
Cyanide, Total Non-AQ	4 oz Glass Teflon lined cap	Cool, 4°C	14 Days	9010 (2)
Hardness as $CaCO_3$ AQ	100 ml Plastic	HNO_3 to pH<2	6 Months	130.2 (1)
Kjeldahl, Total AQ	1 //l Plastic	Cool, 4°C H_2SO_4 to pH <2	28 Days	351.3 (1)
Nitrate/Nitrite AQ	100 ml Plastic	Cool, 4°C H_2SO_4 to pH <2	28 Days	353.3 (1)
Nitrate AQ	100 ml Plastic	Cool, 4°C	48 Hours	352.1 (1)
Nitrite AQ	100 ml Plastic	Cool, 4°C	48 Hours	354.1 (1)
Phenolics AQ	1 L Amber	Cool, 4°C H_2SO_4 to pH <2	28 Days	420.1 (1)
Phosphorus, Total AQ	100 ml Plastic	Cool, 4°C H_2SO_4 to pH <2	28 Days	365.2 (1)
Sulfate AQ	100 ml Plastic	Cool, 4°C	28 Days	375.4 (1)
Specific Conductivity AQ	100 ml Plastic	Cool, 4°C	28 Days	120.1 (1)
Turbidity AQ	500 ml Plastic	Cool, 4°C	48 Hours	180.1 (1)
Surfactants, MBAS AQ	500 ml Plastic	Cool, 4°C	48 Hours	425.1 (1)

*Holding time begins at time of sample collection.

Parameter	Container	Preservation	Holding Time*	Method
Ignitability	P, G	None	NA	1010 (2)
Reactivity - (HCN)	P, G	Cool, 4°C	14 Days	7.3.3 (2)
Reactivity- (H_2S)	P, G	Cool, 4°C	7 Days	7.3.4 (2)
Paint Filter Test	P, G	None	NA	9095 (2)

*Holding time begins at time of sample collection.

(1)-"Methods of Chemical Analysis of Water and Wastes", Environmental Monitoring and Support Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, March 1983, EPA-600 4-79-020.

(2)-"Test Methods for Evaluating Solid Waste", Physical/Chemical Methods, SW-846, 3rd Edition.

(3)-Code of Federal Regulations, Title 40, Part 136.

(4)-"Methods for the Determination of Organic Compounds in Drinking Water", EPA-600/4-88/039, EMSL, USEPA, Cincinnati, OH 45268.

(5)-"Standard Methods for Water and Wastewater", 16th Edition.

STANDARD OPERATING PROCEDURE

SOP No.: SAM-0201
Revision No.: 2
Date Revised: 7/28/99
Page 1 of 6

CATEGORY: Sample Handling
TITLE: Sample Receiving, Log-In and Disposal

1 PURPOSE: To document the procedure for the handling of coolers, logging in samples and disposal within the laboratory.

2 RESPONSIBILITY: Designated laboratory or administrative personnel who have been properly instructed and trained in the log-in procedure shall be responsible for checking in samples.

3 REFERENCE: Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1989.

4 SUMMARY:

4.1 Using the Master Logbook, assign the next consecutive number as the FMETL project number for the samples.

4.1.1 Open the cooler and immediately check and record the cooler temperature by measuring the temperature of the cooler blank (bottle of water transported with samples).

4.1.2 Record the cooler temperature on the SAMPLE RECEIPT FORM, (Attachment 1).

4.1.3 Inspect the cooler contents by completing the top section of the SAMPLE RECEIPT FORM - Preliminary Examination Phase.

4.1.3.1 Remove samples and verify against the chain of custody to insure documentation accuracy and completeness.

4.1.3.2 Verify field identification numbers against the CHAIN OF CUSTODY FORM, (Attachment 2).

Prepared By ______________ Date 7/24/99

Approved By ______________ Date 7/29/99
QA Manager / Laboratory Director

4.1.3.3 Assign each individual sample an FMETL ID # which is designated by the project number with a hyphenated suffix beginning with -.01, and increasing consecutively for each sample in the project.

4.2 Inspect the samples for breakage, preservation, and overall condition by completing the center portion of the SAMPLE RECEIPT FORM - Log-In Phase.

4.2.1 Any individual sample that requires acidic or basic preservation methods, determine its pH using pH paper.

4.2.2 Record the sample ID# and pH on the SAMPLE RECEIPT FORM.

4.3 In the event of any discrepancies with either the coolers or the samples, complete the laboratory corrective action memo in the lower section of the SAMPLE RECEIPT FORM.

4.3.1 Reference any discrepancies and document the corrective action taken (e.g. pH adjustment or re-attaching loose label).

4.3.2 Where corrective action requires notifying appropriate persons of the problem (e.g. for incorrect sample volumes or broken bottles that would require resampling), contact client or appropriate person immediately to resolve any discrepancies. Record the time and date of the notification on the lower section of the SAMPLE RECEIPT FORM and initiate a Corrective Action Report.

4.4 Record the required information on the CHAIN OF CUSTODY FORM:

4.4.1 Lab Sample ID#.

4.4.2 Date and time received.

4.4.3 Project information (e.g. number of samples received, type of analyses).

4.5 Information on all samples received will then be entered into a bound logbook. This logbook will be of ledger type with columns and numbered pages. Each sample logbook will be sequentially numbered and on the outside cover, the starting date and sample numbers will be indicated. All entries will be made using a ballpoint pen with permanent ink. All errors will be crossed out with a single line and initialed. The following will be entered into the logbook:

4.5.1 Sample ID#
4.5.2 Site
4.5.3 Location
4.5.4 Sample Date/Time
4.5.5 Matrix
4.5.6 Sampler
4.5.7 Analysis
4.5.8 Comments

4.6 A job folder will then be created. The job folder will be kept, sequentially, in a designated filing cabinet. The folder will contain the original chain of custody, sample receipt form and any field notes or maps. Data will be inserted into the folder, as it becomes available.

4.7 Deliver the logged-in samples to the proper storage areas (designated refrigerators). Proper storage of all samples prior to preparation and analysis is critical to the determination of accurate and high quality analytical results. Samples that are not properly stored may suffer degradation, volatilization, or reaction.

Refrigerator #	Samples
1	Volatiles
2	Semivolatiles
3	Extractions
4	Sample Receipt
5	Extracts
6	Metals/Wet Chemistry

4.8 Store samples that may easily be contaminated by other samples (such as drinking water samples) in a refrigerator separate from one where more highly contaminated samples are stored.

4.8.1 Monitor the temperatures of storage refrigerators daily to ensure sample integrity (see OQC-0303).

4.9 Deliver a copy of the CHAIN OF CUSTODY FORM to the various departments to notify analysts of the presence of the samples.

4.10 Each analysis has specified limits on Holding Times (see SAM-0200).

4.10.1 For samples received within 72 hours of sampling or before one-half of the holding time period is expired (whichever is less), the analyst will initiate sample preparation and/or analysis within the prescribed holding times.

4.10.2 For samples arriving after this, the client will immediately be informed of the status of the sample and told whether preparation and/or analysis can still be performed within established holding times. If preparation or analysis within the designated holding times is impossible, the client will be contacted for further instructions.

4.11 Due to limited refrigerator space, samples will be removed after a 90-day period or when analysis is complete.

4.11.1 Soil samples are emptied and returned to the site location.

4.11.2 Unpreserved aqueous samples are returned to their effluent discharge.

4.11.3 Preserved aqueous samples are disposed of into a 55-gallon acid/aqueous drum.

4.12 All waste materials classified as hazardous are managed in accordance with the Fort Monmouth Hazardous Waste Management Plan.

Attachment 1

SAMPLE RECEIPT FORM

Date Received: ____________________ Lab Project ID#: ________________

Site/Project Name: __________________________ Cooler Temp (d. C): ___________

Received By: _____________________________ Sign: __________________________
(print name)

Circle the appropriate answer

1. Did the samples come in a cooler ? yes no
2. Were the chain of custody papers filled out correctly and legibly? yes no
3. Did you sign the chain of custody in the appropriate place? yes no
4. Did all the labels agree with the chain of custody and in good condition? yes no
5. Were the correct containers and/or preservatives used for the tests indicated? yes no
6. Was a sufficient amount of sample sent for the tests indicated? yes no
7. Were bubbles absent from aqueous VOC sample containers? yes no

Fill out the following table for each sample bottle

Sample ID	pH	Preservative	Sample ID	pH	Preservative
-					

Comments: ____

____

Attachment 2

CHAIN OF CUSTODY FORM

Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-3484 EMail:appleby@doim6.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Recor

Customer:
Phone #:
( )DERA ( )OMA ( )Other:___________

Project No:
Location:

Comments:

Samplers Name / Company :

Lab Sample I.D.	Sample Location	Date	Time	Sample Type	# bottles	Analysis Parameters								Remarks / Preservation Metho

Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):
Relinquished by (signature):	Date/Time:	Received by (signature):	Relinquished by (signature):	Date/Time:	Received by (signature):

Report Type: ( )Full, ( )Reduced, ( )Standard, ( )Screen / non-certified
Turnaround time: ( )Standard 4 wks, ( )Rush ____ Days, ( )ASAP Verbal ____Hrs.

Remarks:

STANDARD OPERATING PROCEDURE

SOP No.: SAM-0205
Revision No.: 1
Date Revised: 8/9/99
Page 1 of 11

CATEGORY: Sample Handling
TITLE: Monitor Well Sampling for IRP Sites at Fort Monmouth

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1 PURPOSE:

To document current procedures for monitoring well sampling.

2 RESPONSIBILITY:

Designated field samplers who have been properly trained and instructed in NJDEP field sampling procedures and protocol.

3 REFERENCES:

3.1 Field Sampling Procedures Manual, May 1992 (most current). New Jersey Department of Environmental Protection and Energy.

3.2 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities developed by NIOSH, OSHA, USCG, EPA. Oct. 1985

3.3 NJDEP Field Analysis Manual, July 1994.

3.4 On the World Wide Web: www.state.nj.us/dep or www.state.nj.us/dep/srp.

3.5 Lab SOP: SAM-0200, SAM-0202, OQC-0302

4 SUMMARY:

The procedures, materials, and equipment describe the recommended methods for sampling monitoring wells. Necessary equipment, calibrations, calculations and appropriate QA/QC procedures are also included. These procedures are to be followed by all personnel involved with the sampling and purging of wells at Fort Monmouth. Persons following this SOP are recommended to also refer to the NJDEP Field Sampling Procedures Manual.

Prepared By ________________ Date 5/9/99

Approved By ________________ Date 8/9/99

QA Manager / Laboratory Director

5 EQUIPMENT AND MATERIALS:

5.1 Equipment

5.1.1 Dissolved oxygen meter
5.1.2 HNU photo ionizer
5.1.3 Conductivity/pH/temp meter
5.1.4 Peristaltic well pumps
5.1.5 Pump heads and power cables
5.1.6 Water level meter
5.1.7 Oil/water interface probe
5.1.8 Submersible well pumps
5.1.9 Various batteries
5.1.10 Buckets
5.1.11 Miscellaneous tools, i.e. screwdriver, well wrench, etc.

5.2 Materials:

5.2.1 Thick wall silicone tubing ¼ inch diameter,
5.2.2 Polyethylene (food grade) tubing ¼ inch diameter,
5.2.3 12 inch single sample 1 check stop teflon disposable bailers,
5.2.4 Mason string.

6 STANDARDS/REAGENTS:

6.1 Buffer solutions, calibration gases, decontamination materials, and acids for preservation.

6.1.1 Buffer solutions:
  6.1.1.1 7.00 standard buffer solution
  6.1.1.2 10.00 standard buffer solution
  6.1.1.3 4.00 standard buffer solution
  6.1.1.4 Distilled and deionized water
  6.1.1.5 Alconox
  6.1.1.6 10 % nitric acid rinse (trace metal or higher grade HNO3 diluted with distilled/deionized (ATSM Type II) H2O)
  6.1.1.7 Acetone (pesticide grade)
  6.1.1.8 Pure nitrogen 100 ppm Isobutylene calibration gas.

6.1.2 Acids/materials used in preserving samples:

- 6.1.2.1 Nitric acid 69, 0-70.0%
- 6.1.2.2 Sulfuric acid 50% (w/w) solution
- 6.1.2.3 Hydrochloric acid (trace metal grade)
- 6.1.2.4 Ice for keeping samples at <4 degrees celsius.

Refer to NJDEP Field Sampling Procedure Manual Table 2-1 Aqueous Sampling Equipment Decontamination (Lab and Field).

7 CALIBRATION:

All instruments used for field readings are calibrated before each day of use. The use of pH meters must start out with a calibration using buffer solution standards to check or calibrate accuracy. HNU's are calibrated with a known calibration gas. Dissolved oxygen meters are checked against a Winkler method test weekly. All calibrations for a given day's use are recorded in the log provided for each instrument. Refer to equipment directions for calibration instruction. Likewise, specific conductivity meters are checked against standards regularly. Cooler thermometers are calibrated against an NIST traceable thermometer annually.

8 PROCEDURE:

The following articles document the procedures for sampling monitor wells. They are to be used as a guide, by trained personnel, in conjunction with the NJDEP Field Sampling Procedures Manual.

8.1.1 Preparation: It should be noted that before going out into the field, certain preparations must be made. This includes the selection of PPE, safety plans, proper bottle acquisition for analytes being tested, site entry, map information, and equipment.

8.1.2 Selection of personal protective equipment (ppe): For adequate protection and prevention of contaminant exposure to workers at hazardous waste sites in all phases of work, PPE is properly used and supplied. Determination of PPE will be outlined in a Health and Safety Plan, and also by preliminary site investigations. Refer to NJDEP Field Sampling Procedures Manual, and the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.

8.1.3 Health and Safety Plans: These plans are developed to encompass all the aspects of site operations. Plans are available to personnel associated with site sampling and a copy is kept on file at the site (in this case, the laboratory). At a minimum, the plan includes all portions of Site Remediation Program's (SRP) Site Safety and Health Standard Operating Procedures deemed appropriate for site, detailed site description, emergency phone numbers, a map and directions to nearest hospital identified on the map, and all PPE needed.

8.1.4 Proper bottle selection: Please refer to QA/QC section 10.1.

8.1.5 Equipment: Please refer to Equipment section 5.

8.1.6 Before purge activities: Certain instruments and meters are calibrated before use. Also, certain measurements and calculations are obtained before any purge activities take place. The following is a list of information/data/steps required prior to the commencement of purge activities. Pertinent information is recorded in logbooks or on well sheets.

8.1.7 Date, time and weather conditions: Date and time are needed for holding time purposes and general record keeping. Weather conditions may affect ambient conditions at a particular site, therefore said information is recorded. Tidal influences may also be included here, if wells are in a tidal area.

8.1.8 Well number and permit number: These are prominently displayed on the outside of each well in accordance with NJDEP regulations for well construction.

8.1.9 Meter and instrument calibrations: Meters utilized in the course of site sampling activities are calibrated at this time, and the findings recorded in the appropriate logbook. Refer to section 7 for instrument/meter calibration directions.

8.1.10 PID or FID, HNU reading: This is taken from the well inner casing immediately after the cap is removed, findings are recorded.

8.1.11 Free product check: Using ORS interface meter for interfaces, the presence or absence of free product is determined. Thickness is measured and recorded.

8.1.11.1 Light Non-Aqueous Phase Liquids (LNAPLs) and Dense Non-Aqueous Phase Liquids (DNAPLs): Measurement of thickness for DNAPLs and LNAPLs are performed prior to well purging. An interface probe is used (ORS meter) for this task. If present, LNAPLs are sampled and analyzed for chemical and physical parameters. Sampling is conducted by using a bottom filling bailer which is lowered into the LNAPL layer. DNAPLs are sampled using a dual check valve bailer. If present, DNAPLs are also tested for chemical and physical properties.

8.1.12 Dissolved oxygen, pH, temperature, and specific conductivity: Readings are obtained and recorded on well sheets.

8.1.13 Total depth of well and depth to water: These readings are taken using a depth meter. Total depth of well, depth to water, and depth to screen are measured from the top of the inner casing or surveyors mark. All data is recorded on well sheet.

8.1.14 Calculations: Calculations are made as stated in section 9.

8.2 Purging: When pre-purge activities are complete, the purging of a well can begin. This includes pre-entry to the well and pump setup.

8.2.1 Pre-entry to well: Before tubing (refer to materials section) is inserted into a well, it is wiped down and rinsed with DI water. The tubing is then inserted into the well to a maximum depth of six feet below the water table. During purge activities, the depth of the tubing may be adjusted to prevent the static water level from dropping below the end of the tubing.

8.2.2 Pump setup: Once the battery powered peristaltic pump is set up, purging can begin. Evacuation rates never exceed that of well development, and total volume purged never exceeds 5 times the amount of standing water. Purge water management practices are described in section 10.1.8.

8.3 After Purge: When purging is complete, the pump is removed and tubing is disposed of properly. Data referenced in section 8.3.2 is then taken and recorded.

8.3.1 Pump removal: Tubing is removed from the bottom end while the pump is still running. Tubing is then disposed of. The pump is shut down and decontaminated for its next application.

8.3.2 The following data is recorded on the well sheet: Start and end time of purge, purge method, purge rate, total volume purged, dissolved oxygen, pH, temperature, and specific conductivity readings.

8.4 Field Blank Sample: At this time the field blank sample is collected. A new bailer is opened from its sealed package and field blank water is run over the bailer or sample equipment and collected into the proper sample containers.

8.5 Ground water sampling: Following well evacuation procedures, ground water sampling can begin. In most cases, sampling takes place immediately following purge activities. However, due to certain field conditions, well sampling may be postponed for a period not to exceed 2 hours following completion of purge activities. When multiple wells are being sampled, the least contaminated well is sampled first. Subsequent wells are sampled in order of ascending contamination. Sampling is conducted by using a bottom filling Teflon bailer, dedicated to each particular monitoring well. The bailer is lowered slowly into water column until submerged, and then slowly retrieved. The sample is then carefully transferred to the appropriate sample containers. Ground water collected in the first bailing sequence is always used for sampling purposes, it is never discarded.

8.6 Sample order: Samples are collected in the following order:

8.6.1 volatile organics (VOA)
8.6.2 purgeable organic carbons (POC)
8.6.3 purgeable organic halogens (POX)
8.6.4 total organic halogens (TOX)
8.6.5 total organic carbon (TOC)
8.6.6 base neutrals/acid extractables
8.6.7 TPHC/oil and grease
8.6.8 PCB's/pesticides
8.6.9 total metals
8.6.10 dissolved metals

- 8.6.11 phenols, cyanide
- 8.6.12 sulfate and chloride
- 8.6.13 turbidity
- 8.6.14 nitrate and ammonia,
- 8.6.15 preserved inorganics
- 8.6.16 radionuclides
- 8.6.17 non-preserved inorganics
- 8.6.18 bacteria

8.7 Dupes and matrix spikes/matrix spike duplicates: These samples are taken in same order at same time. Refer to section 10.2.1.2.

8.8 After sampling: The following data is recorded on well sheets: Start and end time of sampling, dissolved oxygen, pH, temperature, specific conductivity, and sampling method.

9 CALCULATIONS:

Four calculations are made while in the field. The calculations are as follows: linear feet of water (height of water), the volume to be purged, the volume purged not to be exceeded, and purge rate.

9.1 Linear feet of water: This is calculated by knowing the total depth of a well and subtracting the depth to water as measured by a depth meter. These two numbers are measured to within .01 feet. Through this calculation, the linear feet of water is determined.

Equation: (Total well depth – Depth to water = linear feet of water)

9.2 Volume to be purged and volume not to be exceeded: The second calculation is to determine the minimum volume to be purged from a well before sampling. Utilizing the linear feet of water and then multiplying it by the volume per foot for the proper diameter casing (see Figure 1 below) equals the amount of water in casing. Multiplying the amount of water within a casing by 3 equals the minimum volume to be purged. It should be noted that the amount purged should not exceed 5x the amount of standing water in a well.

Equation:

linear feet of water x volume per ft for well diameter = amount of water in casing)
then,
(amount of water in casing x 3 = minimum volume to be purged)

Equation:

(amount of water in casing x 5 = total volume not to be exceeded)

Figure 1: Capacity of Common Casing Diameters
(Pp. 170 in NJDEP (FIELD SAMPLING PROCEDURE MANUAL)

Casing Diameter (ft.)	Gallons/linear foot
2 inch (0.1667)	0.1632
4 inch (0.3333)	0.6528
6 inch (0.5000)	1.4688
8 inch (0.6667)	2.6112
10 inch (0.8333)	4.0800
12 inch (1.0000)	5.8752

9.3 Purge rate: The purge rate is determined by calculating the length of time it takes for a pump to fill a 1-gallon bucket with water. The time is then multiplied by the minimum volume to be purged. The gallons being purged is then divided by this number (which also happens to be the length of time the purge will take in minutes) which equals the gallons per minute or purge rate.

Equation:
(time x minimum volume to be purged = length of purge in minutes)
then,
(minimum volume to be purged / length of purge in minutes = gallons per minute or the purge rate)

10 QUALITY CONTROL:

The following QA/QC requirements are established in order to maintain sample integrity. The prime objective is to prevent sample contamination from other sources and ensure potential contaminant concentrations remain stable from sample collection to complete analysis. Refer to the NJDEP Field Sampling Procedures Manual Appendix 2-1 Analytical Methodology Reference Charts, Pp. 24-74. Also refer to SAM-0200 Sample Containers, Preservation and Holding Times.

10.1 Sample Containers: Before sample collection can begin consideration must be given as to what type container will be used to transport and store samples. The lab provides containers based upon requested methodologies. Selection is based on the matrix, potential contaminants, analytical methods, and the laboratory's internal QA/QC requirements. They are selected upon review of the following:

10.1.1 Reactivity of container material with sample. Glass is recommended for hazardous material samples since it is chemically inert to most substances. Plastics may be used when analytes of interest or sample characteristics dictate use instead of glass.

10.1.2 Volume of the container. The volume of sample needed is dictated by the analytical method and the sample matrix. The laboratory supplies bottles that allow for sufficient volumes of sample matrix to be collected.

10.1.3 Color of container. Whenever possible, amber glass is used to prevent photodegradation. If not available, samples are protected from light. One exception is the use of 40 ml clear glass vials which are used for VOA/aqueous analysis.

10.1.4 Container closures. All containers utilized have a leak-proof seal and are constructed out of inert material with respect to sampled materials. The closure may also be separated by a closure liner that is inert to sample material.

10.1.5 Decontamination of containers and chain of custody. Sample containers are laboratory cleaned or purchased as lab cleaned. Bottles being shipped are accompanied by a chain of custody in a cooler with a custody seal. Custody always accompanies containers to the field, during collection, back to lab, and during analysis. This helps to assure no tampering or contamination from outside sources occurs.

10.1.6 Storage and transport. Care is taken to avoid contamination. Clean transport and storage environments are observed. Sample or bottle storage is never near solvents, gasoline, or other equipment that is a potential source of contamination. Samples and chain of custody are secured in coolers or transport, with said chain of custody in with bottles or in the possession of authorized personnel. Also, a temperature blank is included in each cooler to measure temperature of samples on ice (ideally a constant 4 degrees Celsius).

10.1.7 Tubing decontamination: ASTM drinking water grade polyethylene tubing is used and discarded after each use. Care is taken to prevent the pump and tubing from coming into contact with the ground surface. Prior to well purging, all tubing is rinsed/wiped with distilled and deionized water to remove any possible residual materials which may be present.

10.1.8 Disposal of development, purge, pump test, and decon waters: To determine whether waste waters are contaminated, field instrument readings and previous analytical data is used to characterize it. Water not considered contaminated is re-applied directly to ground surface and permitted to percolate back to the water table. Care is taken to avoid nuisance situations where a discharge may cause undue concern. When water is considered contaminated, the water generated is reapplied only if the following conditions are met: ground water is not permitted to migrate offsite, no potential exists for contaminating a previously uncontaminated aquifer, discharge will not cause an increase to ground surface soil contamination. If these conditions are met, the water is re-applied to the ground surface. If these conditions aren't met, than water is collected, containerized and secured in a single locale. Subsequently, the water is properly characterized and processed for offsite disposal.

10.2 QA/QC samples: These samples are intended to provide control over the collection of environmental measurements and subsequent validation, review, and interpretation of analytical data. Trip blanks are used exclusively for volatile organic analysis, (aqueous sampling only) and their purpose is to measure possible cross contamination of samples during shipment to and from a site. Trip blanks are never opened and travel to a site with the empty sample bottles and back from a site with the collected samples. Contaminated trip blanks may indicate bottle cleaning or blank water of questionable quality. Trip blanks are collected at the rate of one per day. Likewise, the purpose of a field blank is to place a mechanism of control on sample equipment handling, preparation, storage and shipment. Field blanks travel and are stored with the sample bottles. Field blanks are collected in the following manner. Two identical sets of bottles are prepared. One set is filled with laboratory demonstrated analyte free water (same water used for trip and method blanks). All of the filled bottles are shipped with the other empty sample containers. At the field location, in an area where contamination is suspected, the water is passed from the full set of like-bottles through the dedicated or field decontaminated sampling device and into the empty set of like-bottles. Field blanks are preserved identically to samples receiving the same analyses. Field blanks are collected and analyzed for all of the same parameters as the samples collected that day.

10.2.1 Additional QA/QC samples:

10.2.1.1 Duplicate samples: Collection of a dupe provides for evaluation of laboratory performance by comparing the analytical data of two samples from the same location. They are included 1 for every 20 samples (5% or 1 a day/site) and submitted as blind samples. They are obtained by alternately filling sample bottles from the same source/device for each parameter. VOA samples are same bailer and first set filled.

10.2.1.2 Matrix spike/Matrix spike duplicate analyses or MS/MSDS sample: The laboratory is supplied with triple volume in order to perform matrix spike and matrix spike dupes. This does not include trips or field blanks. Additional sample volume for MS/MSDS is taken within every set of 20 field samples.

10.3 Sample preservation: Sample bottles are preserved by lab staff based upon analytical requirements. Please refer to SAM-0200 Sample Containers, Preservation, and Holding Times SOP and also NJDEP Field Sampling Procedures Manual Appendix 2-1 Analytical Methodology reference Charts, Pp. 24-74.

STANDARD OPERATING PROCEDURE

SOP No.: SAM-0207
Revision No.: New
Date Revised: 7-3-99
Page 1 of 6

CATEGORY: Sample Handling
TITLE: Field Sampling / Methanol Extraction

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1 PURPOSE: To document the current procedures for sample collection using the Methanol Extraction Method.

2 RESPONSIBILITY: Designated field samplers who have been properly instructed and trained in field sampling protocol and techniques.

3 REFERENCES: NJDEP Methodology for the Field Extraction/ Preservation of Soil Samples with Methanol for Volatile Compounds. February 1997.

4 SUMMARY: This method describes the container preparation,field sampling and field extraction/preservation procedure to be used in conjunction with the analysis of soil samples for volatile organics.

4.1 Soil samples collected for volatile organic analysis must be handled in a manner which will minimize the loss of contaminants due to volatilization and biodegradation. Field extraction/preservation with methanol must be conducted to ensure that contaminants do not degrade or volatilize during sample handling and transport.

4.2 A small diameter soil core sampling device is used to collect a 10 gram soil sample.The sample is extruded into a tared sample container, supplied by the laboratory performing the analysis.

5 SAMPLE COLLECTION METHODOLOGY:

5.1 Soil sample collection for volatile organic analysis must be performed with the use of a decontaminated small diameter coring device. A modified 10-30 ml disposable syringe or commercially available small diameter tube/plunger sampler is acceptable. The small diameter coring device must be capable of collecting the required amount of sample from larger diameter core samplers (split spoons, etc.) or from freshly exposed soils.

Prepared By ______________________ Date 7-3-99

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5.2 If a modified disposable syringe is used it can be prepared in-house by cutting off the injection tip. Depending upon the construction of the syringe, small air vents must be cut into the plunger or if a modified disposable syringe is used it can be prepared in-house by cutting off the injection tip. Depending upon the construction of the syringe, small air vents must be cut into the plunger or the rubber tip and retaining post must be removed. These alterations to the plunger will prevent air from being forced through or around the soil plug during subcoring and sample extrusion.

5.3 The small diameter core sampler must be capable of delivering the sample directly into the sample container. The outer diameter of the core sampler must be smaller than the inner diameter of the sample container to avoid loss of sample and ease the soil transfer process.**The sample from the small diameter core cannot be transferred to a secondary container such as another sample bottle, zip lock bag, aluminum foil, etc. prior to placement into the sample container with the methanol preservative.**

5.4 Use a small electronic balance or manual scale for measuring the weight of the soil in the syringe. The scale must be calibrated before use, and intermittently the calibration should be checked during the sampling day to ensure accuracy of the weight measurements.

5.5 Tare weigh the small diameter core sampler

5.6 Once the sampling interval has been selected, trim off the surface soils of the sample interval to expose a fresh soil surface. The loss of volatile organics from the surface soils will occur if the soil has been exposed for a short period of time (during screening, etc.). The removal of the surface soils can be accomplished by scraping the soil surface using a decontaminated spatula or trowel The sampling procedure must commence immediately once a fresh soil surface has been exposed.

5.7 Using a decontaminated coring device, collect 10g ✂2g (8-12grams) of sample (wet weight). Wipe the outside of the subcoring device to remove any adherent soil. The plunger of the coring device can be pulled back or completely removed allowing the open barrel of the subcore to be inserted into the soil. Depending upon the soil texture, depth or moisture content, the subcore can be inserted straight into the soil, on an angle or multiple insertions can be performed to obtain the required sample weight.

5.8 Quickly weigh the sample while contained in the small diameter core sampler. Excess soil sample can be removed from the coring device by extruding a small portion of the core and cleaning away with a decontaminated trowel or spatula. **If soil weight is below**

the weight limit, obtain additional sample. Reweigh after each addition or removal of sample to the subcore until the target weight is attained (8-12g). Analytical results from a sample exceeding the weight maximums and minimums may be rejected and thus require resampling.

5.9 When sampling soils consisting of similar textures and water content, sample weight can be estimated based on volume of previously weighed samples from sampling or practice core sampling to determine sample weights.

5.10 Immediately open the sample container and slowly extrude the soil core into the preweighed and prenumbered sample container supplied by the laboratory performing the analysis. Avoid splashing methanol out of the sample container. Do not insert the small diameter coring device into the mouth of small diameter sample containers (40ml or 60ml VOA vials) or immerse the small diameter soil coring device into the methanol.

5.11 Ensure the threads on the sample container and cap are free of soil particles. Use a clean brush or paper towel to remove the particles off the threads. The presence of soil particles compromises the seal of the container resulting in loss of methanol which may invalidate the sample.

5.12 Secure the lid of the sample container. Gently swirl the sample to mix and break up the soil aggregate until soil is covered with methanol. **Do not shake.**

5.13 Do not attach any additional adhesive backed labels or tape to the sample containers. Record sample numbers on container avoiding covering laboratory identification number. Labels with wire or rubber band attachments may be used provided they can be removed easily for sample weighing. Record laboratory and field identification numbers on chain of custody and field notes.

5.14 The actual weight of soil will be determined by the laboratory performing the analysis.

5.15 Do not use or submit samples for analysis if any methanol has spilled from a sample container during shipment to the site or during sampling. Extra sample containers can be made available by the laboratory in case of accidental spillage of methanol in the field.

5.16 After sample collection, immediately return the containers to an iced cooler in an upright position. Sample containers can be placed in separate ziplock bags to protect other containers in case of leakage during transport. The laboratory sample number or field sample identification number may be placed on the bag and crossed referenced on the Chain of Custody. Do not place additional adhesive backed labels or tape on the sample containers. If any methanol is lost from a sample container upon arrival at the laboratory, the sample is invalid and resampling must be performed.

6 MOISTURE DETERMINATION:

6.1 To report the sample results on a dry weight basis, collect one duplicate sample **not preserved with methanol** from each sample location for moisture determination. Tightly seal the container to prevent the loss of soil moisture. This sample does not require to be weighed or preserved with methanol. This is taken for a percent solids analysis and a two ounce container is sufficient for this sample, it is taken for each methanol sample taken including duplicates.

7 QA/QC SAAMPLE AND DECONTAMINATION REQUIREMENTS

7.1 **The collection of an Ambient Blank is not required when sampling is performed using the methanol extraction/preservation technique**. It will be optional at the discretion of the site investigation team, or will be required on a site specific basis if previous elevated analytical results are suspected due to contamination from the sampling environment.

7.2 If Ambient Blanks are employed, the frequency of collection should be one (1) per day or at the discretion of the investigation team based on site conditions.

8 FIELD BLANK:

8.1 A Field Blank is a QA/QC sample which will determine potential contamination from sampling equipment used to collect and transfer samples from the point of collection to the sample container.

8.2 **A Field Blank is not required when sampling with the methanol extraction/preservation technique.** It is optional, or will be required on a site specific basis if previous elevated analytical results are suspected due to cross contamination from sampling equipment.

8.3 A Field Blank is performed by pouring demonstrated analyte free **water** from one sample container, over each piece of sampling equipment required for sample collection and into a separate set of identical sample containers. Additional information on Field Blanks can be found in the NJDEP Field Sampling Procedures Manual, May 1992.

9 TRIP BLANK:

9.1 A Trip Blank is a QA/QC sample which will determine additional sources of contamination that may potentially influence the samples. The sources of the contamination may be from the lab, sample bottles or during shipment.

9.2 **A Trip Blank is required when sampling with the methanol extraction/preservation technique.** It will be required due to potential cross contamination from sample shipment or from handling at the laboratory.

9.3 A Trip Blank is prepared at the same time and in the same manner as the sample containers as described in Section 4.0. The Trip Blank must accompany the sample containers to the field and back to the laboratory along with the collected samples for analysis. It must remain sealed at all times until it is analyzed at the laboratory.

9.4 The frequency of collection for the Trip Blank must be at a rate of one (1) per sample shipment.

10 DUPLICATE SAMPLES:

10.1 Perform duplicate samples at a rate of five (5) percent (1 per 20 samples).

10.2 Duplicate samples must be obtained from the same location and soil type to minimize location as a potential source of variation in the analytical results. Separate core samples should be obtained for the sample and duplicate sample.

11 SAFETY:

11.1 Methanol is a toxic and flammable liquid. Therefore, methanol must be handled with all safety precautions related to toxic and flammable liquids. Inhalation of methanol vapors must be avoided. Vials should be opened and closed quickly during the sample preservation procedure. Methanol must be handled in a ventilated area. Use protective gloves when handling the methanol vials. Store methanol away from sources of ignition such as extreme heat or open flames. The vials of methanol should always be stored in a cooler with ice at all times.

STANDARD OPERATING PROCEDURE

SOP No.: SAM-0219
Revision No.: New
Date Revised: 11-12-99
Page 1 of 6

CATEGORY: Sample Handling
TITLE: Geoprobe Sampling Methods for Site 812

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1 PURPOSE: To document the procedures used for sample collection.

2 RESPONSIBILITY: Designated field samplers who have been properly instructed and trained in field sampling protocol and techniques.

3 REFERENCES:

3.1 Field Sampling Procedures Manual, May 1992. New Jersey Department of Environmental Protection.

3.2 Geoprobe Tools and Equipment Catalog 98/99.

4 SUMMARY: This SOP represents all general field sampling requirements as required by the NJDEP. It specifically addresses the proper use of protective equipment, collection of QA/QC samples, field decontamination procedures, proper documentation of all field activities, collection of samples into proper containers with the proper preservation and the techniques for collecting each type of sample.

4.1 As a minimum, all field personnel are required to have work boots (steel toe construction), safety glasses or goggles, hard hat and gloves available for all sampling activities. Standard latex surgical gloves are worn at all times when samples are collected or handled.

4.2 Proper documentation of all site activities is crucial. Documentation is maintained to trace the possession and handling of samples from the time of collection, through analysis and disposal.

Prepared By ______________________ Date 11-12-99

Approved By ______________________ Date 11-12-99
QA Manager / Laboratory Director

4.3 Every field sampler (team) is required to maintain a bound field-sampling logbook with permanently numbered pages. All field activities and notes are documented in this book. Notations are made in logbook fashion, noting the time and date of all entries. Information recorded in the logbook includes name and location of site investigation, date and time of arrival and departure, persons contacted, weather conditions, samples taken, method and time of collection and depths if required. Field instrument calibrations are kept in separate books.

4.4 Sample containers are labeled after sample collection. Sample labels include the following: well or sample number, parameters, preservatives, date and time of sample collection, sampler's initials and site name/location.

4.5 The sample containers utilized during the execution of this project are as follows:

- 4.5.1 (1) Four-ounce clear glass containers with Teflon lined lids.
- 4.5.2 (1) Two-ounce clear glass containers with septum.
- 4.5.3 (2) 40ml clear VOA vials.

4.6 A chain of custody (COC) form is completed in the field and accompanied each set of samples collected. The COC is a legal record of possession of the samples and of request for analysis. It bears the name of the person assuming responsibility of the sample. A copy of a COC can be found in SAM-0201 Attachment 2 (Sample Receiving, Log-In and Disposal).

4.7 Sample collection techniques are accomplished as follows:

- 4.7.1 The Macro Core Sampler ® is utilized in the extraction of the soil samples (Ref.5.1). The soils are taken using the methanol extraction method (Ref. SAM 0207).
- 4.7.2 After completion of the soil samples, a pre-probe is driven approximately three feet into the saturated water zone and extracted (Ref.6.2).
- 4.7.3 A one-inch polyvinyl chloride (PVC) screen is carefully placed in the bore-hole into the saturated zone (Ref.6.2).
- 4.7.4 A peristaltic pump is then used to purge the ground water from the PVC screen (Ref.6.3).
- 4.7.5 A sample is taken using a disposable polyethylene bailer.

4.8 Samples are properly preserved and the correct size, shape and color containers are used. Guidelines for sample containers and preservation can be found in SOP SAM-0200 (Sample Containers, Preservation and Holding Time).

4.9 Equipment List:

4.9.1 Geoprobe Macrocore Sampler® Assembly
4.9.2 Bedrock one inch .10 slot, schedule 40, PVC screen
4.9.3 Bedrock one inch schedule 80 PVC point
4.9.4 Bedrock one inch schedule 40 PVC riser
4.9.5 3/8" food grade polyethylene tubing (disposable)
4.9.6 ¼" I.D. surgical tubing
4.9.7 Masterflex® Peristaltic Pump

4.10 Decontamination Procedures for Field Sampling Equipment

4.10.1 Items de-contaminated are as follows:

4.10.1.1 Macro Core Sampler® and associated parts.
4.10.1.2 Pre-probe point and rods implemented in its use.

4.10.2Aqueous Sampling Decontamination Steps:

4.10.2.1 Detergent plus tap water wash
4.10.2.2 Generous tap water rinse
4.10.2.3 DI water rinse
4.10.2.4 acid rinse (if sampling for metals)
4.10.2.5 DI water rinse
4.10.2.6 Acetone rinse (if sampling for organic parameters)
4.10.2.7 Total air dry
4.10.2.8 DI water rinse

4.10.3 Non-Aqueous Sampling Decontamination Steps:

4.10.3.1 Detergent plus tap water wash
4.10.3.2 Generous tap water rinse
4.10.3.3 DI water rinse

5 GEOPROBE SAMPLING FOR SOILS:

5.1 Sampling with the Macro Core Sampler: The Macro Core sampler is a steel tube that measures two inches in diameter by forty-eight inches in length. The complete assembly consists of the tube, a cutter shoe, a liner tube, and a drive head that is connected to drill rod and advanced into the soil strata. The liner is manufactured of Polyethylene Tera-Phthalate Glycol (PETG) material as well as other materials. The liner is one point seventy-five inches diameter and forty-six inches long. It can hold up to approximately thirteen hundred milliliters of soil when full recovery is obtained. The sampler is decontaminated (Ref.4.10.3), put together and introduced into the soil from zero grade and driven to the desired depth. The sampler is meant to be used mainly as an open advanced borehole system. The sampler is pushed and or percussion hammered into the soil, extracted out of the soil, and opened up.

5.2 Sampling Procedures: After the sampler is extracted out of the bore-hole, the liner is removed and the ends will be sealed with a chemically inert wax film material. Due to expected inclement weather conditions, the cores will be brought into a warm, clean room, cut open and screened with a photo ionization instrument (HNU®) and/or a flame ionization instrument (OVA®). Samples recovered from the vadose zone for VOA analysis are collected using the methanol extraction method (REF. SAM 207). Samples will be collected when instrument (high fid/pid) and/or visual observations are made (oily sheen). Regardless of the above referenced factors, a sample will be taken from each location at the zero to six-inch interval just above the water table. These samples are collected as soon as possible to prevent contaminant volatilization. For every VOA sample collected, a TPHC sample shall also be collected for subsequent analysis. Field notes are written as to note soil structures, colors and any other materials. Odors and any other factors regarding the sample are noted as well.

6 GEOPROBE SAMPLING FOR GROUNDWATER:

6.1 Ground Water Sampling with the use of a Passively Placed Narrow Diameter Point (PPNDP): A narrow diameter point (PPNDP) is a small diameter («-1 inch OD) screened casing passively placed in a bore-hole. A solid push rod (pre-probe) is used to create a narrow diameter hole to a depth below the water table. This is performed with a rotary hammer. A piece of schedule 40 PVC screen with 0.010-inch slots and an end cap are placed at the bottom of each bore-hole from the point where the last soil sample is collected. No filter or gravel pack is used in the construction of each well sampling point. Each well point is utilized for a period of less than 48 hours.

6.2 Installation: Within each bore-hole, commencing from the point where the last soil sample is collected, the pre-probe is driven to a depth of 1-3 feet below the water table. The screened section of PVC is placed into the borehole so the screened interval is positioned across the water table. Prior to installation of the PPNDP, knowledge of the depth to water is established from previous soil sampling activities.

6.3 Sampling Procedure: Three to five volumes of the standing water in the PPNDP is purged prior to sample collection. This is accomplished utilizing a peristaltic pump. The tubing used for the well purging is food grade polyethylene and silicon surgical tubing that is discarded after each purging event. Disposable polyethylene bailers are used to collect ground water samples for VOA analysis. Following sample collection, the PVC screen is removed from each borehole. Granular bentonite is then added to a level just above the saturated zone. Soils previously removed during sampling activities are then reintroduced back into each borehole and compacted.

6.4 Quality Assurance/Quality Control: The PPNDP and associated equipment (bull point, riser pipe, etc.) are decontaminated between borings using the following procedure: 1) Remove all adherent soil material. 2) Wash with a laboratory grade glassware detergent. 3) Rinse with potable water. 4) Rinse with distilled and de-ionized ASTM Type II water. Field blanks are obtained in the same manner as the sample. The blank water is passed through the sample device and the PPNDP prior to installation, then into the sample container. The parameters and frequency for field blanks are designated in the May 1992 edition of the NJDEP Field Sampling Procedures Manual.

7 QUALITY CONTROL:

7.1 QA/QC samples are intended to provide control over the collection of environmental measurements and subsequent validation, review and interpretation of generated analytical data.

7.1.1 The trip blanks are used exclusively for volatile organic analysis, (aqueous sampling only) and its purpose is to measure possible cross contamination of samples during shipment to and from the site. The trip blanks are never opened and travels to the site with the empty sample bottles and back from the site with the collected samples. Contaminated trip blanks may indicate bottle cleaning or blank water of questionable quality. Trip blanks are included at the rate of one per day.

7.1.2 The purpose of a field blank is to place a mechanism of control on sample equipment handling, preparation, storage and shipment. Field blanks travel and are stored with the sample bottles. Field blanks are collected in the following manner. Two identical sets of bottles are prepared. One set is filled with laboratory demonstrated analyte free water (same water used for trip and method blanks). All of the filled bottles are shipped with the other empty sample containers. At the field location, in an area where contamination is suspected, the water is passed from the full set of like-bottles through the dedicated or field decontaminated sampling device and into the empty set of like-bottles. Field blanks are preserved identically to samples receiving the same analyses. Field blanks are collected and analyzed for all of the same parameters as the samples collected that day.

7.1.3 Duplicate sample collection. For aqueous samples, duplicates are taken by alternating filling containers from the same sampling device for each of the required parameters. VOA samples, to include duplicate samples, are always taken from discrete locations or intervals without compositing or mixing. Duplicates are collected at the rate of one per twenty.

APPENDIX C

GROUNDWATER MONITORING WELL AND SOIL BORING LOGS

VERSAR INC.
Groundwater Monitoring Wells MW-1 thru MW-14
April 2000 – May 2000

U.S. ARMY FORT MONMOUTH – DIRECTORATE OF PUBLIC WORKS
Borings B-0 thru B-162
September 1999 – February 2000

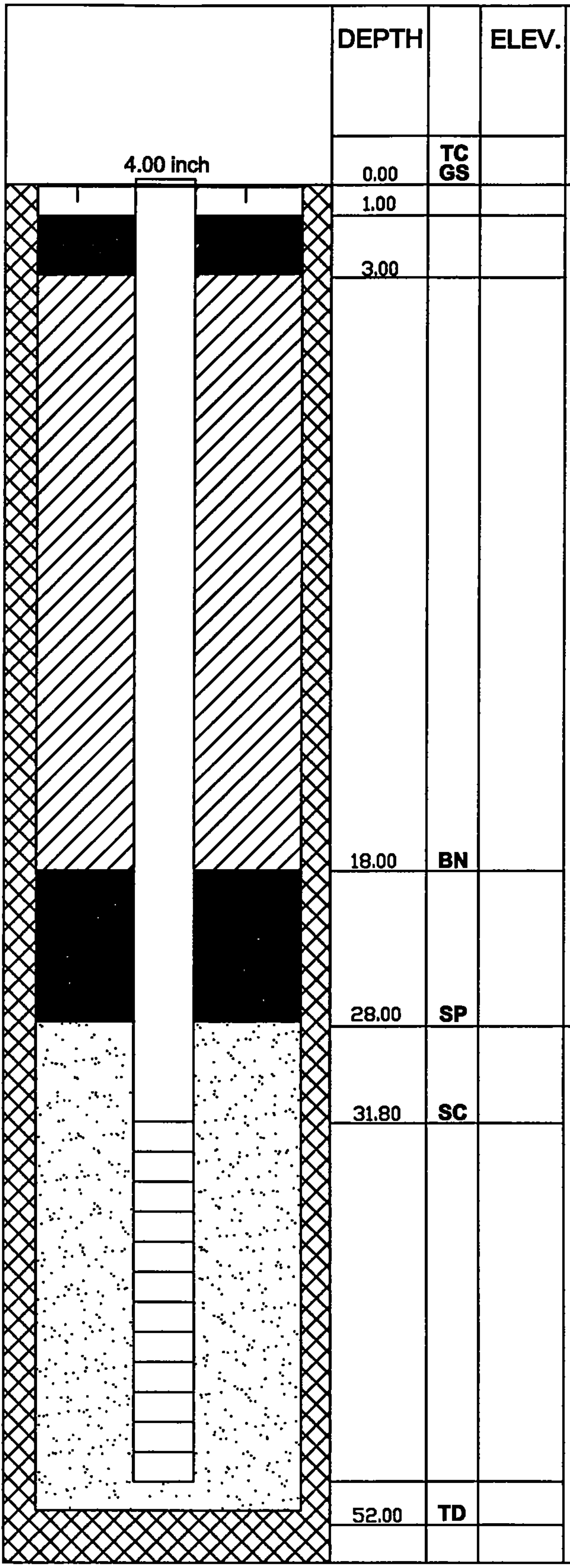
APPENDIX C

GROUNDWATER MONITORING WELL AND SOIL BORING LOGS

VERSAR INC.
Groundwater Monitoring Wells MW-1 thru MW-14
April 2000 – May 2000

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-1

TOTAL DEPTH : 52.00'
LOGGER : DP
DATE STARTED : 05/04/00
DATE COMPLETED : 05/04/00



NOT TO SCALE

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 Inch ***Interval:*** 0.00 to 31.80 ft.
Type: PVC

Casing Grout:
GRANULAR BENTONITE ***Interval:*** 1.00 to 3.00 ft.

PORTLAND CEMENT ***Interval:*** 3.00 to 18.00 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 18.00 to 28.00 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 28.00 to 52.00 ft.

Screen Diameter: 4.00 Inch ***Interval:*** 31.80 to 52.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

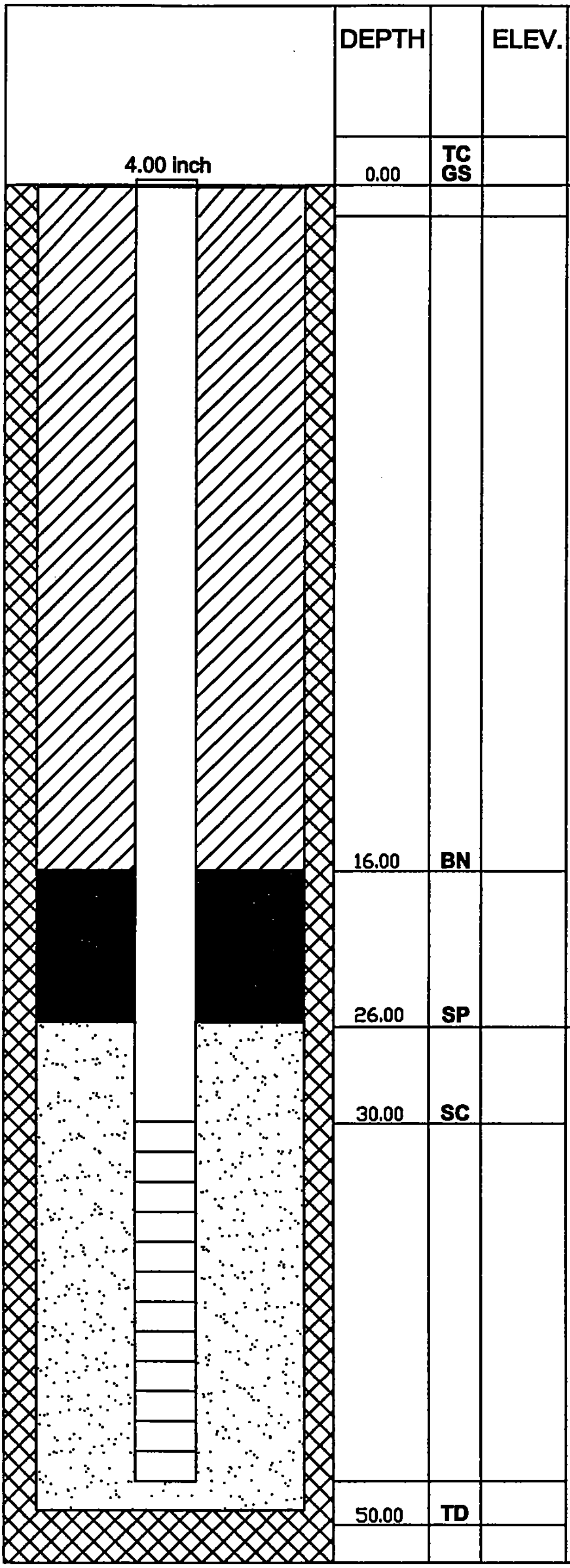
▨ = Grout
■ = Seal
⬚ = Sand Pack
☒ = Formation

J:\FORTMON2\D.O. 5_Site812\well logs\welllog1.dwg

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-2

TOTAL DEPTH : 50.00'
LOGGER : DP
DATE STARTED : 04/25/00
DATE COMPLETED : 04/26/00



NOT TO SCALE

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 30.00 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 16.00 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 16.00 to 26.00 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 26.00 to 50.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 30.00 to 50.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal

SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

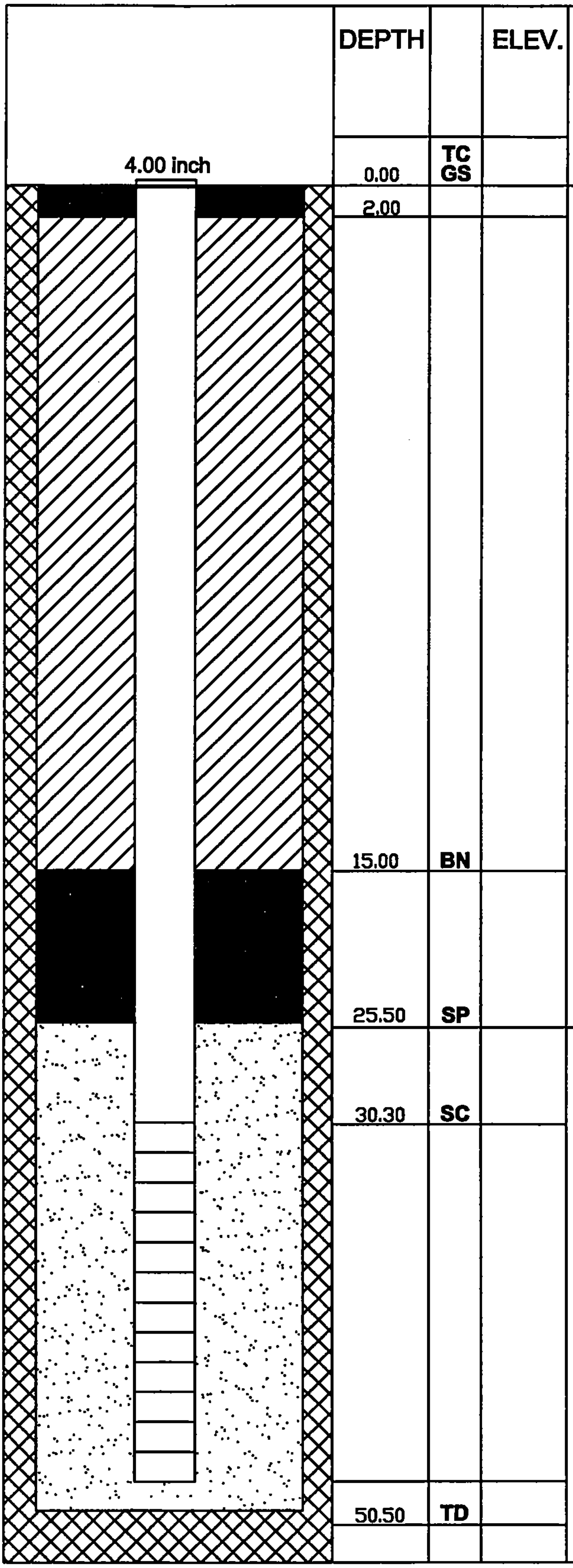
▨ = Grout
■ = Seal
☐ = Sand Pack
▩ = Formation

J:\FORTMON2\D.O. 5_Site812\well logs\welllog2.dwg

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-3

TOTAL DEPTH : 50.50'
LOGGER : DP
DATE STARTED : 05/05/00
DATE COMPLETED : 05/05/00



NOT TO SCALE

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 30.30 ft.
Type: PVC

Casing Grout:
GRANULAR BENTONITE ***Interval:*** 0.00 to 2.00 ft.

PORTLAND CEMENT ***Interval:*** 2.00 to 15.00 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 15.00 to 25.50 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 25.50 to 50.50 ft.

Screen Diameter: 4.00 inch
Type: PVC ***Interval:*** 30.30 to 50.50 ft.
Slots: 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

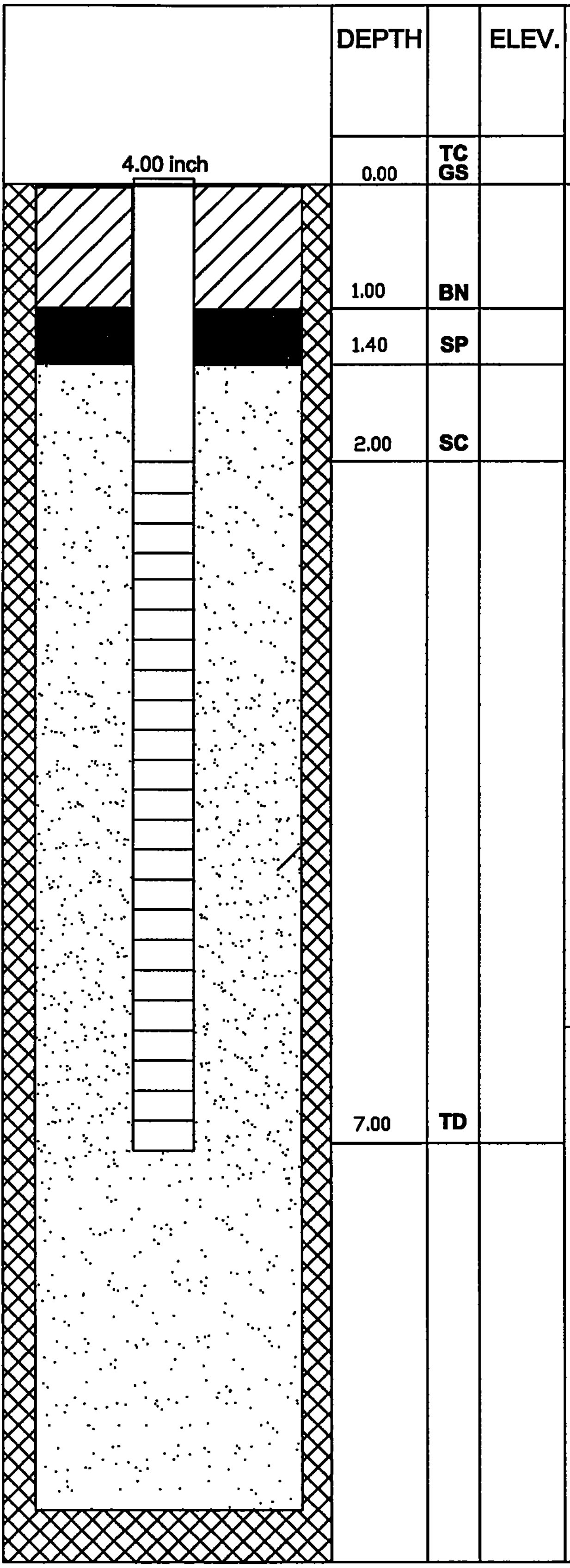
▨ = Grout
■ = Seal
⬚ = Sand Pack
☒ = Formation

J:\FORTMON2\D.O. 5_Site812\well logs\welllog3.dwg

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-4

TOTAL DEPTH : 7.00'
LOGGER : DP
DATE STARTED : 04/26/00
DATE COMPLETED : 04/26/00



NOT TO SCALE

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DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 Inch ***Interval:*** 0.00 to 2.00 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 1.00 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 1.00 to 1.40 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 1.40 to 7.00 ft.

Screen Diameter: 4.00 Inch ***Interval:*** 2.00 to 7.00 ft.
Type: PVC ***Slots:*** 0.010 Inches

COMMENTS

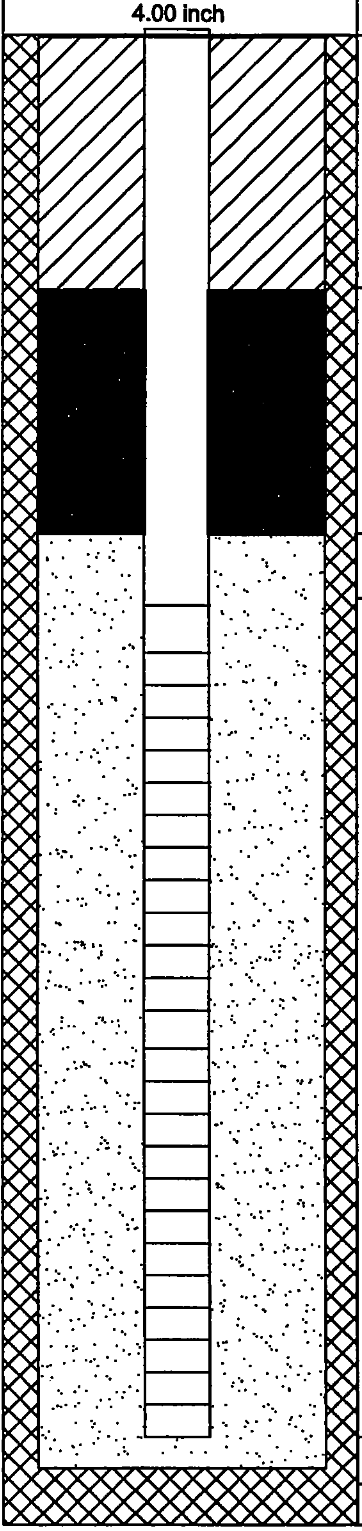
TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
⬚ = Sand Pack
☒ = Formation

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	18.00'
SITE NAME	:	Site 812	LOGGER	:	DP
WELL I.D.	:	MW-5	DATE STARTED	:	05/04/00
			DATE COMPLETED	:	05/04/00

4.00 inch



NOT TO SCALE

DEPTH		ELEV.
0.00	TC GS	
2.90	BN	
5.00	SP	
7.90	SC	
18.00	TD	

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DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 7.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 2.90 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 2.90 to 5.00 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 5.00 to 18.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 7.90 to 18.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

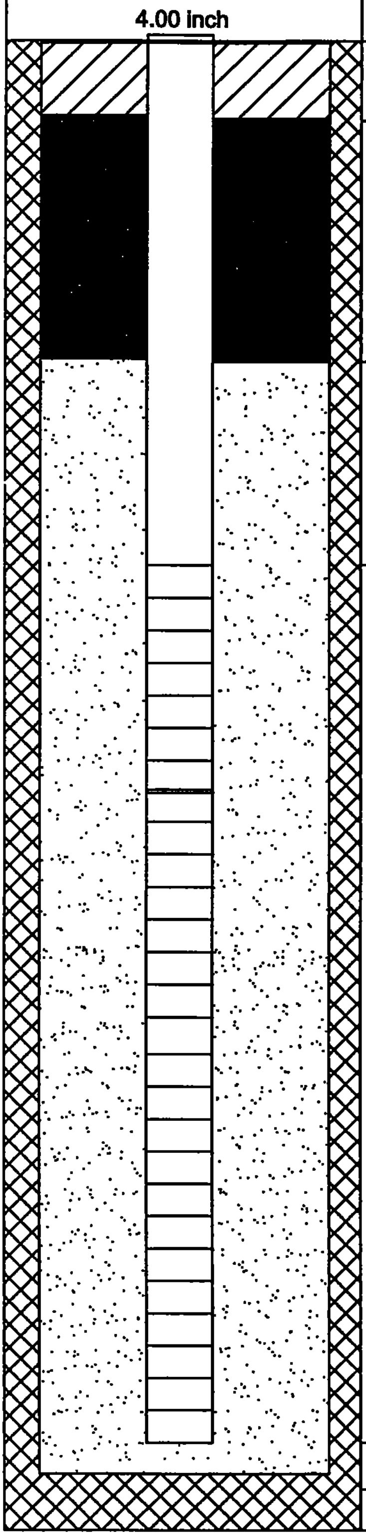
TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
⬚ = Sand Pack
☒ = Formation

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-6

TOTAL DEPTH : 16.00'
LOGGER : DP
DATE STARTED : 04/26/00
DATE COMPLETED : 04/26/00



NOT TO SCALE

DEPTH		ELEV.
0.00	TC GS	
1.20	BN	
3.30	SP	
5.90	SC	
16.00	TD	

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 5.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 1.20 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 1.20 to 3.30 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 3.30 to 16.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 5.90 to 16.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal

SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
⬚ = Sand Pack
▩ = Formation

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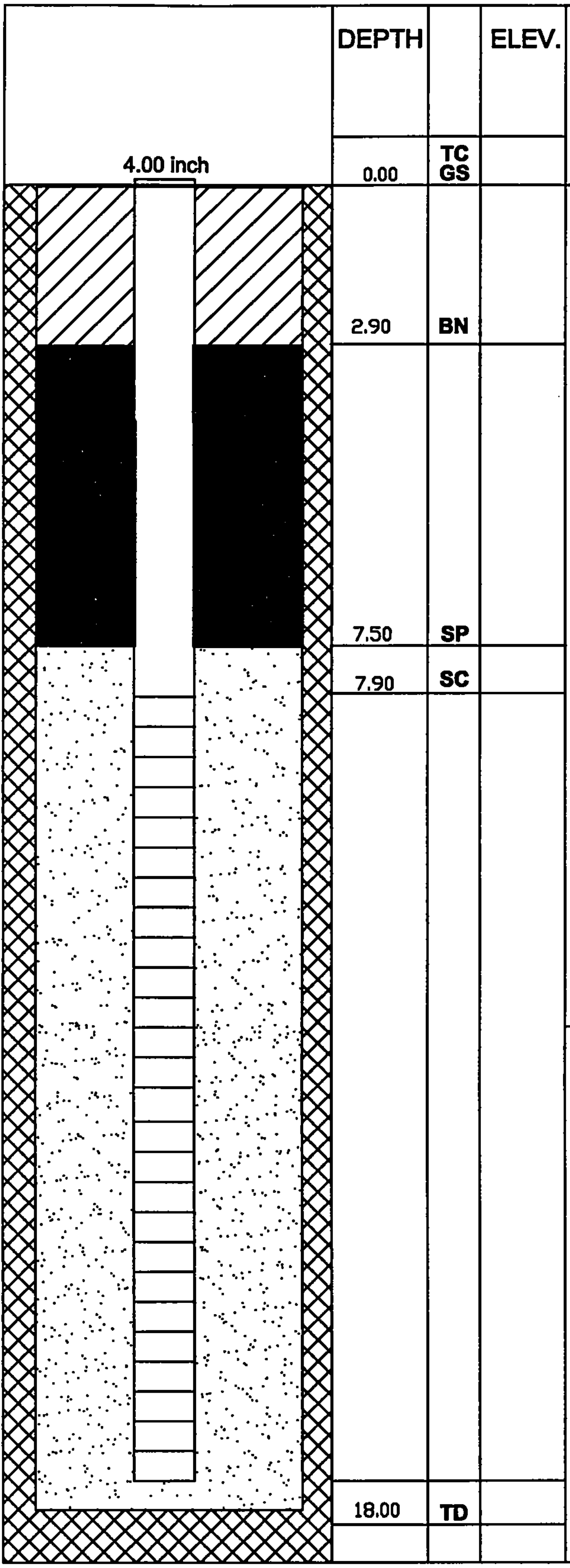
Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-7

TOTAL DEPTH : 18.00'
LOGGER : DP
DATE STARTED : 05/03/00
DATE COMPLETED : 05/03/00



NOT TO SCALE

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 7.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 2.90 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 2.90 to 7.50 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 7.50 to 18.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 7.90 to 18.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
□ = Sand Pack
▩ = Formation

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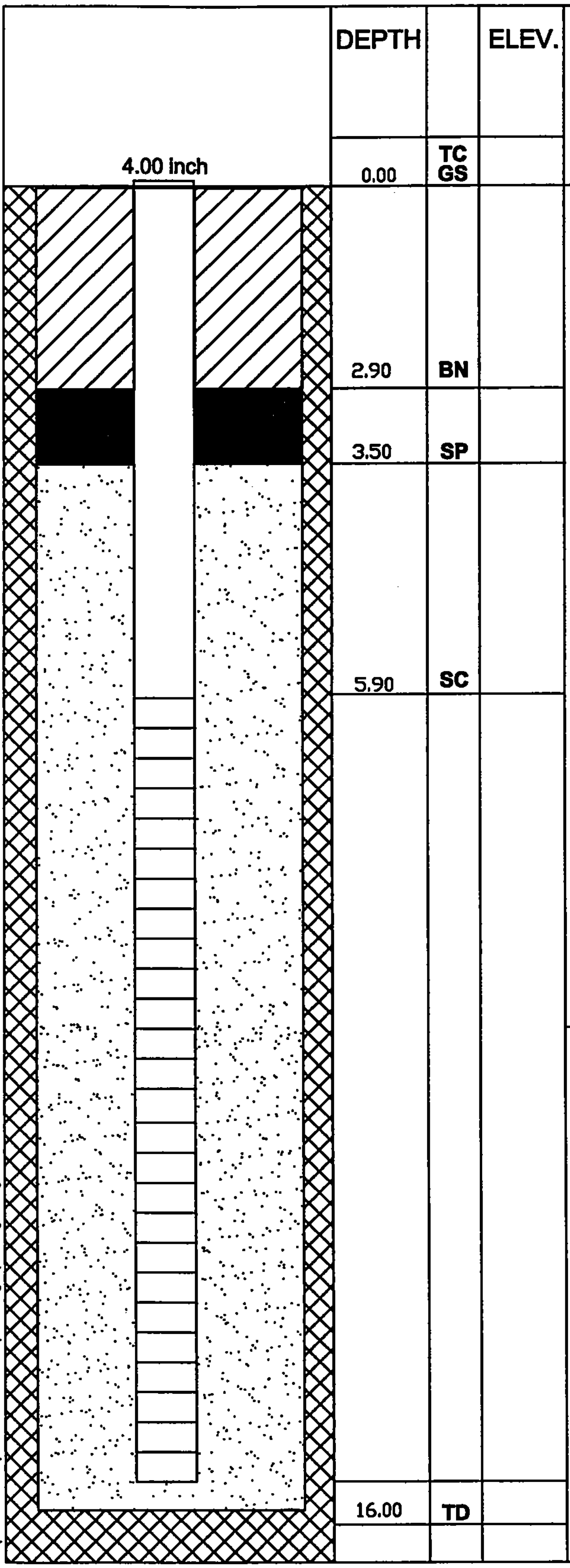
Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	16.00'
SITE NAME	:	Site 812	LOGGER	:	DP
WELL I.D.	:	MW-8	DATE STARTED	:	05/01/00
			DATE COMPLETED	:	05/01/00



NOT TO SCALE

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 5.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 2.90 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 2.90 to 3.50 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 3.50 to 16.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 5.90 to 16.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

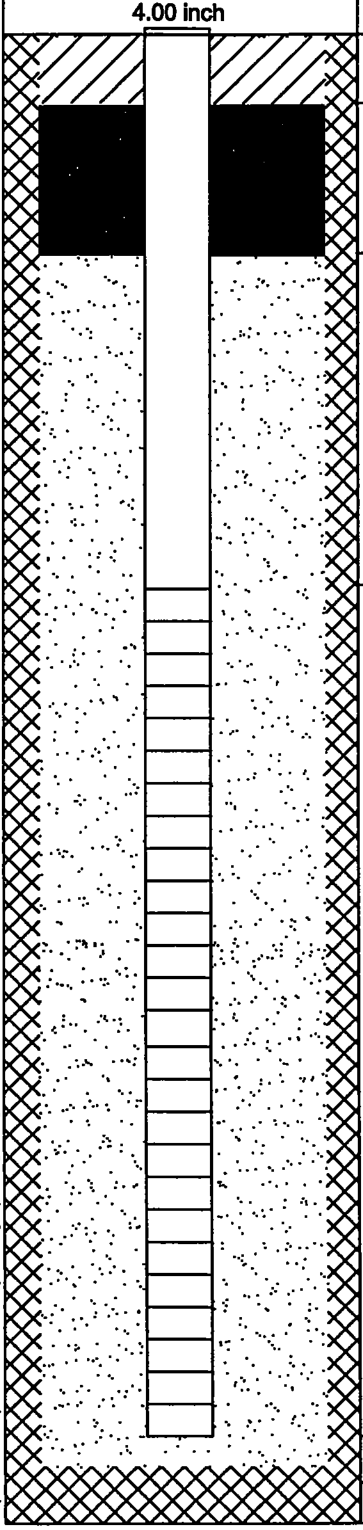
TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
░ = Sand Pack
☒ = Formation

J:\FORTMON2\D.O. 5_Site812\well logs\welllog8.dwg

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	16.00'
SITE NAME	:	Site 812	LOGGER	:	DP
WELL I.D.	:	MW-9	DATE STARTED	:	05/02/00
			DATE COMPLETED	:	05/02/00



DEPTH		ELEV.
0.00	TC GS	
1.50	BN	
3.00	SP	
5.90	SC	
16.00	TD	

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 Inch ***Interval:*** 0.00 to 5.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 1.50 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 1.50 to 3.00 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 3.00 to 16.00 ft.

Screen Diameter: 4.00 Inch ***Interval:*** 5.90 to 16.00 ft.
Type: PVC ***Slots:*** 0.010 Inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

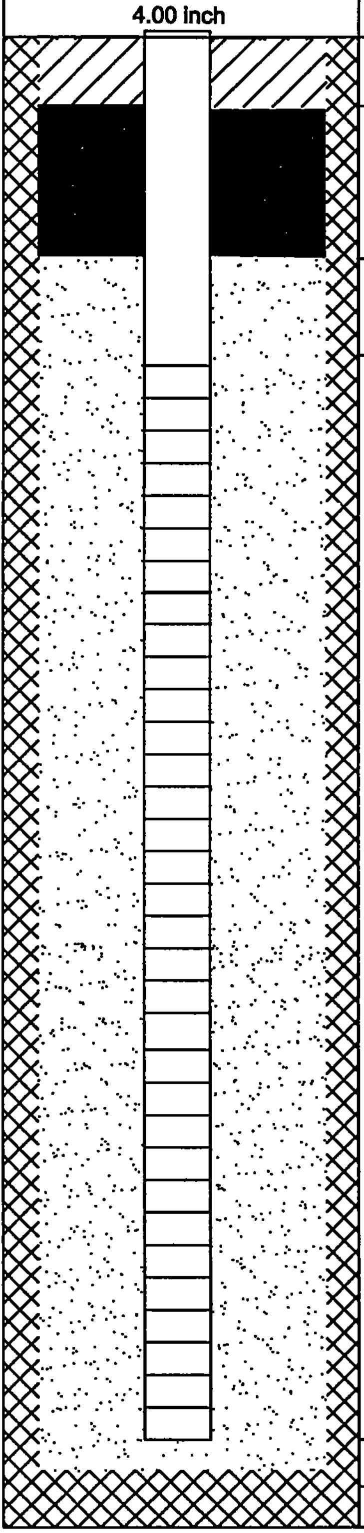
▨ = Grout
■ = Seal
□ = Sand Pack
☒ = Formation

J:\FORTMON2\D.O. 5_Site812\well logs\welllog9.dwg

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-10

TOTAL DEPTH : 16.00'
LOGGER : DP
DATE STARTED : 05/03/00
DATE COMPLETED : 05/03/00



NOT TO SCALE

DEPTH		ELEV.
0.00	TC GS	
1.50	BN	
4.00	SP	
5.90	SC	
16.00	TD	

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 Inch ***Interval:*** 0.00 to 5.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 1.50 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 1.50 to 4.00 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 4.00 to 16.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 5.90 to 16.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal

SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

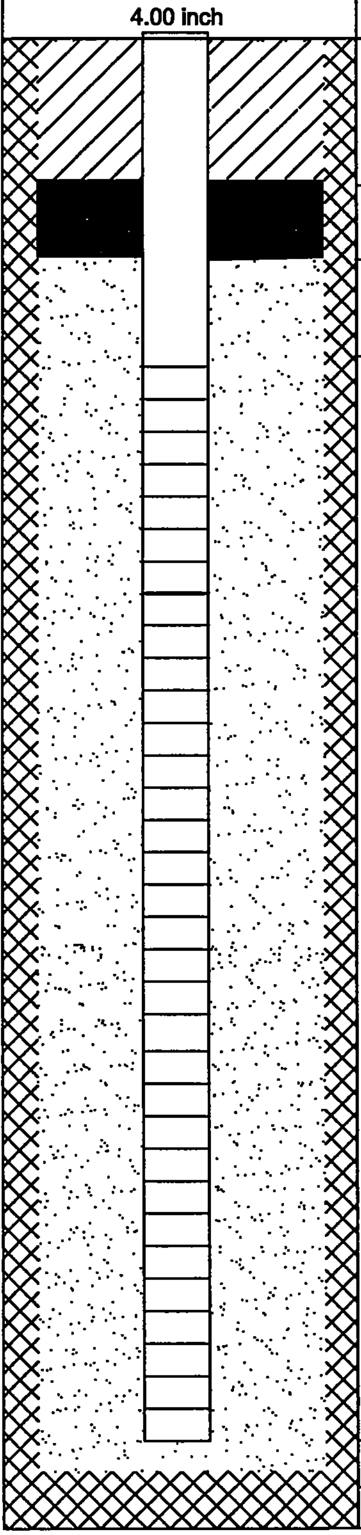
▨ = Grout
■ = Seal
☐ = Sand Pack
☒ = Formation

J:\FORTMON2\D.O. 5_Site812\well logs\welllog10.dwg

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-11

TOTAL DEPTH : 15.00'
LOGGER : DP
DATE STARTED : 05/02/00
DATE COMPLETED : 05/02/00



NOT TO SCALE

DEPTH		ELEV.
0.00	TC GS	
2.30	BN	
3.00	SP	
4.90	SC	
15.00	TD	

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 4.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 2.30 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 2.30 to 3.00 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 3.00 to 15.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 4.90 to 15.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal

SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

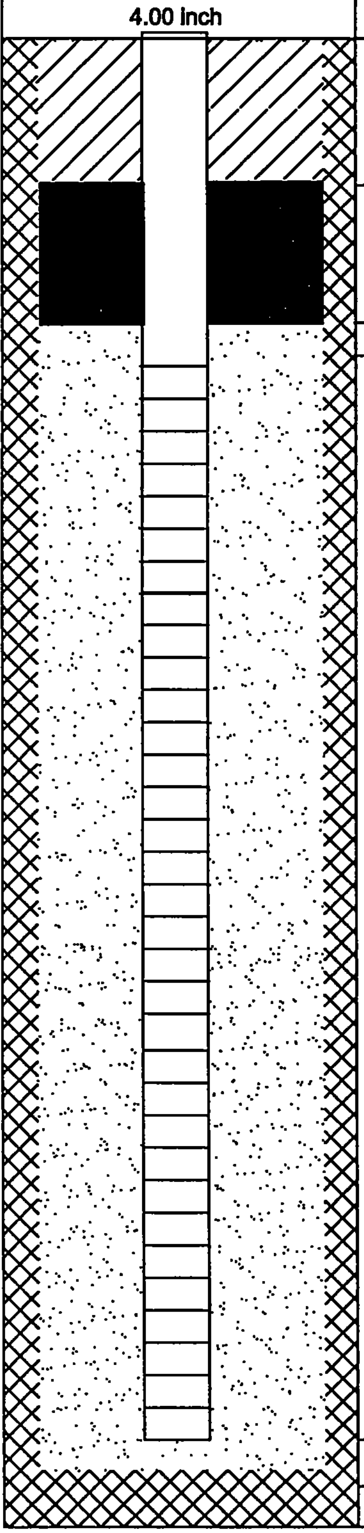
▨ = Grout
■ = Seal
☐ = Sand Pack
☒ = Formation

J:\FORTMON2\D.O. 5_Site812\well logs\welllog11.dwg

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-12

TOTAL DEPTH : 16.00'
LOGGER : DP
DATE STARTED : 05/03/00
DATE COMPLETED : 05/03/00



DEPTH		ELEV.
0.00	TC GS	
2.30	BN	
4.80	SP	
5.90	SC	
16.00	TD	

NOT TO SCALE

J:\FORTMON2\D.O. 5_Site812\well logs\welllog12.dwg

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 5.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 2.30 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 2.30 to 4.80 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 4.80 to 16.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 5.90 to 16.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

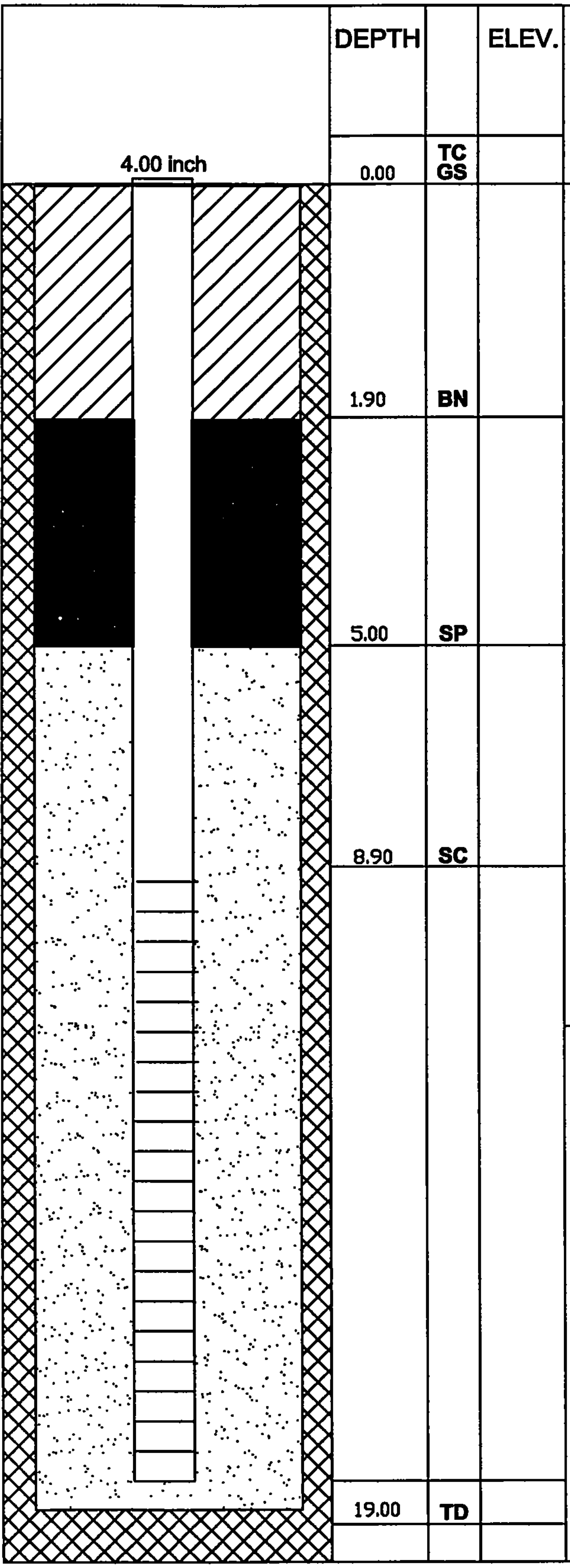
TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
░ = Sand Pack
☒ = Formation

Versar INC.
1900 FROST ROAD, SUITE 110
BRISTOL, PA 19007
(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : Site 812
WELL I.D. : MW-13

TOTAL DEPTH : 19.00'
LOGGER : DP
DATE STARTED : 05/04/00
DATE COMPLETED : 05/04/00



NOT TO SCALE

DRILLING SUMMARY

DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
WELL TYPE : SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 inch ***Interval:*** 0.00 to 8.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 1.90 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 1.90 to 5.00 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 5.00 to 19.00 ft.

Screen Diameter: 4.00 inch ***Interval:*** 8.90 to 19.00 ft.
Type: PVC ***Slots:*** 0.010 inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal
SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
□ = Sand Pack
▩ = Formation

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1900 FROST ROAD, SUITE 110
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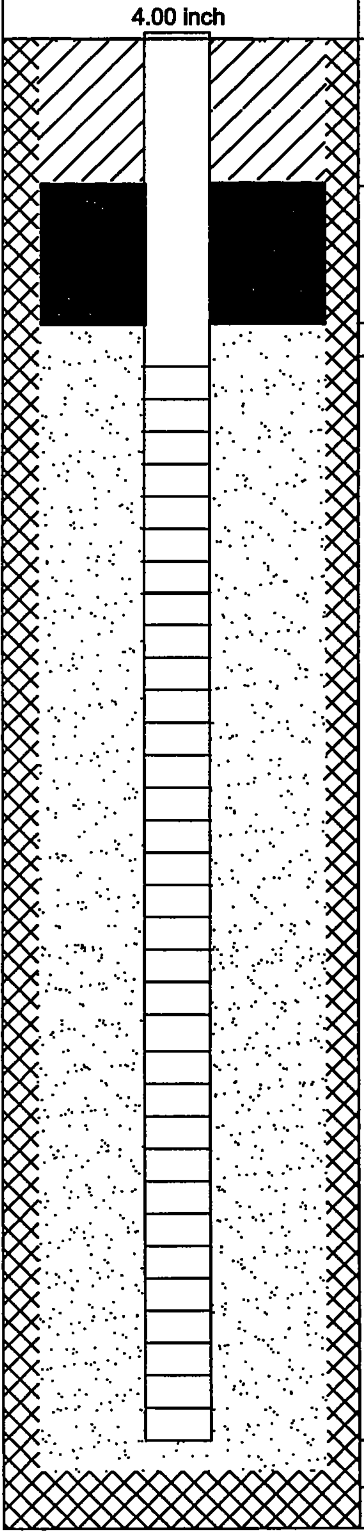
PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	15.00'
SITE NAME	:	Site 812	LOGGER	:	DP
WELL I.D.	:	MW-14	DATE STARTED	:	05/03/00
			DATE COMPLETED	:	05/03/00



NOT TO SCALE

DEPTH		ELEV.
0.00	TC GS	
2.30	BN	
4.80	SP	
4.90	SC	
15.00	TD	

DRILLING SUMMARY

DRILLING CO.	:	Inland Pollution Services
DRILLING RIG	:	HSA
WELL TYPE	:	SINGLE CASED SCREENED

WELL DESIGN CONSTRUCTION

Casing #1 Diameter: 4.00 Inch ***Interval:*** 0.00 to 4.90 ft.
Type: PVC

Casing Grout: PORTLAND CEMENT ***Interval:*** 0.00 to 2.30 ft.

Seal Type: GRANULAR BENTONITE ***Interval:*** 2.30 to 4.80 ft.

Sand Pack Type: COARSE WASHED SILICA SAND ***Interval:*** 4.80 to 15.00 ft.

Screen Diameter: 4.00 Inch ***Interval:*** 4.90 to 15.00 ft.
Type: PVC ***Slots:*** 0.010 Inches

COMMENTS

TC = Top of Casing
GS = Ground Surface
BN = Top Seal

SP = Top Sand Pack
SC = Top of Screen
BS = Bottom of Screen
TD = Total Depth

▨ = Grout
■ = Seal
☐ = Sand Pack
☒ = Formation

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Versar INC.
1900 FROST ROAD, SUITE 110
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(215) 788-7844

PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	52.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-1	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'22.7"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'33.1"	DATE STARTED	:	05/04/00
ELEVATION	:	20.14	DATE COMPLETED	:	05/04/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
	2		Fine sand with little silt	Brown - orange brown	MST	HNU 0.0	
	4						
	6						Water level at 6'
	8						
	10						
	12						
	14						
	16				WET	HNU 0.0	
	18						
	20		Fine sand with silt	Golden brown	WET	HNU 0.0	
	22						
	24						
	26		Silt, mica-rich, layered	Black	MST WET	HNU 0.0	
	28						
	30						
	32						
	34		Fine, sandy-silt, mica-rich	Black	MST WET	HNU 0.0	
	36						
	38						
	40		Fine sandy-silt with traces of clay	Black	MST WET	HNU 0.0	
	42						
	44		Silt with little clay and traces of sand	Black	MST WET	HNU 0.0	
	46						
	48						
	50		Fine sandy-silt with traces of clay	Black	MST WET	HNU 0.0	

END OF BOREHOLE

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PROJECT : FT. MONMOUTH
SITE NAME : SITE 812
BORING I.D. : MW-2
LONGITUDE : 74 02'21.8"
LATITUDE : 40 18'33.7"
ELEVATION : 17.47

TOTAL DEPTH : 50.00'
LOGGER : DP
DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
DATE STARTED : 04/25/00
DATE COMPLETED : 04/26/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
	2	■	Asphalt				SB61 had been drilled at this location previously.
	4 6	░	Fine sandy-silt	Olive			Diesel odor from cuttings.
	8 10 12	░	Fine sand with traces of silt	Orange brown	WET	HNU 0.0	
	14 16 18 20	░	Fine sand with traces of silt	Orange brown - olive brown	WET	HNU 0.0 6-9 10	
	22 24 26	░	Silt and very find sand, mica rich	Dk. gray - black	WET	HNU 0-1 0.5-2	
	28 30 32	░	Silt with traces to little clay and very find sand	Lt. gray	MST MST WET	HNU 3 8.5 3.5 2.5	
	34 36 38 40 42	░	Fine, silty-sand with traces of clayey-sand and clay	Black	MST WET	HNU 9 65 25 5	
	44	▨	Silty-clay with little fine to coarse sand	Dk. gray	MST	HNU 0.5	
	46 48	░	Fine silty-sand with traces of clay and clayey-sand	Dk. gray	MST	HNU 10 0.0	
	50		END OF BOREHOLE				

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Versar INC.
1900 FROST ROAD, SUITE 110
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(215) 788-7844

PROJECT : FT. MONMOUTH
SITE NAME : SITE 812
BORING I.D. : MW-3
LONGITUDE : 74 02'21.4"
LATITUDE : 40 18'32.8"
ELEVATION : 18.16

TOTAL DEPTH : 50.50'
LOGGER : DP
DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
DATE STARTED : 05/05/00
DATE COMPLETED : 05/05/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
	2		Organic material	Brown	MST		
	4						
	6		Clay	Blue - green	MST		
	8			Olive - green			
	10		Sandy-silt	Golden brown	MST	HNU 0.0	
	12						
	14				WET		
	16						
	18						
	20						
	22						
	24						
	26		Sandy-silt	Black	WET	HNU 0.0	
	28						
	30						
	32						
	34						
	36						
	38						
	40						
	42						
	44						
	46						
	48						
	50		END OF BOREHOLE				

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PROJECT : FT. MONMOUTH
SITE NAME : SITE 812
BORING I.D. : MW-4
LONGITUDE : 74 02'22.7"
LATITUDE : 40 18'33.0"
ELEVATION : 20.48

TOTAL DEPTH : 7.00'
LOGGER : DP
DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
DATE STARTED : 04/26/00
DATE COMPLETED : 04/26/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
			Silty-sand and gravel	Brown	MST		
	1						
	2						
	3		Silty-sand and gravel	Brown	MST	HNU 0.0	
	4						
	5		Silty-sand w/ wood debris and brick fragments	Dk. gray	MST	HNU 0.0	
	6		Sandy-silt, oily	Black	WET		
	7		END OF BOREHOLE				

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1900 FROST ROAD, SUITE 110
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PROJECT : FT. MONMOUTH
SITE NAME : SITE 812
BORING I.D. : MW-5
LONGITUDE : 74 02'24.2"
LATITUDE : 40 18'32.8"
ELEVATION : 15.10

TOTAL DEPTH : 18.00'
LOGGER : DP
DRILLING CO. : Inland Pollution Services
DRILLING RIG : HSA
DATE STARTED : 05/04/00
DATE COMPLETED : 05/04/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
	2 4 6	▨	Fine clayey-sand	Brown	MST	HNU 0.0	
	8 10	▥	Fine sand with little to some silt and clay	Brown	MST	HNU 0.0	Water level at 10.5'
	12 14 16 18	▥	Fine sand with little silt	Golden brown	MST WET	HNU 0.0	
			END OF BOREHOLE				

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	16.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-6	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'22.0"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'33.0"	DATE STARTED	:	04/26/00
ELEVATION	:	19.27	DATE COMPLETED	:	04/26/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
			Fine sand	Orange brown	MST		
	2						
	4						
			Fine sand with traces of silt	Orange	MST	HNU 0.0	
	6						Water level at 6.2'
			Fine sand with traces to little silt	Orange	MST WET	HNU 0.0	
	8						
						HNU 0.0	
	10						
				Orange brown	WET	HNU 0.0	
	12						
						HNU 0.0	
	14						
						HNU 0.0	
	16		END OF BOREHOLE				
	18						

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	18.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-7	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'24.2"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'33.5"	DATE STARTED	:	05/03/00
ELEVATION	:	14.06	DATE COMPLETED	:	05/03/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
	2		Sandy-silt topsoil	Brown	MST	HNU 0.0	
	4 6		Silt with little sand and fine gravel	Gray - brown	MST	HNU 0.0	Very dense soil.
	8 10 12 14 16		Sand with little silt	Brown	MST WET	HNU 0.0	
	18		END OF BOREHOLE				

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	16.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-8	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'22.2"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'33.4"	DATE STARTED	:	05/01/00
ELEVATION	:	18.22	DATE COMPLETED	:	05/01/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
		■	Asphalt			HNU 0.0	
	2	▥	Silt with little sand and fine gravel	Brown		HNU 0.0	
	4	▥	Fine sand with traces of silt, mica-rich	Orange brown	MST	HNU 0.0	
	6				MST WET	HNU 0.0	
	8				WET		
						HNU 0.0	
	10						
						HNU 0.0	
	12						
						HNU 0.0	
	14	▥	Little silt with traces of clayey-sand and fine gravel		WET	HNU 0.0	
	16		END OF BOREHOLE				
	18						

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	16.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-9	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'21.1"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'34.1"	DATE STARTED	:	05/02/00
ELEVATION	:	16.07	DATE COMPLETED	:	05/02/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
		■	Asphalt			HNU 0.0	
	2	▥	Silt	Brown	MST	HNU 0.0	
	4	⁙	Fine sand with little silt	Olive - green	MST	HNU 0.0	
	6			Brown	MST WET	HNU 0.0	
				Orange brown	WET	HNU 0.0	
	8						
	10						
	12						
	14						
	16		END OF BOREHOLE				
	18						

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	16.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-10	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'20.3"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'34.4"	DATE STARTED	:	05/03/00
ELEVATION	:	15.51	DATE COMPLETED	:	05/03/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
		■	Asphalt		MST	HNU 0.0	
	2	▥	Fine sand	Brown	MST	HNU 0.0	
	4	▦	Fine sand with little silt	Olive - green	MST	HNU 0.0	
	6	▥	Silt with traces of sand	Olive - green	MST	HNU 0.0	
		▨	Fine clayey-sand	Olive - green	MST WET	HNU 0.0	
	8 10 12 14	▦	Fine sand with little silt	Brown	WET	HNU 0.0	
	16 18		END OF BOREHOLE				

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1900 FROST ROAD, SUITE 110
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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	15.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-11	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'18.9"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'33.9"	DATE STARTED	:	05/02/00
ELEVATION	:	15.11	DATE COMPLETED	:	05/02/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
	2		Organic topsoil, sandy with silt and fine gravel		MST	HNU 0.0	
	4		Silt	Gray	MST	HNU 0.0	
	6		Fine silty-sand	Dk. gray	WET	HNU 0.0	
	8		Fine sand with little silt	Gray - brown	WET	HNU 0.0	
	10 12 14		Fine sand with traces of silt	Brown	WET	HNU 0.0	
	16 18		END OF BOREHOLE				

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	16.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-12	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'20.9"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'32.2"	DATE STARTED	:	05/03/00
ELEVATION	:	17.20	DATE COMPLETED	:	05/03/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
		■	Asphalt				
	2	| |	Sand and fine gravel	Black	MST	HNU 0.0	
		⁞	Silty sand	Dk. gray	WET	HNU 0.0	
	4	▨	Fine sandy-clay	Olive - green	WET	HNU 0.0	
	6 8 10	⁞	Fine sand with little to some silt	Golden - brown	WET	HNU 0.0	
	12 14	▨	Clayey, fine sand	Greenish blue	WET	HNU 0.0	
	16 18		END OF BOREHOLE				

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	19.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-13	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'25.7"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'31.6"	DATE STARTED	:	05/04/00
ELEVATION	:	25.24	DATE COMPLETED	:	05/04/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
		■	Asphalt				
	2	▥	Silty-sand	Brown	MST	HNU 0.0	
		▨	Clayey-sand	Brown	MST	HNU 0.0	
	4	○	Pea gravel				
	6	▥	Sand with traces of silt	Brown	MST	HNU 0.0	
	8	○	Traces of fine rounded gravel	White & lt. brown	MST WET		
	10 12 14 16 18	▥	Sand with silt	Olive brown to golden brown	MST WET WET		Water level at 10'
	20		END OF BOREHOLE				

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PROJECT	:	FT. MONMOUTH	TOTAL DEPTH	:	15.00'
SITE NAME	:	SITE 812	LOGGER	:	DP
BORING I.D.	:	MW-14	DRILLING CO.	:	Inland Pollution Services
LONGITUDE	:	74 02'22.1"	DRILLING RIG	:	HSA
LATITUDE	:	40 18'34.2"	DATE STARTED	:	05/03/00
ELEVATION	:	17.52	DATE COMPLETED	:	05/03/00

ELEVATION	DEPTH	MATERIAL	CLASSIFICATION	COLOR	MOISTURE	FIELD INSTRUMENT READING	COMMENTS
		■	Asphalt				
		▥	Silty-sand	Brown	MST	HNU 0.0	
	2 4	▨	Clayey-sand	Brown	MST	HNU 0.0	
	6	▥	Sand with traces of silt	Brown	MST WET	HNU 0.0	
	8 10 12 14	▥	Sand with silt	Golden brown	WET	HNU 0.0	
	16		END OF BOREHOLE				

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APPENDIX C

GROUNDWATER MONITORING WELL AND SOIL BORING LOGS

U.S. ARMY FORT MONMOUTH – DIRECTORATE OF PUBLIC WORKS
Borings B-0 thru B-162
September 1999 – February 2000

APPENDIX C

GROUNDWATER MONITORING WELL AND SOIL BORING LOGS

U.S. ARMY FORT MONMOUTH – DIRECTORATE OF PUBLIC WORKS
Borings B-0 thru B-162
September 1999 – February 2000

BORING LOGS

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- # 0

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-17-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24						
30						
36			CLAYEY SILT, fine - olive green w/ some orange silt lens			
42			SILTY CLAY, fine - olive green			
48						
54			SILTY SAND, fine - olive green			
60						
66	5023.10	1		1320	0.07 PPM	1.31 PPM
72						
78			SAND, fine - orange w/ some small rnd. gravels			
84						
90			GROUNDWATER SAMPLE @ 7.5 - 12.5'			
96						
102						
108						
114						
120	5023.24	2		1502	--------------------	------------------
126						
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B000.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-1

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 9-23-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown w/ small rnd. gravels			
12						
18			CLAYEY SILT, and sand - fine / med. - olive green / brown			
24			SILTY SAND, fine - olive green / brown			
30						
36			SAND, + silt - fine - olive green / brown			
42						
48						
54						
60			SILT - tan / lt. brown			
66						
72			CLAYEY SAND, fine - orange			
78			SILTY CLAY, + sand - fine - lt. olive green / gray / orange w/ some mottling			
84			SAND, fine - orange w/ some silt			
90						
96						
102	4810.03	1		1000	0 PPM	0 PPM
108						
114						
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-1A

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24						
30			SAND, fine / coarse - w/ some sm. / med. rnd. gravels			
36						
42						
48						
54						
60						
66						
72	5101.10	1		1500	0 PPM	4 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.13	2		1518	---	---
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B01A.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-2

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 9-23-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown w/ small rnd. gravels			
12						
18			CLAYEY SILT, and sand - fine / med. - olive green / brown			
24			SILTY SAND, fine - olive green / brown			
30						
36			SAND, + silt - fine - olive green / brown			
42						
48						
54						
60			SILT - tan / lt. brown			
66						
72			CLAYEY SAND, fine - orange			
78			SILTY CLAY, + sand - fine - lt. olive green / gray / orange w/ some mottling			
84			SAND, fine - orange w/ some silt			
90						
96						
102						
108	4810.04	1		1055	0 PPM	0 PPM
114						
120						
126						
132						
138						
144						

04-13-2000 X:\MTECH5\812\B002.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-2A

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
30						
36						
42						
48						
54						
60						
66						
72	5101.03	1		1046	0.5 PPM	2.3 PPM
78						
84						
90			SAND, fine / med. - lt. olive green			
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.14	2		1516	--------------------	--------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B02A.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-3

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 9-23-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, med. / fine - w/ some coarse - orange + small sub-angular gravels			
12						
18						
24						
30						
36						
42						
48						
54						
60						
66			SAND, fine - w/ some silt - orange			
72						
78						
84						
90						
96						
102						
108	4810.05	1		1148	0 PPM	0 PPM
114						
120			SAND, fine - orange			
126						
132						
138						
144						

04-13-2000 X:\MTECHS\812\B003.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-3A

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.12	1		1436	0 PPM	0 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.13	2		1504	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECHS5\812\B03A.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-4

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 9-23-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF Mixed sands and asphalt material			
6			SILTY SAND, fine - olive green w/ some small rnd. gravels +some cement debris @ 48"			
12						
18						
24						
30						
36						
42						
48	4810.06	1	SAND, fine / med. - w/ some silt - olive green + some cement debris throughout	1342	100 PPM	150 PPM
54						
60						
66						
72						
78						
84						
90			SAND, fine / med. - olive green			
96			SAND, med. / fine - w/ some coarse - olive green / dk. olive green + some small rnd. and sub rnd. gravels			
102						
108	4810.07	2		1347	100 PPM	120 PPM
114						
120						
126	4810.08	3	SAND, fine / med. - orange	1355	---------------	------------------
132						
138			GROUNDWATER SAMPLE @ 9 - 12'			
144						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-4A

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66			SAND, fine / med. - lt. olive green			
72	5097.03	1		1015	0 PPM	2.12 PPM
78						
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.14	2		1448	------------------------	------------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B04A.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-5

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 9-23-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			Mixed sands - olive green / brown - + small rnd. gravels w/ some cement MATL. throughout			
12						
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78						
84			SILTY SAND, fine - black stained w/ some wood debris. CEMENT PAD @ 8' H2O @ 92 - 96" GROUNDWATER SAMPLE @ 96"			
90	4810.09	1		1450	1000 PPM	1500 PPM
	4810.10	2		1500	————	————
96						

04-24-2000 X:\MTECH5\812\B005.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-5 RESAMPLE

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-9-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0	4998.03	1	TURF Mixed sands - olive green / brown - + small rnd. gravels w/ some cement MATL. throughout	1430	4.33 PPM	5.25 PPM
6						
12	4998.04	2		1433	3.09 PPM	4.12 PPM
18						
24	4998.05	3		1436	4.09 PPM	5.23 PPM
30						
36	4998.06	4		1438	5.07 PPM	6.23 PPM
42						
48	4998.07	5		1441	5.89 PPM	6.73 PPM
54						
60	4998.08	6		1445	39.01 PPM	41.07 PPM
66						
72	4998.09	7		1448	42.01 PPM	60.02 PPM
78						
84						
90			SILTY SAND, fine - black stained			
96			GROUNDWATER SAMPLE @ 7 - 12'			
102						
108						
114	4998.10	8		1350	————	————
120						
126			THIS BORING DRILLED OFF OF THE TANK PAD			
132						
138						
144						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-5A

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138	5090.05	1		1405	1.03 PPM	0.02 PPM
144						
150						
156						
162	5090.14	2		1438	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B05A.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-6

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120	5090.07	1		1425	1.23 PPM	0.01 PPM
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5090.23	2		1456	—	—
168						
174						
180						
186						
192						

04-19-2000 X:\MTECH5\812\B006.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-7

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
24						
30						
36						
42						
48						
54						
60						
66	5078.07	1		1405	1.9 PPM	1.4 PPM
72						
78						
84						
90			SAND, fine / med. - lt. olive green			
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5078.15	2		1500	--------------------	--------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B007.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-8

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
24						
30						
36						
42						
48						
54						
60						
66	5078.06	1		1319	0 PPM	0 PPM
72						
78						
84						
90			SAND, fine / med. - lt. olive green			
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5078.16	2		1450		
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B008.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-9

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24						
30			SAND, fine / coarse - w/ some sm. / med. rnd. gravels			
36						
42						
48						
54						
60						
66						
72	5101.08	1		1436	0 PPM	2 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.15	2		1514	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B009.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-10

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
30						
36						
42						
48						
54						
60						
66						
72	5101.05	1		1133	0 PPM	2.7 PPM
78						
84						
90			SAND, fine / med. - lt. olive green			
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.22	2		1512	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B010.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-11

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.10	1		1353	0 PPM	2.7 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.15	2		1502	------------------	------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B011.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-12

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72			SAND, fine / med. - lt. olive green			
78	5097.05.	1		1100	0 PPM	2.0 PPM
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.16	2		1450	-------------------	-------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B012.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-13

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78						
84			SAND, fine / med. - lt. olive green			
90						
96						
102						
108						
114						
120	5090.11	1		1505	1.03 PPM	0.03 PPM
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5090.20	2		1450	--------------------	--------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B013.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-14

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120	5090.08	1		1435	1.02 PPM	0.10 PPM
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5090.21	2		1452	----------	----------
168						
174						
180						
186						
192						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-15

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66	5078.08	1		1433	0 PPM	0 PPM
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5078.17	2		1520	----------	----------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B015.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-16

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
24						
30						
36						
42						
48						
54						
60						
66	5078.05	1		1147	0.68 PPM	0.48 PPM
72						
78						
84						
90			SAND, fine / med. - lt. olive green			
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5078.18	2		1505	-------------------	-------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B016.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-17

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24						
30			SAND, fine / coarse - w/ some sm. / med. rnd. gravels			
36						
42						
48						
54						
60						
66						
72	5101.12	1		1510	0 PPM	23 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.16	2		1510	----------------------	----------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B017.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-18

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
30						
36						
42						
48						
54						
60						
66						
72	5101.07	1		1324	0.1 PPM	4.6 PPM
78						
84						
90			SAND, fine / med. - lt. olive green			
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.17	2		1508	----------------------	----------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B018.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-19

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.11	1		1359	0 PPM	2.7 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.17	2		1500	------------------	------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B019.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-20

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.07	1	SAND, fine / med. - lt. olive green	1305	0 PPM	2.9 PPM
78						
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.18	2		1452	—	—
168						
174						
180						
186						
192						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-21

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138	5090.04	1		1355	2.02 PPM	0.07 PPM
144						
150						
156						
162	5090.16	2		1442	--------------------	--------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B021.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-22

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120	5090.10	1		1445	1.22 PPM	0.10 PPM
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5090.22	2		1454	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B022.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-23

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-10-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126	5086.02	1		1115	1.9 PPM	1.0 PPM
132			GROUNDWATER SAMPLE @ 11 - 16' GW SAMPLE TAKEN ON 1-11-00			
138						
144						
150						
156						
162	5090.15	2		1440	------------	------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B023.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-24

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66	5078.09	1		1445	0 PPM	0 PPM
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5078.19	2		1510		
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\BO24.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-25

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24						
30			SAND, fine / coarse - w/ some sm. / med. rnd. gravels			
36						
42						
48						
54						
60						
66						
72	5101.09	1		1445	0 PPM	4 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.18	2		1506	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B025.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-26

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
30						
36						
42						
48						
54						
60						
66						
72	5101.06	1		1315	0 PPM	3.0 PPM
78						
84						
90			SAND, fine / med. - lt. olive green			
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.19	2		1504		
168						
174						
180						
186						
192						

04-19-2000 X:\MTECH5\812\B026.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-27

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.08	1		1310	0 PPM	3.1 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.19	2		1458	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B027.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-28

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.06	1	SAND, fine / med. - lt. olive green	1104	0 PPM	2.2 PPM
78						
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.20	2		1459	---	---
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B028.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-29

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138	5090.03	1		1348	1.3 PPM	10 PPM
144						
150						
156						
162	5090.13	2		1436	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\BO29.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-30

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120	5090.09	1		1440	1.11 PPM	0.09 PPM
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5090.24	2		1458	--------------------	--------------------
168						
174						
180						
186						
192						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-31

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-10-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126	5086.03	1		1320	0.61 PPM	0.91 PPM
132			GROUNDWATER SAMPLE @ 11 - 16' GW SAMPLE TAKEN ON 1-11-00			
138						
144						
150						
156						
162	5090.17	2		1444	--------------------	--------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B031.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-32

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66	5078.10	1		1459	0 PPM	0 PPM
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5078.20	2		1515	—	—
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B032.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-33

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24						
30			SAND, fine / coarse - w/ some sm. / med. rnd. gravels			
36						
42						
48						
54						
60						
66						
72	5101.11	1		1510	0 PPM	0 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.20	2		1500	—	—
168						
174						
180						
186						
192						

04-24-2000 X:\MTECH5\812\B033.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-34

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-13-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18						
24			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
30						
36						
42						
48						
54						
60						
66						
72	5101.04	1		1050	0.13 PPM	4.1 PPM
78						
84						
90			SAND, fine / med. - lt. olive green			
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5101.21	2		1502	--------------------	--------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B034.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-35

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.09	1		1349	0 PPM	23 PPM
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.21	2		1456	------------	------------
168						
174						
180						
186						
192						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-36

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-12-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange and some silt			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72	5097.04	1	SAND, fine / med. - lt. olive green	1019	0 PPM	3.37 PPM
78						
84						
90						
96						
102						
108						
114						
120						
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5097.22	2		1456	----------	----------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B036.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-37

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120	5090.12	1		1511	1.63 PPM	0.93 PPM
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5090.19	2		1448		
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B037.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-38

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-11-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12						
18			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
24						
30						
36						
42						
48						
54						
60						
66						
72						
78						
84			SAND, fine / med. - lt. olive green			
90						
96						
102						
108						
114						
120	5090.06	1		1415	1.92 PPM	0.02 PPM
126						
132			GROUNDWATER SAMPLE @ 11 - 16'			
138						
144						
150						
156						
162	5090.25	2		1500	--------------------	--------------------
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B038.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-39

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-10-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66						
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96						
102						
108						
114						
120						
126	5086.04	1		1331	1.3 PPM	10 PPM
132			GROUNDWATER SAMPLE @ 11 - 16' GW SAMPLE TAKEN ON 1-11-00			
138						
144						
150						
156						
162	5090.18	2		1446		
168						
174						
180						
186						
192						

04-13-2000 X:\MTECH5\812\B039.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-40

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12			SAND, fine / coarse - w/ some sm. / med. rnd. gravels - orange			
18						
24						
30						
36						
42						
48						
54						
60						
66	5078.14	1		1503	0 PPM	0 PPM
72						
78			SAND, fine / med. - lt. olive green			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5078.22	2		1525	----------	----------
132						
138						
144						
150						
156						

X:\MTECH5\812\B040.BOR

04-13-2000

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 41

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36						
42			SILTY CLAY, fine - olive green			
48						
54						
60	5016.16	1	SILTY SAND, fine - olive green	1424	0.02 PPM	3.30 PPM
66						
72						
78			SAND, fine - orange w/ some smal l/ med. rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.30-	2		1415	--------------------	--------------------
132						
138						
144						
150						
156						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 42

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36						
42			SILTY CLAY, fine - olive green			
48						
54						
60	5016.15	1	SILTY SAND, fine - olive green	1315	0.46 PPM	4.40 PPM
66						
72						
78			SAND, fine - orange w/ some smal l/ med. rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.29	2		1215	----------------	----------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B042.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-43

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-10-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
24						
30			SILTY SAND, fine - olive green / brown			
36						
42			SAND, med. / coarse - tan / orange			
48						
54						
60						
66						
72						
78	5003.03	1	SAND, fine - orange	1000	4.36 PPM	2.12 PPM
84						
90						
96			GROUNDWATER SAMPLE @ 7 - 12'			
102						
108						
114	5003.05	2		1100	------------------	------------------
120						
126						
132						
138						
144						
150						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-44

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-10-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
30			SILTY SAND, fine - olive green / brown			
36						
42			SAND, med. / coarse - tan / orange			
48						
54						
60						
66						
72						
78	5003.04	1	SAND, fine - orange	1045	3.86 PPM	0.08 PPM
84						
90						
96			GROUNDWATER SAMPLE @ 7 - 12'			
102						
108						
114	5003.06	2		1120	------------------	------------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B044.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-45

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
30			SILTY SAND, fine - olive green / brown			
36						
42			SAND, med. / coarse - tan / orange			
48						
54						
60						
66	5012.03	1		1059	1.77 PPM	26.4 PPM
72						
78			SAND, fine - orange			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.21	2		1430	-------------------	----------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B045.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-46

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
24						
30			SILTY SAND, fine / med. - - olive green			
36						
42						
48			SAND, med. / coarse - tan / orange			
54						
60	5012.04	1		1109	2.01 PPM	42.6 PPM
66	5012.05	2		1115	1.97 PPM	16.9 PPM
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.22	3		1435	------------	------------
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B046.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-47

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
	5012.09	1		1359	2.02 PPM	243 PPM
24						
30						
	5012.10	2	SILTY SAND, fine / med. - - olive green	1402	2.57 PPM	32.57 PPM
36						
	5012.11	3		1410	3.57 PPM	309 PPM
42						
48						
54			SAND, med. / coarse - tan / orange			
	5012.12	4		1417	0.80 PPM	52.0 PPM
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
	5012.13	5		1422	0.09 PPM	12.0 PPM
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.23	6		1440	————	————
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B047.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-48

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
			SAND, fine / med. - brown			
6						
12						
	5016.03	1	SAND, med. / coarse - orange / brown w/ some small rnd. gravels	0959	0.24 PPM	132 PPM
18						
	5016.04	2		1007	0.11 PPM	92 PPM
24						
	5016.05	3		1014	0.46 PPM	419 PPM
30			SILTY SAND, fine / med. - - olive green			
36						
	5016.06	4		1024	21.9 PPM	482 PPM
42						
	5016.07	5		1031	526 PPM	4152 PPM
48						
54			SAND, med. / coarse - tan / orange			
	5016.08	6		1034	31.2 PPM	957 PPM
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13' GW Taken on 12/16/99.			
102						
108						
114						
120						
126	5019.18	7		0950	—	—
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B048.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-49

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
	5016.17	1		1434	0 PPM	34 PPM
12						
	5016.18	2	SAND, med. / coarse - orange / brown w/ some small rnd. gravels	1437	0 PPM	57 PPM
18						
	5016.19	3		1439	0.11 PPM	147 PPM
24						
	5016.20	4		1440	0.02 PPM	84 PPM
30			SILTY SAND, fine / med. - - olive green			
	5016.21	5		1442	54 PPM	713 PPM
36						
	5016.22	6		1443	28 PPM	1260 PPM
42						
	5016.23	7		1445	0.6 PPM	560 PPM
48						
	5016.24	8		1447	32 PPM	632 PPM
54			SAND, med. / coarse - tan / orange			
	5016.25	9		1448	40 PPM	708 PPM
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.31	10		1514	————	————
132						
138						
144						
150						
156						

04-24-2000 X:\MTECH5\812\B049.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-50

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-16-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF SAND, fine / med. - brown			
6						
12			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
18						
24	5019.03	1		1040	92 PPM	520 PPM
30	5019.04	2	SILTY SAND, fine / med. - - olive green	1044	102 PPM	363 PPM
36	5019.05	3		1050	72 PPM	192 PPM
42	5019.06	4		1052	45 PPM	92 PPM
48			SAND, med. / coarse - tan / orange			
54						
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5019.20	5		1116	----------	----------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B050.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-51

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-17-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
	5023.03	1		0934	0.59 PPM	308 PPM
12						
	5023.04	2		0938	2.59 PPM	814 PPM
18						
	5023.05	3	SAND, med. / coarse - orange / brown w/ some small rnd. gravels	0941	1.67 PPM	1178 PPM
24						
	5023.06	4		0950	0.55 PPM	1410 PPM
30			SILTY SAND, fine / med. - - olive green			
	5023.07	5		0954	0.21 PPM	1714 PPM
36						
	5023.08	6		0956	0.58 PPM	422 PPM
42						
48						
			SAND, med. / coarse - tan / orange			
54						
60						
66						
72						
78						
			SAND, fine - orange w/ some small rnd. gravels			
84						
90			GROUNDWATER SAMPLE @ 8 - 13'			
96						
102						
108						
114						
120	5023.21	7		1450	-------------------	-------------------
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B051.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-52

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-17-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18						
	5023.17	1	SAND, med. / coarse - orange / brown w/ some small rnd. gravels	1459	1.11 PPM	772 PPM
24						
	5023.18	2		1505	1.59 PPM	1564 PPM
30			SILTY SAND, fine / med. - - olive green			
	5023.19	3		1510	1.07 PPM	565 PPM
36						
42						
48						
			SAND, med. / coarse - tan / orange			
54						
60						
	5023.20	4		1515	0.03 PPM	2502 PPM
66						
72						
78						
			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
			GROUNDWATER SAMPLE @ 7.5 - 12.5'			
96						
102						
108						
114						
120	5023.25	5		1507	--------------------	--------------------
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B052.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-53

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-20-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
24			SILTY SAND, fine / med. - - olive green			
30	5036.03	1		1045	0.01 PPM	536 PPM
36						
42						
48			SAND, med. / coarse - tan / orange			
54	5036.04	2		1046	0.02 PPM	136 PPM
60	5036.05	3		1048	0.01 PPM	637 PPM
66	5036.06	4		1053	0.29 PPM	804 PPM
72	5036.07	5		1055	0.44 PPM	1158 PPM
78	5036.08	6		1102	0.74 PPM	178 PPM
84			SAND, fine - orange w/ some small rnd. gravels			
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102			GW Taken 12/21/99.			
108						
114						
120						
126	5041.39	7		1422	————	————
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B053.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-54

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-20-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
	5036.21	1		1340	0.09 PPM	170 PPM
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
	5036.22	2		1342	0 PPM	931 PPM
24			SILTY SAND, fine / med. - - olive green			
	5036.23	3		1343	0 PPM	332 PPM
30						
	5036.24	4		1347	0 PPM	171 PPM
36						
	5036.25	5		1350	0.38 PPM	1114 PPM
42						
	5036.26	6		1351	0 PPM	2709 PPM
48			SAND, med. / coarse - tan / orange			
	5036.27	7		1353	0 PPM	1049 PPM
54						
	5036.28	8		1355	0 PPM	803 PPM
60						
	5036.29	9		1359	0 PPM	415 PPM
66						
72						
78						
84			SAND, fine - orange w/ some small rnd. gravels			
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102			GW Taken 12/21/99.			
108						
114						
120						
126	5041.40	10		1430	------------------	------------------
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-55

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-21-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
			SAND, fine / med. - brown			
6						
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
	5041.07	1		1103	0 PPM	253 PPM
24			SILTY SAND, fine / med. - - olive green			
	5041.08	2		1110	0 PPM	104 PPM
30						
	5041.09	3		1111	0 PPM	591 PPM
36						
42						
48			SAND, med. / coarse - tan / orange			
	5041.10	4		1117	0 PPM	640 PPM
54						
	5041.11	5		1119	0 PPM	410 PPM
60						
66						
72						
78						
			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5041.41	9		1438		
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B055.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-56

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-3-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
24			SILTY SAND, fine / med. - - olive green			
30						
	5059.06	1		1320	0 PPM	1606 PPM
36						
42						
48			SAND, med. / coarse - tan / orange			
54						
60						
	5059.07	2	SAND, fine - orange w/ some small rnd. gravels	1321	0 PPM	1340 PPM
66						
72			GROUNDWATER SAMPLE @ 6 - 11'			
78						
84						
90						
96						
102	5059.16	3		1440	----------------	----------------
108						
114						
120						
126						
132						

04-13-2000 X:\MTECH5\812\B056.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 57

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18	5065.06	1		1057	6.12 PPM	23 PPM
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54						
60			SAND, med. / coarse - tan / orange			
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72	5065.07	2		1059	1.3 PPM	2273 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.25	3		1450	------------------	------------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B057.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 58

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24	5065.14	1		1314	0.7 PPM	384 PPM
30						
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54						
60			SAND, med. / coarse - tan / orange			
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72	5065.15	2		1316	0.54 PPM	192 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.26	3		1445	----------------	----------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B058.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-59

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			SAND, med. / coarse - orange and small rnd. gravels			
18						
24						
30			SILTY SAND, fine / med. - - olive green			
36						
42						
48						
54			SAND, med. / coarse - tan / orange			
60						
66						
72	5012.14	1	SAND, fine - orange w/ some small rnd. gravels	1438	0.23 PPM	7.24 PPM
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.24	2		1445	----------	----------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B059.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-60

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36			SILTY CLAY, fine - olive green			
42						
48						
54			SILTY SAND, fine - olive green			
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78	5016.13	1		1302	0.98 PPM	2.85 PPM
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.34	2		1455	----------------	-----------------
132						
138						
144						
150						
156						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 61

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-16-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6	5019.10	1	SANDY SILT, fine - olive green	1436	180 PPM	390 PPM
12						
18						
24	5019.11	2	CLAYEY SILT, fine - olive green w/ some orange silt lens	1438	11 PPM	38 PPM
30	5019.12	3		1441	1130 PPM	786 PPM
36	5019.13	4	SILTY CLAY, fine - olive green	1443	1930 PPM	1418 PPM
42	5019.14	5		1450	1637 PPM	1340 PPM
48			SILTY SAND, fine - olive green			
54						
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5019.19	6		1445	----------------	----------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B061.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 62

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-17-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24						
30			CLAYEY SILT, fine - olive green w/ some orange silt lens			
			SILTY CLAY, fine - olive green			
36						
42						
48			SILTY SAND, fine - olive green			
54						
60	5023.09	1		1036	0.72 PPM	3.52 PPM
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 7.5 - 12.5'			
102						
108						
114						
120	5023.22	2		1456	----------	----------
126						
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B062.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 63

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-17-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
	5023.12	1		1409	3.36 PPM	302 PPM
24						
	5023.13	2		1412	1.20 PPM	337 PPM
			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
	5023.14	3	SILTY CLAY, fine - olive green	1415	323 PPM	114 PPM
36						
42						
48			SILTY SAND, fine - olive green			
54						
	5023.15	4		1449	192 PPM	384 PPM
60						
	5023.16	5		1454	2.69 PPM	112 PPM
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 7.5 - 12.5'			
102						
108						
114						
120	5023.26	6		1510	----------------------	----------------------
126						
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 64

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-20-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0	5036.11	1	ASPHALT	1124	0.54 PPM	354 PPM
6	5036.12	2	SANDY SILT, fine - olive green	1126	0.60 PPM	431 PPM
12	5036.13	3		1128	0.38 PPM	662 PPM
18	5036.14	4		1131	0.20 PPM	140 PPM
24	5036.15	5		1132	15.22 PPM	60 PPM
30	5036.16	6	CLAYEY SILT, fine - olive green w/ some orange silt lens	1136	53 PPM	27 PPM
36	5036.17	7	SILTY CLAY, fine - olive green	1145	0.20 PPM	439 PPM
42	5036.18	8		1147	0.01 PPM	684 PPM
48	5036.19	9	SILTY SAND, fine - olive green	1150	0.02 PPM	912 PPM
54						
60						
66						
72						
78			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5036.32	10		1135	------------------	------------------
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 65

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-21-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0		8	ASPHALT			
6			SANDY SILT, fine - olive green			
	5041.12	1		1140	11.7 PPM	402 PPM
12						
	5041.13	2		1141	2.73 PPM	521 PPM
18						
	5041.14	3		1145	5.06 PPM	1022 PPM
24						
	5041.15	4	CLAYEY SILT, fine - olive green w/ some orange silt lens	1150	0 PPM	394 PPM
30						
	5041.16	5		1156	0 PPM	1239 PPM
36						
	5041.17	6	SILTY CLAY, fine - olive green	1157	0 PPM	3364 PPM
42						
48						
54						
			SILTY SAND, fine - olive green			
60						
66						
72						
78						
			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5041.35	9		1122		
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B065.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 66

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-21-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
	5041.18	1		1309	0.16 PPM	682 PPM
24						
	5041.19	2	CLAYEY SILT, fine - olive green w/ some orange silt lens	1313	0 PPM	2681 PPM
30						
	5041.20	3		1314	0.39 PPM	1012 PPM
36						
	5041.21	4	SILTY CLAY, fine - olive green	1315	6.23 PPM	1014 PPM
42						
	5041.22	5		1327	0.14 PPM	2944 PPM
48						
	5041.23	6		1330	0 PPM	2189 PPM
54						
60			SILTY SAND, fine - olive green			
66						
72						
78						
			SAND, fine - orange w/ some small rnd. gravels			
84			GROUNDWATER SAMPLE @ 72 - 132' GW SAMPLE TAKEN ON 1-28-00			
90						
96						
102	5125.01	9		0950	———	———
108						
114						
120						
126						
132						

04-19-2000 X:\MTECH5\812\B066.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 67

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-21-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
	5041.28	1		1449	0 PPM	412 PPM
24						
	5041.29	2	CLAYEY SILT, fine - olive green w/ some orange silt lens	1452	0 PPM	1269 PPM
30						
	5041.30	3		1457	0 PPM	2010 PM
36			SILTY CLAY, fine - olive green			
42						
48						
54						
60			SILTY SAND, fine - olive green			
66						
72						
78						
84			SAND, fine - orange w/ some small rnd. gravels			
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5041.42	7		1445	—	—
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B067.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 68

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-3-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36	5059.14	1		1434	0 PPM	447 PPM
42			SILTY CLAY, fine / med. - - olive green			
48						
54			SAND, med. / coarse - tan / orange			
60	5059.15	2		1440	0 PPM	1336 PPM
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72			GROUNDWATER SAMPLE @ 6 - 11'			
78						
84						
90						
96						
102	5059.17	3		1445	--------------------	--------------------
108						
114						
120						
126						
132						

04-13-2000 X:\MTECH5\812\B068.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 69

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18	5065.03	1		1046	5.49 PPM	391 PPM
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54	5065.04	2		1049	2.63 PPM	1851 PPM
60			SAND, med. / coarse - tan / orange			
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78	5065.05	3	GROUNDWATER SAMPLE @ 6.5 - 12.5 '	1051	0.57 PPM	4189 PPM
84						
90						
96						
102						
108						
114	5065.27	4		1500	------------------	------------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B069.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 70

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12	5065.16	1	CLAYEY SILT, fine / med. - orange and small rnd. gravels	1321	18.24 PPM	318 PPM
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54						
60			SAND, med. / coarse - tan / orange			
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72	5065.17	2		1324	0.8 PPM	1645 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.28	3		1445	------------------	------------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B070.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-71

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SILTY SAND, fine - brown			
12	5012.15	1	SAND, med. / coarse - orange and small rnd. gravels	1444	33.2 PPM	30.4 PPM
18						
24						
30			SILTY SAND, fine / med. - - olive green			
36						
42						
48						
54			SAND, med. / coarse - tan / orange			
60						
66						
72	5012.16	2	SAND, fine - orange w/ some small rnd. gravels	1457	5.59 PPM	6.63 PPM
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.25	3		1450	----------------------	----------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B071.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 72

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36			SILTY CLAY, fine - olive green			
42						
48			SILTY SAND, fine - olive green			
54						
60	5016.14	1		1307	0.36 PPM	8.97 PPM
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.33	2		1505	--------------------	--------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B072.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 73

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-16-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36			SILTY CLAY, fine - olive green			
42						
48			SILTY SAND, fine - olive green			
54						
60						
66	5019.09	1		1424	0.01 PPM	1.03 PPM
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5019.15	2		1445	-------------------	-------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B073.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 74

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-17-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36						
42			SILTY CLAY, fine - olive green			
48						
54			SILTY SAND, fine - olive green			
60	5023.11	1		1343	197 PPM	2.63 PPM
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90			GROUNDWATER SAMPLE @ 7.5 - 12.5'			
96						
102						
108						
114						
120	5023.23	2		1459	-----------------	-----------------
126						
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B074.BOR

U.S. ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 75

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-20-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24						
30			CLAYEY SILT, fine - olive green w/ some orange silt lens			
36						
42			SILTY CLAY, fine - olive green			
48						
54						
60	5036.20	1	SILTY SAND, fine - olive green	1330	0.02 PPM	1.94 PPM
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5036.30	2		1115	--------------------	--------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B075.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 76

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-20-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24						
30			CLAYEY SILT, fine - olive green w/ some orange silt lens			
36						
42			SILTY CLAY, fine - olive green			
48						
54			SILTY SAND, fine - olive green			
60	5036.10	1		1115	0.1 PPM	2.29 PPM
66			SAND, fine - orange w/ some small rnd. gravels			
72						
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5036.31	2		1125	---	---
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B076.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 77

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-21-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0		6	ASPHALT			
6			SANDY SILT, fine - olive green			
12						
	5041.03	1		0941	0 PPM	407 PPM
18						
	5041.04	2		0942	0.30 PPM	581 PPM
24						
	5041.05	3	CLAYEY SILT, fine - olive green w/ some orange silt lens	0955	5.56 PPM	323 PPM
30						
	5041.06	4		0956	0 PPM	310 PPM
36						
42			SILTY CLAY, fine - olive green			
48						
54			SILTY SAND, fine - olive green			
60						
66						
72						
78			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5041.34	7		1024	———	———
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B077.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 78

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-21-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
	5041.24	1		1342	0 PPM	926 PPM
18						
	5041.25	2		1345	0 PPM	1067 PPM
24						
	5041.26	3	CLAYEY SILT, fine - olive green w/ some orange silt lens	1350	0 PPM	596 PPM
30						
	5041.27	4		1445	0 PPM	1848 PPM
36						
42			SILTY CLAY, fine - olive green			
48						
			SILTY SAND, fine - olive green			
54						
60						
66						
72						
78						
			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
96						
			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5041.36	10		1122	—	—
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B078.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 79

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-21-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
			CLAYEY SILT, fine - olive green w/ some orange silt lens			
24						
30						
	5041.31	1	SILTY CLAY, fine - olive green	1459	0 PPM	3098 PPM
36						
	5041.32	2		1502	0 PPM	4716 PPM
42						
	5041.33	3		1306	0 PPM	1470 PPM
48			SILTY SAND, fine - olive green			
54						
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5041.37	8		1440		
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B079.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 80

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18			CLAYEY SILT, fine - olive green w/ some orange silt lens			
24						
	5065.22	1		1434	13 PPM	648 PPM
30			SILTY CLAY, fine - olive green			
36						
42						
48			SILTY SAND, fine - olive green			
54						
	5065.23	2		1439	0 PPM	3341 PPM
60						
66						
	5065.24	3		1441	0 PPM	2659 PPM
72			SAND, fine - orange w/ some small rnd. gravels			
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5065.29	4		1505		
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B080.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 81

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18			CLAYEY SILT, fine - olive green w/ some orange silt lens			
24						
30			SILTY CLAY, fine - olive green			
36						
42						
48			SILTY SAND, fine - olive green			
54						
60						
66						
72	5065.18	1	SAND, fine - orange w/ some small rnd. gravels	1402	8.65 PPM	2465 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5065.30	2		1440	------------------	------------------
120						
126						
132						
138						
144						
150						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 82

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36						
42			SILTY CLAY, fine - olive green			
48						
54						
60			SILTY SAND, fine - olive green			
66	5078.03	1	SAND, fine - orange w/ some small rnd. gravels	1043	2.9 PPM	38 PPM
72						
78			GROUNDWATER SAMPLE @ 7 - 12'			
84						
90						
96						
102						
108						
114	5078.11	2		1455	-------------------	-----------------
120						
126						
132						
138						
144						

04-13-2000 X:\MTECH5\812\B082.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-83

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-16-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36			SILTY CLAY, fine - olive green			
42						
48			SILTY SAND, fine - olive green			
54						
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5019.17	1		0945	----------------	----------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\B12\B083.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 84

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36			SILTY CLAY, fine - olive green			
42						
48			SILTY SAND, fine - olive green			
54						
60	5016.26	1		1449	0.01 PPM	3.59 PPM
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.32	2		1508	----------	----------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B084.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 85

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-16-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24						
30			CLAYEY SILT, fine - olive green w/ some orange silt lens			
36			SILTY CLAY, fine - olive green			
42						
48						
54			SILTY SAND, fine - olive green			
60	5019.07	1		1110	1.7 PPM	30 PPM
66						
72						
78			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5019.16	2		1115	------------------	------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH6\812\B085.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 86

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-20-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24						
30						
36			CLAYEY SILT, fine - olive green w/ some orange silt lens			
42			SILTY CLAY, fine - olive green			
48						
54						
60			SILTY SAND, fine - olive green			
66						
72	5036.09	1		1109	0 PPM	3.14 PPM
78			SAND, fine - orange w/ some small rnd. gravels			
84						
90						
96			GROUNDWATER SAMPLE @ 7.5 - 12.5' Groundwater Sample taken 12-21-99			
102						
108						
114						
120						
126	5041.38	2		1415	————	————
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\BO86.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-87

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
48	5071.03	1	SAND, med. / coarse - lt. olive green	1050	0 PPM	1.82 PPM
54						
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5071.18	2		1500	----------	----------
120						
126						
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B087.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-88

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42	5071.06	1		1308	0.67 PPM	3.55 PPM
48						
54			SAND, med. / coarse - lt. olive green			
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5071.19	2		1505	--------------------	--------------------
120						
126						
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B088.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-89

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-7-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SANDY SILT, fine - olive green			
12						
18						
24			CLAYEY SILT, fine - olive green w/ some orange silt lens			
30						
36						
42			SILTY CLAY, fine - olive green			
48						
54			SILTY SAND, fine - olive green			
60	5078.04	1		1049	1.9 PPM	2.0 PPM
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78			GROUNDWATER SAMPLE @ 7 - 12'			
84						
90						
96						
102						
108						
114	5078.12	2		1505	------------------	------------------
120						
126						
132						
138						
144						

04-13-2000 X:\MTECH5\812\B089.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-90

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24						
30			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
36			SILTY SAND, fine / med. - - olive green			
42						
48						
54			SAND, med. / coarse - lt. olive green			
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
	5076.15	1		1408	0.11 PPM	3.3 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 11.5'			
84						
90						
96						
102						
108	5076.22	2		1445		
114						
120						
126						
132						
138						

04-13-2000 X:\MTECH5\812\B090.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-91

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
48			SAND, med. / coarse - lt. olive green			
54						
60						
66						
72	5076.10	1	SAND, fine - orange w/ some small rnd. gravels	1145	0.42 PPM	393 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 11.5'			
84						
90						
96						
102						
108	5076.23	2		1440	----------	----------
114						
120						
126						
132						
138						

04-13-2000 X:\MTECH5\812\B091.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-92

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
48			SAND, med. / coarse - lt. olive green			
54						
60						
66						
72	5076.07	1	SAND, fine - orange w/ some small rnd. gravels	1110	0.70 PPM	3.07 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5076.24	2		1435	--------------------	--------------------
120						
126						
132						
138						
144						
150						
156						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-93

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18	5076.08	1		1115	0.42 PPM	393 PPM
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
48			SAND, med. / coarse - lt. olive green			
54						
60						
66						
72	5076.09	2	SAND, fine - orange w/ some small rnd. gravels	1117	0 PPM	3.18 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5076.25	3		1430	----------------	----------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B093.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-94

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
48			SAND, med. / coarse - lt. olive green			
54						
60						
66						
72	5076.03	1	SAND, fine - orange w/ some small rnd. gravels	1024	0.71 PPM	2.31 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5076.26	2		1425	---	---
120						
126						
132						
138						
144						
150						
156						

04-19-2000 X:\MTECH5\812\B094.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-95

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24						
30			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
36			SILTY SAND, fine / med. - - olive green			
42						
48						
54			SAND, med. / coarse - lt. olive green			
60						
66						
72	5076.04	1	SAND, fine - orange w/ some small rnd. gravels	1029	0.22 PPM	3.86 PPM
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5076.27	2		1420	--------------------	--------------------
120						
126						
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B095.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-96

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
48			SAND, med. / coarse - lt. olive green			
54						
60						
66	5071.17	1		1356	0 PPM	3.03 PPM
72			SAND, fine - orange w/ some small rnd. gravels			
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5071.20	2		1520	--------------------	--------------------
120						
126						
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-97

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0						
			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24						
			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
	5071.15	1		1353	0 PPM	2.36 PPM
48						
			SAND, med. / coarse - lt. olive green			
54						
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5071.21	2		1515	--------------------	--------------------
120						
126						
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B097.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-98

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			ASPHALT			
6			SAND, fine / med. -orange / brown w/ some small rnd. gravels			
12						
18						
24			SAND, med. / coarse - orange / brown w/ some smal - med. / rnd. gravels			
30						
36			SILTY SAND, fine / med. - - olive green			
42						
48			SAND, med. / coarse - lt. olive green			
54						
60						
66	5071.16	1		1354	0 PPM	3.53 PPM
72			SAND, fine - orange w/ some small rnd. gravels			
78			GROUNDWATER SAMPLE @ 6.5 - 12.5'			
84						
90						
96						
102						
108						
114	5071.22	2		1510	--------------------	--------------------
120						
126						
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B098.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-99

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SAND, fine / med. - brown			
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
24						
30			SILTY SAND, fine / med. - - olive green			
36						
42						
48						
54			SAND, med. / coarse - tan / orange			
60						
66						
72			SAND, fine - orange w/ some small rnd. gravels			
78						
	5012.06	1		1129	0.03 PPM	3.38 PPM
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.26	2		1427	--------------------	--------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B099.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-100

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12						
18			SAND, med. / coarse - orange / brown w/ some small rnd. gravels			
24						
30			SILTY SAND, fine / med. - - olive green			
36						
42						
48						
54	5012.07	1	SAND, med. / coarse - tan / orange	1140	65.7 PPM	17.79 PPM
60						
66						
72	5012.08	2	SAND, fine - orange w/ some small rnd. gravels	1147	8.07 PPM	5.01 PPM
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.27	3		1433	---	---
132						
138						
144						
150						
156						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-101

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36			SILTY CLAY, fine / med. - - olive green			
42						
48						
54						
60			SAND, med. / coarse - tan / orange			
66						
72	5012.17	1	SAND, fine - lt. olive green w/ some small rnd. gravels	1503	0.09 PPM	2.58 PPM
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.28	2		1442	-------------------	-------------------
132						
138						
144						
150						
156						

X:\MTECH5\812\B101.BOR

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-102

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30			SILTY CLAY, fine / med. - - olive green			
36						
42						
48						
54			SAND, med. / coarse - tan / orange			
60						
66						
72	5012.18	1	SAND, fine - lt. olive green w/ some small rnd. gravels	1550	0.11 PPM	3.04 PPM
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.29	2		1450	------------------	------------------
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-103

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36			SILTY CLAY, fine / med. - - olive green			
42						
48						
54	5012.19	1	SAND, med. / coarse - tan / orange	1521	0.57 PPM	4.79 PPM
60						
66						
72			SAND, fine - lt. olive green w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.30	2		1456	----------------	----------------
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-104

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-13-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0						
			TURF			
6			SILTY SAND, fine - brown			
12						
			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
			SILTY CLAY, fine / med. - - olive green			
36						
42						
48						
54						
	5012.20	1	SAND, med. / coarse - tan / orange	1537	0.57 PPM	4.79 PPM
60						
66						
72			SAND, fine - lt. olive green w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5012.31	2		1459	------------------	------------------
132						
138						
144						
150						
156						

04-13-2000 X:\MTECH5\812\B104.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-105

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30			SILTY CLAY, fine / med. - - olive green			
36						
42						
48						
54	5016.10	1	SAND, med. / coarse - tan / orange	1043	0.01 PPM	4.21 PPM
60						
66						
72			SAND, fine - lt. olive green w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.27	2		0950	--------------------	--------------------
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-106

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 12-15-99
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12						
			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
			SILTY CLAY, fine / med. - - olive green			
36						
	5016.11	1		1046	16 PPM	95 PPM
42						
48						
54						
			SAND, med. / coarse - tan / orange			
60						
	5016.12	2		1051	35 PPM	129 PPM
66						
72			SAND, fine - lt. olive green w/ some small rnd. gravels			
78						
84						
90						
96			GROUNDWATER SAMPLE @ 8 - 13'			
102						
108						
114						
120						
126	5016.28	3		1015	—	—
132						
138						
144						
150						
156						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-107

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-3-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42						
			SILTY CLAY, fine / med. - - olive green			
48						
54			SAND, med. / coarse - tan / orange			
60						
	5059.08	1		1324	0 PPM	2006 PPM
66						
			SAND, fine - lt. olive green w/ some small rnd. gravels			
72			GROUNDWATER SAMPLE @ 6 - 11'			
	5059.09	2		1326	0 PPM	608 PPM
78						
84						
90						
96						
102						
	5059.18	3		1433	--------------------	------------------
108						
114						
120						
126						
132						

04-13-2000 X:\MTECH5\812\B107.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-108

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-3-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36	5059.03	1	SILTY CLAY, fine / med. - - olive green	1304	0.04 PPM	2215 PPM
42						
48						
54			SAND, med. / coarse - tan / orange			
60	5059.04	2		1307	0.01 PPM	3170 PPM
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72	5059.05	3		1311	0.01 PPM	593 PPM
78						
84			GROUNDWATER SAMPLE @ 7 - 11'			
90						
96						
102	5059.19	4		1436	------------------	------------------
108						
114						
120						
126						
132						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-109

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-3-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
	5059.10	1		1420	0 PPM	2748 PPM
42			SILTY CLAY, fine / med. - - olive green			
48						
54			SAND, med. / coarse - tan / orange			
60						
	5059.11	2		1424	0 PPM	2675 PPM
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72			GROUNDWATER SAMPLE @ 6 - 11'			
78						
84						
90						
96						
102	5059.20	3		1438	--------------------	------------------
108						
114						
120						
126						
132						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-110

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-3-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30	5059.12	1		1430	0 PPM	2286 PPM
36						
42			SILTY CLAY, fine / med. - - olive green			
48						
54			SAND, med. / coarse - tan / orange			
60	5059.13	2		1432	0 PPM	760 PPM
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72			GROUNDWATER SAMPLE @ 6 - 11'			
78						
84						
90						
96						
102	5059.21	3		1452	--------------------	------------------
108						
114						
120						
126						
132						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 111

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54	5065.08	1		1104	0.7 PPM	384 PPM
60			SAND, med. / coarse - tan / orange			
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.31	2		1430	------------------	------------------
120						
126						
132						
138						
144						
150						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 112

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54						
60	5065.09	1	SAND, med. / coarse - tan / orange	1122	1.1 PPM	714 PPM
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.32	2		1436	-------------------	-------------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B112.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 113

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
	5065.10	1		1131	0 PPM	148 PPM
42						
48			SILTY CLAY, fine / med. - - olive green			
54						
60			SAND, med. / coarse - tan / orange			
	5065.11	2	SAND, fine - lt. olive green w/ some small rnd. gravels	1135	0 PPM	511 PPM
66						
72						
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.33	3		1440		
120						
126						
132						
138						
144						
150						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 114

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36	5065.12	1		1304	0.25 PPM	148 PPM
42						
48			SILTY CLAY, fine / med. - - olive green			
54						
60			SAND, med. / coarse - tan / orange			
66	5065.13	2	SAND, fine - lt. olive green w/ some small rnd. gravels	1311	1.29 PPM	717 PPM
72						
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.34	3		1442		
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B114.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 115

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54	5065.19	1		1408	0 PPM	565 PPM
60			SAND, med. / coarse - tan / orange			
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.35	2		1448	----------------	----------------
120						
126						
132						
138						
144						
150						

04-13-2000 X:\MTECH5\812\B115.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 116

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-4-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
	5065.20	1		1414	3.8 PPM	372 PPM
36						
42						
48			SILTY CLAY, fine / med. - - olive green			
54						
	5065.21	2		1416	0.48 PPM	91 PPM
60			SAND, med. / coarse - tan / orange			
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78			GROUNDWATER SAMPLE @ 6.5 - 12.5 '			
84						
90						
96						
102						
108						
114	5065.36	3		1452	---	---
120						
126						
132						
138						
144						
150						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 117

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24	5071.04	1		1054	4.09 PPM	74.28 PPM
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48	5071.05	2	SAND, med. / coarse - tan / orange	1056	0 PPM	3.55 PPM
54						
60						
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5071.23	3		1454		
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 118

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
	5071.09	1	SILTY CLAY, fine / med. - - olive green	1318	0.24 PPM	478 PPM
42						
48			SAND, med. / coarse - tan / orange			
54						
60						
	5071.10	2	SAND, fine - lt. olive green w/ some small rnd. gravels	1324	0 PPM	3142 PPM
66						
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5071.24	3		1458	-------------------	-------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 119

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
			SILTY CLAY, fine / med. - - olive green			
42						
	5071.07	1		1311	0 PPM	555 PPM
48			SAND, med. / coarse - tan / orange			
54						
60						
	5071.08	2		1315	0 PPM	1328 PPM
			SAND, fine - lt. olive green w/ some small rnd. gravels			
66						
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5071.25	3		1504	-------------------	-------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 120

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
			SILTY CLAY, fine / med. - - olive green			
42						
48			SAND, med. / coarse - tan / orange			
54						
60						
	5071.11	1	SAND, fine - lt. olive green w/ some small rnd. gravels	1329	0 PPM	4.72 PPM
66						
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5071.26	2		1506	-------------------	-------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 121

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48	5071.12	1	SAND, med. / coarse - tan / orange	1348	0.3 PPM	14 PPM
54						
60						
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5071.27	2		1510	-------------------	-------------------
120						
126						
132						
138						
144						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 122

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48			SAND, med. / coarse - tan / orange			
54	5071.13	1		1350	0 PPM	2.24 PPM
60						
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5071.28	2		1514	------------------	------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 123

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-5-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36			SILTY CLAY, fine / med. - - olive green			
42						
48			SAND, med. / coarse - tan / orange			
54	5071.14	1		1351	0 PPM	2.56 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66						
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5071.29	2		1518	------------------	------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 124

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48			SAND, med. / coarse - tan / orange			
54						
60	5076.13	1		1356	0.09 PPM	1279 PPM
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5076.16	2		1453	-------------------	-------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 125

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48			SAND, med. / coarse - tan / orange			
54	5076.05	1		1051	0 PPM	0 PPM
60						
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5076.17	2		1457	-------------------	-------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 126

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48			SAND, med. / coarse - tan / orange			
54	5076.06	1		1055	0 PPM	0 PPM
60						
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5076.18	2		1501	-------------------	-------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 127

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24	5076.12	1		1307	0 PPM	0 PPM
30						
36			SILTY CLAY, fine / med. - - olive green			
42						
48			SAND, med. / coarse - tan / orange			
54						
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66						
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5076.19	2		1505	-------------------	-------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 128

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48			SAND, med. / coarse - tan / orange			
54	5076.11	1		1303	0 PPM	0 PPM
60						
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5076.20	2		1509	------------------	------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 129

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-6-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48			SAND, med. / coarse - tan / orange			
54						
60	5076.14	1		1403	0 PPM	0 PPM
66			SAND, fine - lt. olive green w/ some small rnd. gravels			
72						
78						
84			GROUNDWATER SAMPLE @ 7 - 12'			
90						
96						
102						
108						
114	5076.21	2		1513	------------------	------------------
120						
126						
132						
138						
144						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
48			SAND, med. / coarse - tan / orange			
54	5105.03	1		1030	4 PPM	23 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.20	2		1430	------------------	------------------
102						
108						
114						
120						
126						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 131

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
	5105.08	1		1059	0 PPM	816 PPM
36						
			SILTY CLAY, fine / med. - - olive green			
42						
48			SAND, med. / coarse - tan / orange			
54						
	5105.09	2		1115	0 PPM	939 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.21	3		1435	-------------------	-------------------
102						
108						
114						
120						
126						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 132

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
	5105.06	1		1045	0 PPM	741 PPM
36			SILTY CLAY, fine / med. - - olive green			
42						
48			SAND, med. / coarse - tan / orange			
54						
	5105.07	2		1050	0 PPM	756 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.22	3		1440	------------------	------------------
102						
108						
114						
120						
126						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 133

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
			SILTY SAND, fine - brown			
6			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
12						
18						
24						
30						
	5105.12	1		1130	0 PPM	653 PPM
36			SILTY CLAY, fine / med. - olive green			
42						
48						
54						
	5105.13	2		1136	0 PPM	515 PPM
			SAND, med. / coarse - tan / orange			
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.23	3		1445	------------------	------------------
102						
108						
114						
120						
126						

04-13-2000 X:\MTECH5\812\B133.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 134

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54						
	5105.18	1		1340	0 PPM	707 PPM
60			SAND, med. / coarse - tan / orange SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.24	2		1450	------------------	------------------
102						
108						
114						
120						
126						

04-13-2000 X:\MTECH5\812\B134.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 135

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - - olive green			
	5105.04	1		1034	0 PPM	653 PPM
48			SAND, med. / coarse - tan / orange			
54						
	5105.05	2		1039	0.06 PPM	656 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.25	3		1455	-------------------	-------------------
102						
108						
114						
120						
126						

04-13-2000 X:\MTECH5\812\B135.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 136

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
12						
18						
24						
30			SILTY CLAY, fine / med. - olive green			
36						
42						
	5105.10	1		1121	0 PPM	5190 PPM
48						
			SAND, med. / coarse - tan / orange			
54						
	5105.11	2		1124	0 PPM	347 PPM
60						
			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.26	3		1500	------------------	------------------
102						
108						
114						
120						
126						

04-13-2000 X:\MTECH5\812\B136.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 137

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54						
	5105.19	1		1401	0 PPM	805 PPM
60			SAND, med. / coarse - tan / orange SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.27	2		1505	------------------	------------------
102						
108						
114						
120						
126						

04-13-2000 X:\MTECH5\812\B137.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 138

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
12						
18						
24						
30						
	5105.16	1		1320	5 PPM	709 PPM
36			SILTY CLAY, fine / med. - olive green			
42						
48						
54						
	5105.17	2		1333	12 PPM	363 PPM
			SAND, med. / coarse - tan / orange			
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.28	3		1510	-------------------	-------------------
102						
108						
114						
120						
126						

04-13-2000 X:\MTECH5\812\B138.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B-139

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
12						
18						
24						
30						
	5105.14	1		1140	0 PPM	462 PPM
36			SILTY CLAY, fine / med. - olive green			
42						
48						
54						
	5105.15	2		1144	0 PPM	523 PPM
			SAND, med. / coarse - tan / orange			
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5.5 - 10.5'			
72						
78						
84						
90						
96	5105.29	3		1515	-------------------	-------------------
102						
108						
114						
120						
126						

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U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 140

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54	5108.03	1		1005	0 PPM	193 PPM
60			SAND, med. / coarse - tan / orange SAND, fine - lt. olive green w/ some small rnd. gravels			
66			GROUNDWATER SAMPLE @ 5 - 10'			
72						
78						
84						
90	5108.19	2		1445	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\B12\B140.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 141

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54	5108.06	1	SAND, med. / coarse - tan / orange	1032	0 PPM	3059 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.20	2		1447	------------------	------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B141.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 142

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5108.11	1	SAND, med. / coarse - tan / orange	1326	0 PPM	1297 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.21	2		1452	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B142.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 143

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54						
	5108.09	1	SAND, med. / coarse - tan / orange	1146	0 PPM	4380 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.22	2		1455	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B143.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 144

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54	5108.04	1		1009	3 PPM	209 PPM
60			SAND, med. / coarse - tan / orange SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.23	2		1500	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B144.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 145

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54						
	5108.08	1	SAND, med. / coarse - tan / orange	1144	0 PPM	5492 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.24	2		1505	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\B12\B145.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 146

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5108.10	1	SAND, med. / coarse - tan / orange	1151	0 PPM	5656 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.25	2		1510	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B146.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 147

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5108.12	1	SAND, med. / coarse - tan / orange	1329	0 PPM	2239 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.26	2		1515	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B147.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 148

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54						
	5108.07	1	SAND, med. / coarse - tan / orange	1040	0 PPM	4299 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
			GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.27	2		1520	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B148.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 149

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42						
48			SILTY CLAY, fine / med. - olive green			
54	5108.05	1		1029	0 PPM	1089 PPM
60			SAND, med. / coarse - tan / orange SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.28	2		1525	--------------------	--------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B149.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 150

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54						
	5108.13	1	SAND, med. / coarse - tan / orange	1332	0 PPM	3909 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.29	2		1527	------------------	------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B150.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54						
	5108.17	1	SAND, med. / coarse - tan / orange	1436	0 PPM	224 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.30	2		1529	——	——
96						
102						
108						
114						
120						

04-24-2000 X:\MTECH5\812\B151.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 152

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5108.18	1	SAND, med. / coarse - tan / orange	1440	0 PPM	42 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.31	2		1530	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B152.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 153

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5108.16	1	SAND, med. / coarse - tan / orange	1434	0 PPM	2.42 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.32	2		1531	————	————
96						
102						
108						
114						
120						

04-24-2000 X:\MTECH5\812\B153.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 154

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54						
	5108.14	1	SAND, med. / coarse - tan / orange	1427	0 PPM	2.42 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5108.33	2		1533	------------------	------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B154.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 155

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-20-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5109.03	1	SAND, med. / coarse - olive green / tan / orange	0900	1.01 PPM	0.18 PPM
60			SANDY CLAY, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5109.08	2		1100	-------------------	-------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B155.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 156

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-20-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5109.04	1	SAND, med. / coarse - olive green / tan / orange	0915	0.90 PPM	0.65 PPM
60			SANDY CLAY, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5109.09	2		1110	------------------	------------------
96						
102						
108						
114						
120						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 157

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-20-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5109.05	1	SAND, med. / coarse - olive green / tan / orange	0930	0.90 PPM	0.65 PPM
60			SANDY CLAY, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5109.10	2		1115	————	————
96						
102						
108						
114						
120						

04-24-2000 X:\MTECH5\812\B157.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 159

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-20-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5109.06	1	SAND, med. / coarse - olive green / tan / orange	0940	1.01 PPM	0.11 PPM
60			SANDY CLAY, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5109.11	2		1125	------------------	------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B159.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 160

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US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-20-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54	5109.07	1	SAND, med. / coarse - olive green / tan / orange	1000	0.09 PPM	0.02 PPM
60			SANDY CLAY, fine - lt. olive green w/ some small rnd. gravels GROUNDWATER SAMPLE @ 5 - 10'			
66						
72						
78						
84						
90	5109.12	2		1140	------------------	------------------
96						
102						
108						
114						
120						

04-13-2000 X:\MTECH5\812\B160.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 161

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 1-19-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54						
	5108.15	1	SAND, med. / coarse - tan / orange	1431	1.03 PPM	0.09 PPM
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66						
72						
78						
84						
90	5108.34	2		1535	————	————
96			GROUNDWATER SAMPLE @ 5 - 10'			
102						
108						
114						
120						
126						
132						
138						
144						

04-25-2000 X:\MTECH5\812\B161.BOR

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 161A

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 2-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54						
			SAND, med. / coarse - tan / orange			
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66						
72						
78						
84						
90						
	5166.03	1		0940	1.03 PPM	0.09 PPM
96			GROUNDWATER SAMPLE @ 8 - 12'			
102						
108						
114						
120	5166.04	2		1040	————	————
126						
132						
138						
144						

U.S.ARMY
FORT MONMOUTH
SELFM-PW-EV

LOG OF BORING B- 162

(Page 1 of 1)

US ARMY
FT. MONMOUTH N.J.
SELFM-PW-EV
JOSEPH FALLON

812 INVESTIGATION

DATE COMPLETED : 2-14-00
HOLE DIAMETER : 2"
DRILLING METHOD : GEOPROBE
SAMPLING METHOD : 2" MACROCORE
H2O SAMPLER : 1" PVC

OPERATOR : MARK LAURA
CONTRACTOR : TVS-PWS-07
NJDEP LIC. # : J1486

Depth in INCHES	Lab No.	Samples	DESCRIPTION	TIME	PID	FID
0			TURF			
6			SILTY SAND, fine - brown			
12			CLAYEY SILT, fine / med. - orange / lt. olive green and small rnd. gravels			
18						
24						
30						
36						
42			SILTY CLAY, fine / med. - olive green			
48						
54			SAND, med. / coarse - tan / orange			
60			SAND, fine - lt. olive green w/ some small rnd. gravels			
66						
72						
78						
84						
90	5166.05	1		1020	0.87 PPM	0.19 PPM
96			GROUNDWATER SAMPLE @ 8 - 12'			
102						
108						
114						
120	5166.06	2		1050	-------------------	-------------------
126						
132						
138						
144						

04-13-2000 X:\MTECH5\812\B162.BOR

APPENDIX D

AQUIFER STUDY

Slug Test Evaluation

AQUIFER TESTING, SITE 812

Aquifer Testing

Rising-head aquifer tests (i.e., slug tests) were conducted in wells MW-2, MW-3, MW-5, MW-8 and MW-12 on May 19, 2000. Each test was conducted by inserting a bailer into the well, and then quickly extracting it while monitoring the subsequent change in the water level. The test was continued until the water level recovered at least 80 percent of the initial drawdown. Water levels were monitored using a Hermit 1000 water-level data logger.

Water-level data from slug tests were analyzed by two methods: the method developed by Bouwer (Bouwer and Rice, 1976; Bouwer, 1989) and the Hvorslev method (Hvorslev, 1951). Tables MW-2, MW-3, MW-5, MW-8, and MW-12 provide the equations for these methods, the input parameters used for each test, and graphs of the data. The two methods yielded comparable results.

Shallow Wells (Tinton Sand and Upper Member of Red Bank Sand (Shrewsbury))
MW-5, MW-8, and MW-12

Using the Bouwer and Rice method, hydraulic conductivity was found to range from 8.34E-04 centimeters per second (cm/sec) to 2.28E-03 cm/sec, with a arithmetic mean of 1.50E-03 cm/sec. Using the Hvorslev method, it was found to range from 7.52E-04 cm/sec to 2.82E-03 cm/sec, with a arithmetic mean of 1.63E-03 cm/sec. The average hydraulic conductivity for shallow wells is 1.56E-03 cm/sec. **Table 1** provides a Summary of the Slug Test Analyses performed for the Shallow Wells (MW-5, MW-8, and MW-12) at Site 812.

Deep Wells (Lower Member of Red Bank Sand (Sandy Hook)) MW-2 and MW-3

Using the Bouwer and Rice method, hydraulic conductivity was found to range from 2.49E-04 cm/sec to 2.74E-04 cm/sec, with a arithmetic mean of 2.63-04 cm/sec. Using the Hvorslev method, it was found to range from 2.75E-04 cm/sec to 3.36E-04 cm/sec, with a arithmetic mean of 3.05E-04 cm/sec. The average hydraulic conductivity for deep wells is 2.84E-04 cm/sec. **Table 2** provides a Summary of the Slug Test Analyses performed for the Deep Wells (MW-2 and MW-3) at Site 812.

Table 1 - Summary of Slug Test Analysis - Shallow Wells

Well ID	Hydrogeologic Unit	Analysis Method				Average	
		Hvorslev	Hvorslev	Bouwer & Rice	Bouwer & Rice		
		(cm/sec)	(ft/day)	(cm/sec)	(ft/day)	(cm/sec)	(ft/day)
MW-5	Tinton Sand and Upper Member of Red Bank Sand (Shrewsbury)	1.33E-03	3.78E+00	1.40E-03	3.96E+00	1.37E-03	3.87E+00
MW-8	Tinton Sand and Upper Member of Red Bank Sand (Shrewsbury)	7.52E-04	2.13E+00	8.34E-04	2.36E+00	7.93E-04	2.25E+00
MW-12	Tinton Sand and Upper Member of Red Bank Sand (Shrewsbury)	2.82E-03	7.98E+00	2.28E-03	6.47E+00	2.55E-03	7.23E+00

Table 2 - Summary of Slug Test Analysis - Deep Wells

Well ID	**Hydrogeologic Unit**	**Analysis Method**				**Average**	
		Hvorslev	Hvorslev	Bouwer & Rice	Bouwer & Rice		
		(cm/sec)	(ft/day)	(cm/sec)	(ft/day)	(cm/sec)	(ft/day)
MW-2	Lower Member of Red Bank Sand (Sandy Hook)	3.36E-04	9.52E-01	2.76E-04	7.83E-01	3.05E-04	8.68E-01
MW-3	Lower Member of Red Bank Sand (Sandy Hook)	2.75E-04	7.78E-01	2.49E-04	7.06E-01	2.62E-04	7.42E-01

BOUWER AND RICE SLUG TEST ANALYSIS
RISING HEAD TEST MW-2

$$K = \frac{r_c^2 \ln\left(\frac{R_e}{r_w}\right)}{2L_e} \frac{1}{t} \ln\frac{y_0}{y_t}$$

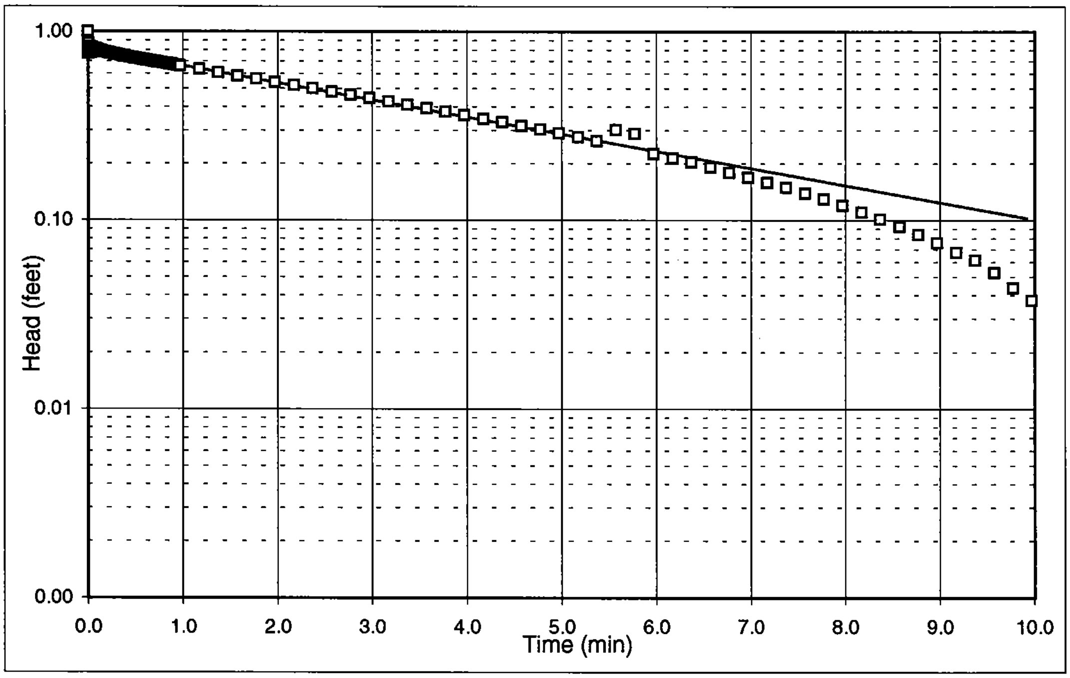
where:

r_c = casing radius (feet);
R_e = effective radius (feet);
L_e = length of screened interval (feet);
r_w = radial distance to undisturbed aquifer (feet)
y_0 = initial drawdown (feet)
y_t = drawdown (feet) at time t (minutes)

INPUT PARAMETERS	
r_c =	0.17
r_w =	0.26
L_e =	20
$ln(R_e/r_w)$=	3.75
y_0 =	0.81
y_t =	0.10
t =	9.9

RESULTS

K=	2.76E-04	cm/sec
K=	7.83E-01	ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 08/22/00

TABLE MW-2

HVORSLEV SLUG TEST ANALYSIS
RISING HEAD TEST MW-2

$$K = \frac{r_c^2}{2L_e} \ln \frac{L_e}{R_e} \left[\frac{\ln\left(\frac{h_1}{h_2}\right)}{(t2 - t1)} \right] 30.48$$

where:

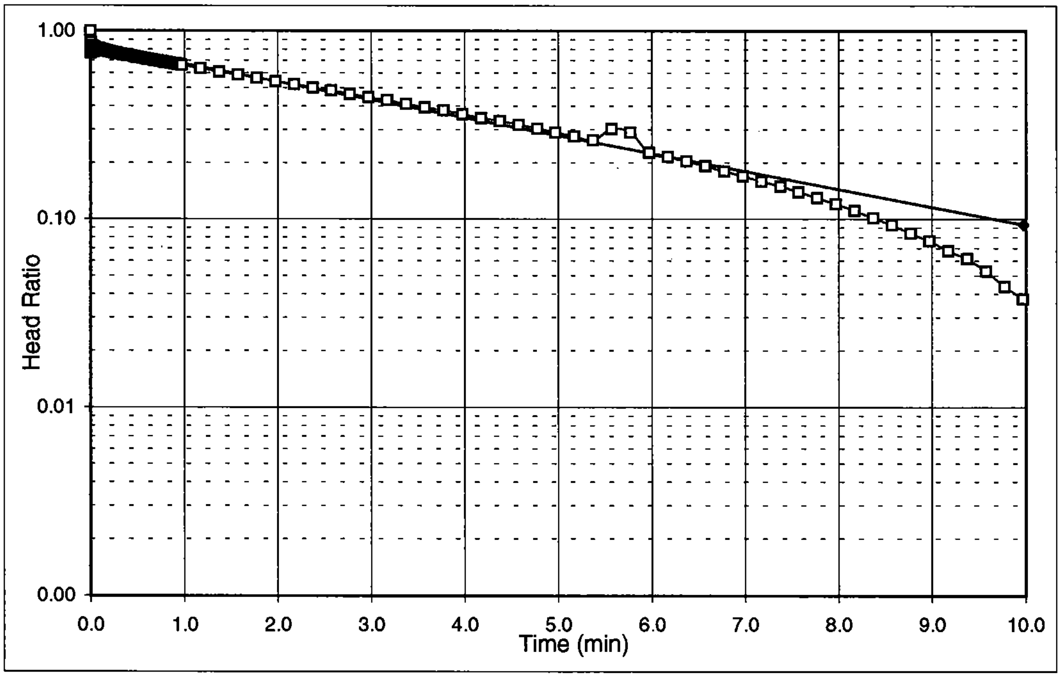
r_c = casing radius (feet)
R_e = equivalent radius (feet)
L_e = length of screened interval (feet)
t = time (minutes)
h_t = head at time t (feet)

INPUT PARAMETERS

r_c = 0.17
R_e = 0.26
L_e = 20
t_1 = 0
t_2 = 9.98
h_1/h_0 = 0.83
h_2/h_0 = 0.09

RESULTS

K= 3.36E-04 cm/sec
K= 9.52E-01 ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 08/22/00

RISING HEAD TEST MW-2
WELL NO. MW-2

Bldg. 812
D.O.3M-3/M-2

DATE	4/20/00	
INITIAL DEPTH TO WATER	6.725	FEET (btoc)
CASING DIAMETER	4	INCHES
SAND DIAMETER	6.25	INCHES
TOP OF OPEN INTERVAL	26	FEET (btoc)
BOTTOM OF OPEN INTERVAL	46	FEET (btoc)
SATURATED THICKNESS	39.15	FEET
WATER TABLE TO BOTTOM OF SCREEN	39.15	FEET
EQUIVALENT DIAMETER	4.79	INCHES
OPEN INTERVAL LENGTH	20	FEET
STATIC IN SCREEN?	N	
MAX. HEAD CHANGE	1.97	FEET
MAX. HEAD IN SCREEN?	N	

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.00	8.69	0.00	1.97	1.00
0.00	8.23	0.00	1.50	0.76
0.01	8.44	0.01	1.71	0.87
0.01	8.32	0.01	1.59	0.81
0.01	8.36	0.01	1.64	0.83
0.02	8.34	0.02	1.62	0.82
0.02	8.35	0.02	1.62	0.83
0.02	8.34	0.02	1.62	0.82
0.03	8.35	0.03	1.63	0.83
0.03	8.34	0.03	1.62	0.82
0.03	8.34	0.03	1.62	0.82
0.04	8.24	0.04	1.52	0.77
0.04	8.30	0.04	1.57	0.80
0.04	8.35	0.04	1.62	0.82
0.05	8.33	0.05	1.60	0.82
0.05	8.31	0.05	1.59	0.81
0.05	8.33	0.05	1.60	0.81
0.06	8.31	0.06	1.59	0.81
0.06	8.32	0.06	1.59	0.81
0.06	8.32	0.06	1.59	0.81
0.07	8.31	0.07	1.59	0.81
0.07	8.31	0.07	1.59	0.81
0.07	8.32	0.07	1.59	0.81
0.08	8.31	0.08	1.59	0.81
0.08	8.31	0.08	1.59	0.81
0.08	8.31	0.08	1.59	0.81
0.09	8.30	0.09	1.58	0.80
0.09	8.32	0.09	1.59	0.81
0.09	8.29	0.09	1.57	0.80
0.10	8.30	0.10	1.58	0.80
0.10	8.30	0.10	1.58	0.80
0.10	8.30	0.10	1.58	0.80
0.11	8.30	0.11	1.57	0.80
0.11	8.29	0.11	1.57	0.80
0.11	8.29	0.11	1.57	0.80
0.12	8.29	0.12	1.56	0.79
0.12	8.29	0.12	1.56	0.79
0.12	8.29	0.12	1.57	0.80
0.13	8.29	0.13	1.56	0.79
0.13	8.28	0.13	1.56	0.79
0.13	8.29	0.13	1.57	0.80
0.14	8.28	0.14	1.55	0.79
0.14	8.28	0.14	1.55	0.79
0.14	8.28	0.14	1.55	0.79

TABLE MW-2

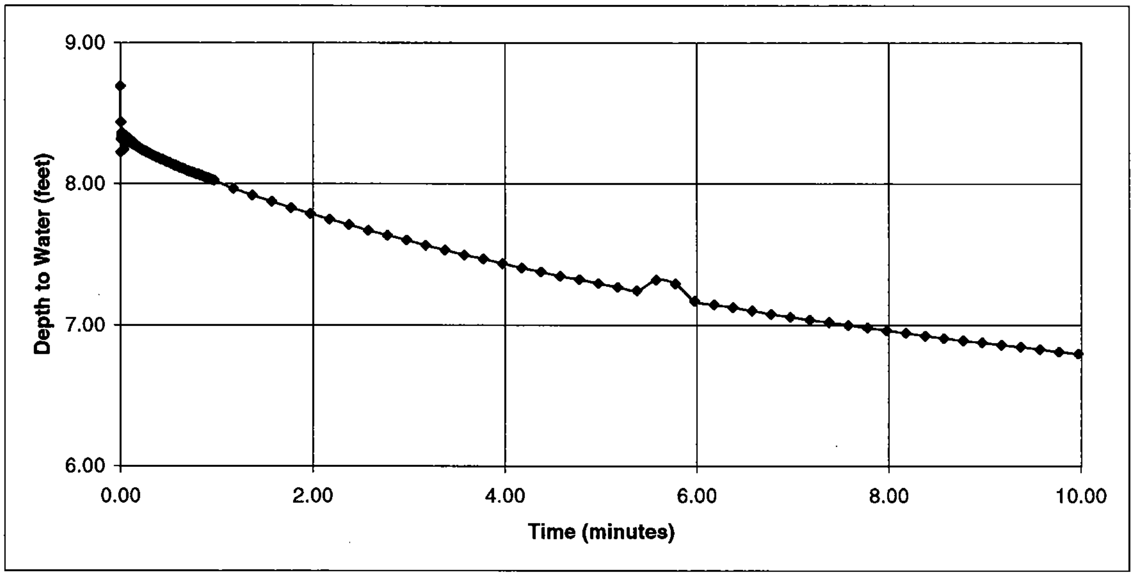
EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.15	8.28	0.15	1.55	0.79
0.15	8.27	0.15	1.55	0.79
0.15	8.27	0.15	1.55	0.79
0.16	8.27	0.16	1.55	0.79
0.16	8.27	0.16	1.55	0.79
0.16	8.27	0.16	1.55	0.79
0.17	8.27	0.17	1.54	0.78
0.17	8.27	0.17	1.54	0.78
0.17	8.26	0.17	1.54	0.78
0.18	8.26	0.18	1.54	0.78
0.18	8.26	0.18	1.54	0.78
0.18	8.26	0.18	1.54	0.78
0.19	8.26	0.19	1.53	0.78
0.19	8.26	0.19	1.53	0.78
0.19	8.26	0.19	1.53	0.78
0.20	8.25	0.20	1.53	0.78
0.20	8.25	0.20	1.53	0.78
0.20	8.25	0.20	1.53	0.77
0.21	8.25	0.21	1.53	0.77
0.21	8.25	0.21	1.53	0.77
0.21	8.25	0.21	1.52	0.77
0.22	8.24	0.22	1.52	0.77
0.22	8.24	0.22	1.52	0.77
0.22	8.24	0.22	1.52	0.77
0.23	8.24	0.23	1.52	0.77
0.23	8.24	0.23	1.52	0.77
0.23	8.24	0.23	1.51	0.77
0.24	8.24	0.24	1.51	0.77
0.24	8.24	0.24	1.51	0.77
0.24	8.24	0.24	1.51	0.77
0.25	8.24	0.25	1.51	0.77
0.25	8.23	0.25	1.51	0.77
0.25	8.23	0.25	1.51	0.77
0.26	8.23	0.26	1.50	0.76
0.26	8.23	0.26	1.51	0.77
0.26	8.23	0.26	1.50	0.76
0.27	8.23	0.27	1.50	0.76
0.27	8.23	0.27	1.50	0.76
0.27	8.23	0.27	1.50	0.76
0.28	8.22	0.28	1.50	0.76
0.28	8.22	0.28	1.50	0.76
0.28	8.22	0.28	1.50	0.76
0.29	8.22	0.29	1.50	0.76
0.29	8.22	0.29	1.50	0.76
0.29	8.22	0.29	1.49	0.76
0.30	8.22	0.30	1.49	0.76
0.30	8.22	0.30	1.49	0.76
0.30	8.21	0.30	1.49	0.76
0.31	8.21	0.31	1.49	0.76
0.31	8.21	0.31	1.49	0.76
0.33	8.21	0.33	1.48	0.75
0.34	8.20	0.34	1.48	0.75
0.36	8.19	0.36	1.47	0.75
0.38	8.19	0.38	1.46	0.74
0.39	8.19	0.39	1.46	0.74
0.41	8.18	0.41	1.45	0.74
0.43	8.17	0.43	1.45	0.74
0.44	8.17	0.44	1.45	0.73
0.46	8.16	0.46	1.44	0.73
0.48	8.16	0.48	1.43	0.73
0.49	8.15	0.49	1.43	0.73
0.51	8.15	0.51	1.42	0.72
0.53	8.14	0.53	1.42	0.72
0.54	8.14	0.54	1.41	0.72

TABLE MW-2

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.56	8.13	0.56	1.41	0.71
0.58	8.13	0.58	1.40	0.71
0.59	8.12	0.59	1.40	0.71
0.61	8.12	0.61	1.39	0.71
0.63	8.12	0.63	1.39	0.71
0.64	8.11	0.64	1.38	0.70
0.66	8.11	0.66	1.38	0.70
0.68	8.10	0.68	1.37	0.70
0.69	8.09	0.69	1.37	0.70
0.71	8.09	0.71	1.37	0.69
0.73	8.09	0.73	1.36	0.69
0.74	8.08	0.74	1.36	0.69
0.76	8.08	0.76	1.36	0.69
0.78	8.07	0.78	1.35	0.69
0.79	8.07	0.79	1.35	0.68
0.81	8.07	0.81	1.34	0.68
0.83	8.06	0.83	1.34	0.68
0.84	8.06	0.84	1.33	0.68
0.86	8.05	0.86	1.33	0.67
0.88	8.05	0.88	1.33	0.67
0.89	8.05	0.89	1.32	0.67
0.91	8.04	0.91	1.32	0.67
0.93	8.04	0.93	1.31	0.67
0.94	8.03	0.94	1.31	0.66
0.96	8.03	0.96	1.31	0.66
0.98	8.02	0.98	1.30	0.66
1.18	7.97	1.18	1.24	0.63
1.38	7.92	1.38	1.19	0.61
1.58	7.87	1.58	1.15	0.58
1.78	7.83	1.78	1.11	0.56
1.98	7.79	1.98	1.06	0.54
2.18	7.75	2.18	1.02	0.52
2.38	7.71	2.38	0.98	0.50
2.58	7.67	2.58	0.95	0.48
2.78	7.64	2.78	0.91	0.46
2.98	7.60	2.98	0.88	0.45
3.18	7.57	3.18	0.84	0.43
3.38	7.53	3.38	0.81	0.41
3.58	7.50	3.58	0.77	0.39
3.78	7.47	3.78	0.74	0.38
3.98	7.44	3.98	0.71	0.36
4.18	7.40	4.18	0.68	0.35
4.38	7.38	4.38	0.65	0.33
4.58	7.35	4.58	0.62	0.32
4.78	7.32	4.78	0.60	0.30
4.98	7.30	4.98	0.57	0.29
5.18	7.27	5.18	0.54	0.28
5.38	7.24	5.38	0.52	0.26
5.58	7.32	5.58	0.59	0.30
5.78	7.29	5.78	0.57	0.29
5.98	7.17	5.98	0.44	0.23
6.18	7.15	6.18	0.42	0.21
6.38	7.13	6.38	0.40	0.20
6.58	7.10	6.58	0.38	0.19
6.78	7.08	6.78	0.35	0.18
6.98	7.06	6.98	0.33	0.17
7.18	7.04	7.18	0.31	0.16
7.38	7.02	7.38	0.29	0.15
7.58	7.00	7.58	0.27	0.14
7.78	6.98	7.78	0.26	0.13
7.98	6.96	7.98	0.24	0.12
8.18	6.94	8.18	0.22	0.11
8.38	6.93	8.38	0.20	0.10
8.58	6.91	8.58	0.18	0.09

TABLE MW-2

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
8.78	6.89	8.78	0.17	0.08
8.98	6.88	8.98	0.15	0.08
9.18	6.86	9.18	0.13	0.07
9.38	6.85	9.38	0.12	0.06
9.58	6.83	9.58	0.10	0.05
9.78	6.81	9.78	0.09	0.04
9.98	6.80	9.98	0.07	0.04



MW-2

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 100.15
		0.0000	105.0900		
		0.0033	105.6980		
		0.0066	106.9960		
		0.01	106.138		
		0.0133	105.789		
		0.0166	106.664		
		0.02	107.064		
		0.0233	107.768	0.0000	8.6930
		0.0266	107.301	0.0033	8.2260
		0.03	107.513	0.0067	8.4380
		0.0333	107.392	0.0100	8.3170
		0.0366	107.439	0.0133	8.3640
		0.04	107.419	0.0167	8.3440
		0.0433	107.425	0.0200	8.3500
		0.0466	107.416	0.0233	8.3410
		0.05	107.428	0.0267	8.3530
		0.533	107.416	0.5097	8.3410
		0.566	107.416	0.5427	8.3410
		0.06	107.319	0.0367	8.2440
		0.0633	107.372	0.0400	8.2970
		0.0666	107.422	0.0433	8.3470
		0.07	107.404	0.0467	8.3290
		0.0733	107.389	0.0500	8.3140
		0.0766	107.401	0.0533	8.3260
		0.08	107.389	0.0567	8.3140
		0.0833	107.395	0.0600	8.3200
		0.0866	107.392	0.0633	8.3170
		0.09	107.387	0.0667	8.3120
		0.0933	107.389	0.0700	8.3140
		0.0966	107.392	0.0733	8.3170
		0.1	107.387	0.0767	8.3120
		0.1033	107.387	0.0800	8.3120
		0.1066	107.389	0.0833	8.3140
		0.11	107.378	0.0867	8.3030
		0.1133	107.395	0.0900	8.3200
		0.1166	107.369	0.0933	8.2940
		0.12	107.375	0.0967	8.3000
		0.1233	107.375	0.1000	8.3000
		0.1266	107.378	0.1033	8.3030

MW-2

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 100.15
		0.13	107.372	0.1067	8.2970
		0.1333	107.369	0.1100	8.2940
		0.1366	107.369	0.1133	8.2940
		0.14	107.363	0.1167	8.2880
		0.1433	107.363	0.1200	8.2880
		0.1466	107.366	0.1233	8.2910
		0.15	107.363	0.1267	8.2880
		0.1533	107.357	0.1300	8.2820
		0.1566	107.369	0.1333	8.2940
		0.16	107.354	0.1367	8.2790
		0.1633	107.354	0.1400	8.2790
		0.1666	107.351	0.1433	8.2760
		0.17	107.351	0.1467	8.2760
		0.1733	107.348	0.1500	8.2730
		0.1766	107.345	0.1533	8.2700
		0.18	107.345	0.1567	8.2700
		0.1833	107.345	0.1600	8.2700
		0.1866	107.345	0.1633	8.2700
		0.19	107.342	0.1667	8.2670
		0.1933	107.342	0.1700	8.2670
		0.1966	107.339	0.1733	8.2640
		0.2	107.337	0.1767	8.2620
		0.2033	107.337	0.1800	8.2620
		0.2066	107.337	0.1833	8.2620
		0.21	107.334	0.1867	8.2590
		0.2133	107.331	0.1900	8.2560
		0.2166	107.331	0.1933	8.2560
		0.22	107.328	0.1967	8.2530
		0.2233	107.328	0.2000	8.2530
		0.2266	107.325	0.2033	8.2500
		0.23	107.325	0.2067	8.2500
		0.2333	107.325	0.2100	8.2500
		0.2366	107.322	0.2133	8.2470
		0.24	107.319	0.2167	8.2440
		0.2433	107.319	0.2200	8.2440
		0.2466	107.316	0.2233	8.2410
		0.25	107.316	0.2267	8.2410
		0.2533	107.316	0.2300	8.2410
		0.2566	107.313	0.2333	8.2380

MW-2

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 100.15
		0.26	107.313	0.2367	8.2380
		0.2633	107.313	0.2400	8.2380
		0.2666	107.31	0.2433	8.2350
		0.27	107.31	0.2467	8.2350
		0.2733	107.307	0.2500	8.2320
		0.2766	107.307	0.2533	8.2320
		0.28	107.304	0.2567	8.2290
		0.2833	107.307	0.2600	8.2320
		0.2866	107.301	0.2633	8.2260
		0.29	107.301	0.2667	8.2260
		0.2933	107.301	0.2700	8.2260
		0.2966	107.301	0.2733	8.2260
		0.3	107.298	0.2767	8.2230
		0.3033	107.298	0.2800	8.2230
		0.3066	107.295	0.2833	8.2200
		0.31	107.295	0.2867	8.2200
		0.3133	107.295	0.2900	8.2200
		0.3166	107.293	0.2933	8.2180
		0.32	107.293	0.2967	8.2180
		0.3233	107.29	0.3000	8.2150
		0.3266	107.287	0.3033	8.2120
		0.33	107.287	0.3067	8.2120
		0.3333	107.287	0.3100	8.2120
		0.35	107.281	0.3267	8.2060
		0.3666	107.275	0.3433	8.2000
		0.3833	107.269	0.3600	8.1940
		0.4	107.263	0.3767	8.1880
		0.4166	107.26	0.3933	8.1850
		0.4333	107.254	0.4100	8.1790
		0.45	107.249	0.4267	8.1740
		0.4666	107.246	0.4433	8.1710
		0.4833	107.24	0.4600	8.1650
		0.5	107.234	0.4767	8.1590
		0.5166	107.228	0.4933	8.1530
		0.5333	107.225	0.5100	8.1500
		0.55	107.219	0.5267	8.1440
		0.5666	107.213	0.5433	8.1380
		0.5833	107.207	0.5600	8.1320
		0.6	107.204	0.5767	8.1290

MW-2

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 100.15
		0.6166	107.199	0.5933	8.1240
		0.6333	107.193	0.6100	8.1180
		0.65	107.19	0.6267	8.1150
		0.6666	107.184	0.6433	8.1090
		0.6833	107.181	0.6600	8.1060
		0.7	107.175	0.6767	8.1000
		0.7166	107.169	0.6933	8.0940
		0.7333	107.166	0.7100	8.0910
		0.75	107.163	0.7267	8.0880
		0.7666	107.158	0.7433	8.0830
		0.7833	107.155	0.7600	8.0800
		0.8	107.149	0.7767	8.0740
		0.8166	107.146	0.7933	8.0710
		0.8333	107.143	0.8100	8.0680
		0.85	107.137	0.8267	8.0620
		0.8666	107.134	0.8433	8.0590
		0.8833	107.128	0.8600	8.0530
		0.9	107.125	0.8767	8.0500
		0.9166	107.122	0.8933	8.0470
		0.9333	107.116	0.9100	8.0410
		0.95	107.113	0.9267	8.0380
		0.9666	107.108	0.9433	8.0330
		0.9833	107.105	0.9600	8.0300
		1	107.099	0.9767	8.0240
		1.2	107.043	1.1767	7.9680
		1.4	106.993	1.3767	7.9180
		1.6	106.949	1.5767	7.8740
		1.8	106.905	1.7767	7.8300
		2	106.864	1.9767	7.7890
		2.2	106.823	2.1767	7.7480
		2.4	106.785	2.3767	7.7100
		2.6	106.746	2.5767	7.6710
		2.8	106.711	2.7767	7.6360
		3	106.676	2.9767	7.6010
		3.2	106.641	3.1767	7.5660
		3.4	106.605	3.3767	7.5300
		3.6	106.573	3.5767	7.4980
		3.8	106.544	3.7767	7.4690
		4	106.511	3.9767	7.4360

MW-2

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
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	5/19/00				correction= - 100.15
		4.2	106.479	4.1767	7.4040
		4.4	106.453	4.3767	7.3780
		4.6	106.423	4.5767	7.3480
		4.8	106.397	4.7767	7.3220
		5	106.37	4.9767	7.2950
		5.2	106.344	5.1767	7.2690
		5.4	106.318	5.3767	7.2430
		5.6	106.394	5.5767	7.3190
		5.8	106.368	5.7767	7.2930
		6	106.244	5.9767	7.1690
		6.2	106.221	6.1767	7.1460
		6.4	106.2	6.3767	7.1250
		6.6	106.177	6.5767	7.1020
		6.8	106.153	6.7767	7.0780
		7	106.133	6.9767	7.0580
		7.2	106.112	7.1767	7.0370
		7.4	106.094	7.3767	7.0190
		7.6	106.074	7.5767	6.9990
		7.8	106.056	7.7767	6.9810
		8	106.036	7.9767	6.9610
		8.2	106.018	8.1767	6.9430
		8.4	106	8.3767	6.9250
		8.6	105.983	8.5767	6.9080
		8.8	105.965	8.7767	6.8900
		9	105.95	8.9767	6.8750
		9.2	105.933	9.1767	6.8580
		9.4	105.921	9.3767	6.8460
		9.6	105.904	9.5767	6.8290
		9.8	105.886	9.7767	6.8110
		10	105.874	9.9767	6.7990

MW-3

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 100.15
		0.0000	106.6760		
		0.0033	107.1520		
		0.0066	106.8460		
		0.01	106.532		
		0.0133	106.629		
		0.0166	106.802		
		0.02	107.416		
		0.0233	108.217		
		0.0266	108.546	0.0000	8.3960
		0.03	108.273	0.0034	8.1230
		0.0333	108.106	0.0067	7.9560
		0.0366	108.285	0.0100	8.1350
		0.04	108.388	0.0134	8.2380
		0.0433	108.232	0.0167	8.0820
		0.0466	108.165	0.0200	8.0150
		0.05	108.279	0.0234	8.1290
		0.533	108.314	0.5064	8.1640
		0.566	108.226	0.5394	8.0760
		0.06	108.211	0.0334	8.0610
		0.0633	108.276	0.0367	8.1260
		0.0666	108.273	0.0400	8.1230
		0.07	108.211	0.0434	8.0610
		0.0733	108.223	0.0467	8.0730
		0.0766	108.247	0.0500	8.0970
		0.08	108.235	0.0534	8.0850
		0.0833	108.22	0.0567	8.0700
		0.0866	108.232	0.0600	8.0820
		0.09	108.241	0.0634	8.0910
		0.0933	108.229	0.0667	8.0790
		0.0966	108.223	0.0700	8.0730
		0.1	108.229	0.0734	8.0790
		0.1033	108.229	0.0767	8.0790
		0.1066	108.223	0.0800	8.0730
		0.11	108.22	0.0834	8.0700
		0.1133	108.226	0.0867	8.0760
		0.1166	108.22	0.0900	8.0700
		0.12	108.217	0.0934	8.0670
		0.1233	108.211	0.0967	8.0610
		0.1266	108.214	0.1000	8.0640

BOUWER AND RICE SLUG TEST ANALYSIS
RISING HEAD TEST MW-3

$$K = \frac{r_c^2 \ln\left(\frac{R_e}{r_w}\right)}{2L_e} \frac{1}{t} \ln \frac{y_0}{y_t}$$

where:

r_c = casing radius (feet);

R_e = effective radius (feet);

L_e = length of screened interval (feet);

r_w = radial distance to undisturbed aquifer (feet)

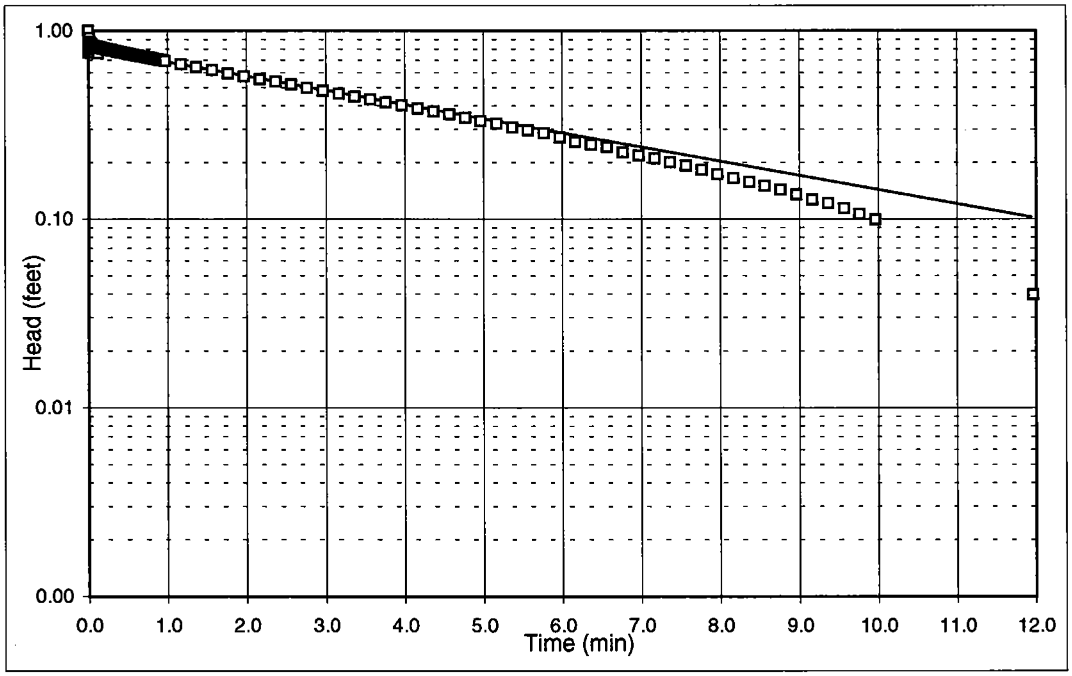
y_0 = initial drawdown (feet)

y_t = drawdown (feet) at time t (minutes)

INPUT PARAMETERS	
$r_c =$	0.17
$r_w =$	0.26
$L_e =$	20.2
$\ln(R_e/r_w)=$	#N/A
$y_0 =$	0.81
$y_t =$	0.10
$t =$	12.0

RESULTS

K=	#N/A	cm/sec
K=	#N/A	ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 08/23/00

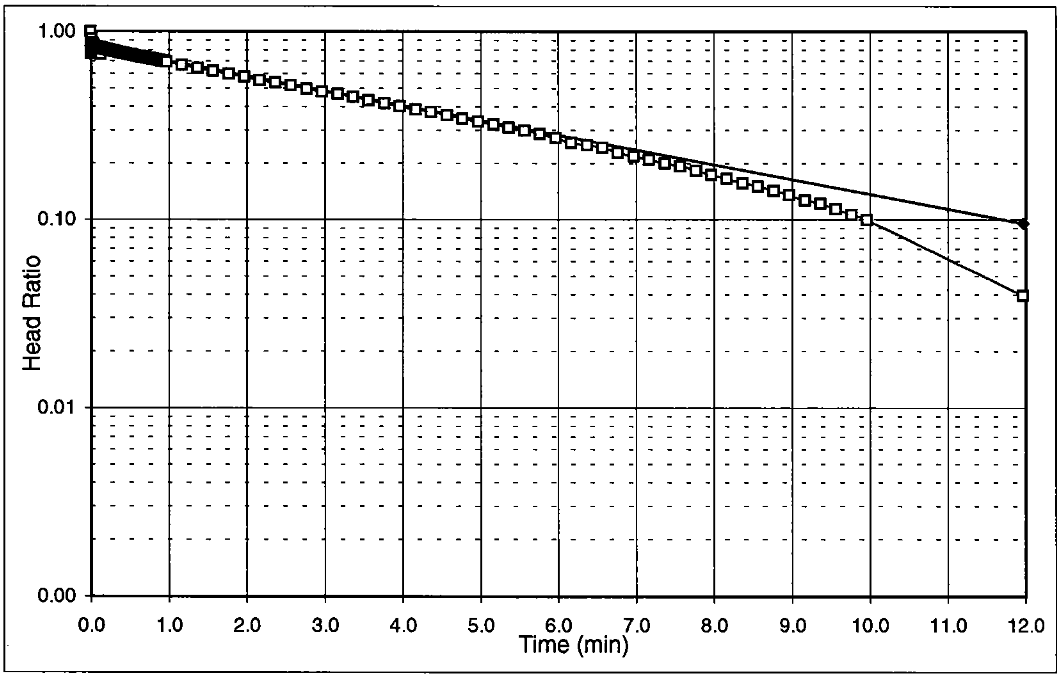
HVORSLEV SLUG TEST ANALYSIS
RISING HEAD TEST MW-3

$$K = \frac{r_c^2}{2L_e} \ln \frac{L_e}{R_e} \left[\frac{\ln\left(\frac{h_1}{h_2}\right)}{(t2 - t1)} \right] 30.48$$

where:

r_c = casing radius (feet)
R_e = equivalent radius (feet)
L_e = length of screened interval (feet)
t = time (minutes)
h_t = head at time t (feet)

INPUT PARAMETERS		RESULTS		
r_c =	0.17			
R_e =	0.26			
L_e =	20.2	K=	2.75E-04	cm/sec
t_1 =	0	K=	7.78E-01	ft/day
t_2 =	11.98			
h_1/h_0 =	0.83			
h_2/h_0 =	0.10			



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 08/23/00

TABLE MW-3

RISING HEAD TEST MW-3
WELL NO. MW-3

Bldg. 812
D.O.3M-3/M-2

DATE	4/20/00	
INITIAL DEPTH TO WATER	6.55	FEET (btoc)
CASING DIAMETER	4	INCHES
SAND DIAMETER	6.25	INCHES
TOP OF OPEN INTERVAL	25.5	FEET (btoc)
BOTTOM OF OPEN INTERVAL	45.7	FEET (btoc)
SATURATED THICKNESS	39.15	FEET
WATER TABLE TO BOTTOM OF SCREEN	39.25	FEET
EQUIVALENT DIAMETER	4.79	INCHES
OPEN INTERVAL LENGTH	20.2	FEET
STATIC IN SCREEN?	N	
MAX. HEAD CHANGE	1.85	FEET
MAX. HEAD IN SCREEN?	N	

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.00	8.40	0.00	1.85	1.00
0.00	8.12	0.00	1.57	0.85
0.01	7.96	0.01	1.41	0.76
0.01	8.13	0.01	1.58	0.86
0.01	8.24	0.01	1.69	0.91
0.02	8.08	0.02	1.53	0.83
0.02	8.02	0.02	1.47	0.79
0.02	8.13	0.02	1.58	0.86
0.03	8.16	0.03	1.61	0.87
0.03	8.08	0.03	1.53	0.83
0.03	8.06	0.03	1.51	0.82
0.04	8.13	0.04	1.58	0.85
0.04	8.12	0.04	1.57	0.85
0.04	8.06	0.04	1.51	0.82
0.05	8.07	0.05	1.52	0.83
0.05	8.10	0.05	1.55	0.84
0.05	8.08	0.05	1.53	0.83
0.06	8.07	0.06	1.52	0.82
0.06	8.08	0.06	1.53	0.83
0.06	8.09	0.06	1.54	0.83
0.07	8.08	0.07	1.53	0.83
0.07	8.07	0.07	1.52	0.83
0.07	8.08	0.07	1.53	0.83
0.08	8.08	0.08	1.53	0.83
0.08	8.07	0.08	1.52	0.83
0.08	8.07	0.08	1.52	0.82
0.09	8.08	0.09	1.53	0.83
0.09	8.07	0.09	1.52	0.82
0.09	8.07	0.09	1.52	0.82
0.10	8.06	0.10	1.51	0.82
0.10	8.06	0.10	1.51	0.82
0.10	8.06	0.10	1.51	0.82
0.11	8.06	0.11	1.51	0.82
0.11	8.06	0.11	1.51	0.82
0.11	8.06	0.11	1.51	0.82
0.12	8.07	0.12	1.52	0.82
0.12	8.07	0.12	1.52	0.83
0.12	8.05	0.12	1.50	0.81
0.13	8.04	0.13	1.49	0.81
0.13	7.95	0.13	1.40	0.76
0.13	8.06	0.13	1.51	0.82
0.14	8.04	0.14	1.49	0.81
0.14	8.06	0.14	1.51	0.82
0.14	8.05	0.14	1.50	0.81

TABLE MW-3

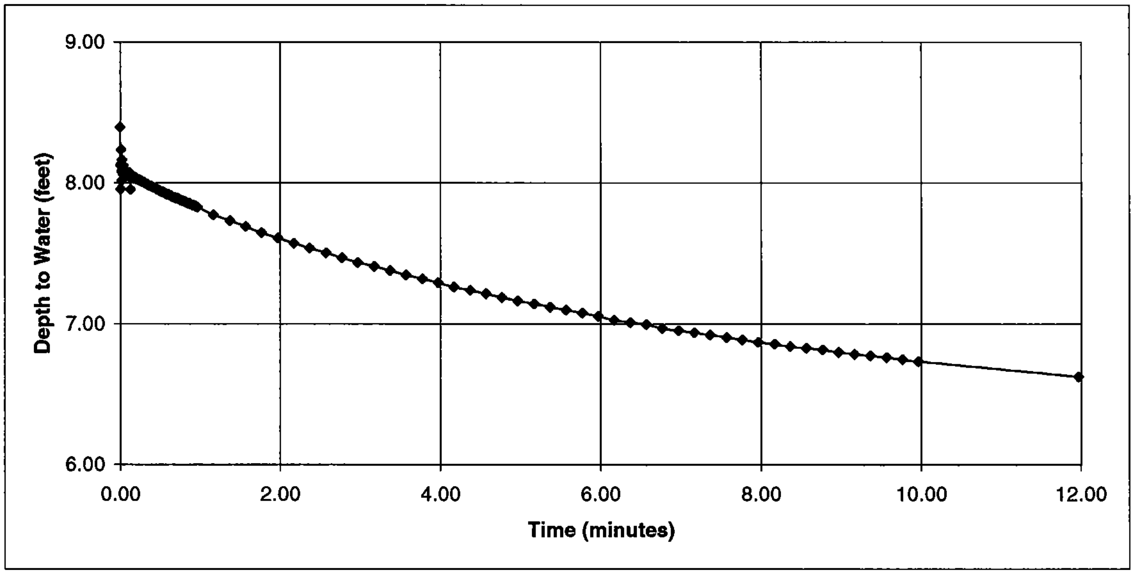
EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.15	8.05	0.15	1.50	0.81
0.15	8.06	0.15	1.51	0.82
0.15	8.05	0.15	1.50	0.81
0.16	8.04	0.16	1.49	0.81
0.16	8.05	0.16	1.50	0.81
0.16	8.05	0.16	1.50	0.81
0.17	8.04	0.17	1.49	0.81
0.17	8.04	0.17	1.49	0.81
0.17	8.04	0.17	1.49	0.81
0.18	8.04	0.18	1.49	0.81
0.18	8.04	0.18	1.49	0.81
0.18	8.04	0.18	1.49	0.81
0.19	8.04	0.19	1.49	0.81
0.19	8.04	0.19	1.49	0.80
0.19	8.04	0.19	1.49	0.81
0.20	8.03	0.20	1.48	0.80
0.20	8.03	0.20	1.48	0.80
0.20	8.03	0.20	1.48	0.80
0.21	8.03	0.21	1.48	0.80
0.21	8.03	0.21	1.48	0.80
0.21	8.03	0.21	1.48	0.80
0.22	8.03	0.22	1.48	0.80
0.22	8.03	0.22	1.48	0.80
0.22	8.03	0.22	1.48	0.80
0.23	8.02	0.23	1.47	0.80
0.23	8.02	0.23	1.47	0.80
0.23	8.02	0.23	1.47	0.80
0.24	8.02	0.24	1.47	0.80
0.24	8.02	0.24	1.47	0.80
0.24	8.02	0.24	1.47	0.80
0.25	8.02	0.25	1.47	0.80
0.25	8.02	0.25	1.47	0.79
0.25	8.02	0.25	1.47	0.79
0.26	8.02	0.26	1.47	0.79
0.26	8.02	0.26	1.47	0.79
0.26	8.02	0.26	1.47	0.79
0.27	8.02	0.27	1.47	0.79
0.27	8.01	0.27	1.46	0.79
0.27	8.01	0.27	1.46	0.79
0.28	8.01	0.28	1.46	0.79
0.28	8.01	0.28	1.46	0.79
0.28	8.01	0.28	1.46	0.79
0.29	8.01	0.29	1.46	0.79
0.29	8.01	0.29	1.46	0.79
0.29	8.01	0.29	1.46	0.79
0.30	8.01	0.30	1.46	0.79
0.30	8.00	0.30	1.45	0.79
0.30	8.00	0.30	1.45	0.79
0.31	8.00	0.31	1.45	0.79
0.32	7.99	0.32	1.44	0.78
0.34	7.99	0.34	1.44	0.78
0.36	7.99	0.36	1.44	0.78
0.37	7.98	0.37	1.43	0.77
0.39	7.98	0.39	1.43	0.77
0.41	7.97	0.41	1.42	0.77
0.42	7.97	0.42	1.42	0.77
0.44	7.96	0.44	1.41	0.76
0.46	7.96	0.46	1.41	0.76
0.47	7.95	0.47	1.40	0.76
0.49	7.95	0.49	1.40	0.76
0.51	7.94	0.51	1.39	0.76
0.52	7.94	0.52	1.39	0.75
0.54	7.93	0.54	1.38	0.75
0.56	7.93	0.56	1.38	0.75

TABLE MW-3

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.57	7.92	0.57	1.37	0.74
0.59	7.92	0.59	1.37	0.74
0.61	7.92	0.61	1.37	0.74
0.62	7.91	0.62	1.36	0.74
0.64	7.91	0.64	1.36	0.74
0.66	7.90	0.66	1.35	0.73
0.67	7.90	0.67	1.35	0.73
0.69	7.89	0.69	1.34	0.73
0.71	7.89	0.71	1.34	0.73
0.72	7.89	0.72	1.34	0.72
0.74	7.88	0.74	1.33	0.72
0.76	7.88	0.76	1.33	0.72
0.77	7.88	0.77	1.33	0.72
0.79	7.87	0.79	1.32	0.72
0.81	7.87	0.81	1.32	0.71
0.82	7.87	0.82	1.32	0.71
0.84	7.86	0.84	1.31	0.71
0.86	7.86	0.86	1.31	0.71
0.87	7.85	0.87	1.30	0.71
0.89	7.85	0.89	1.30	0.70
0.91	7.84	0.91	1.29	0.70
0.92	7.84	0.92	1.29	0.70
0.94	7.84	0.94	1.29	0.70
0.96	7.83	0.96	1.28	0.69
0.97	7.83	0.97	1.28	0.69
1.17	7.77	1.17	1.22	0.66
1.37	7.73	1.37	1.18	0.64
1.57	7.69	1.57	1.14	0.62
1.77	7.65	1.77	1.10	0.59
1.97	7.61	1.97	1.06	0.57
2.17	7.57	2.17	1.02	0.55
2.37	7.54	2.37	0.99	0.54
2.57	7.50	2.57	0.95	0.52
2.77	7.47	2.77	0.92	0.50
2.97	7.44	2.97	0.89	0.48
3.17	7.41	3.17	0.86	0.46
3.37	7.38	3.37	0.83	0.45
3.57	7.35	3.57	0.80	0.43
3.77	7.32	3.77	0.77	0.42
3.97	7.29	3.97	0.74	0.40
4.17	7.26	4.17	0.71	0.39
4.37	7.24	4.37	0.69	0.37
4.57	7.21	4.57	0.66	0.36
4.77	7.19	4.77	0.64	0.35
4.97	7.16	4.97	0.61	0.33
5.17	7.14	5.17	0.59	0.32
5.37	7.12	5.37	0.57	0.31
5.57	7.10	5.57	0.55	0.30
5.77	7.08	5.77	0.53	0.29
5.97	7.05	5.97	0.50	0.27
6.17	7.02	6.17	0.47	0.26
6.37	7.01	6.37	0.46	0.25
6.57	7.00	6.57	0.45	0.24
6.77	6.97	6.77	0.42	0.23
6.97	6.95	6.97	0.40	0.22
7.17	6.94	7.17	0.39	0.21
7.37	6.92	7.37	0.37	0.20
7.57	6.91	7.57	0.36	0.19
7.77	6.89	7.77	0.34	0.18
7.97	6.87	7.97	0.32	0.17
8.17	6.85	8.17	0.30	0.17
8.37	6.84	8.37	0.29	0.16
8.57	6.83	8.57	0.28	0.15
8.77	6.81	8.77	0.26	0.14

TABLE MW-3

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
8.97	6.80	8.97	0.25	0.13
9.17	6.78	9.17	0.23	0.13
9.37	6.77	9.37	0.22	0.12
9.57	6.76	9.57	0.21	0.11
9.77	6.75	9.77	0.20	0.11
9.97	6.73	9.97	0.18	0.10
11.97	6.62	11.97	0.07	0.04
13.97	6.54	13.97	0.01	0.01



MW-3

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
--------	--------	------------	---------------	------------	---------------
	5/19/00				correction= - 100.15
		0.13	108.214	0.1034	8.0640
		0.1333	108.206	0.1067	8.0560
		0.1366	108.214	0.1100	8.0640
		0.14	108.214	0.1134	8.0640
		0.1433	108.217	0.1167	8.0670
		0.1466	108.223	0.1200	8.0730
		0.15	108.2	0.1234	8.0500
		0.1533	108.188	0.1267	8.0380
		0.1566	108.103	0.1300	7.9530
		0.16	108.214	0.1334	8.0640
		0.1633	108.191	0.1367	8.0410
		0.1666	108.211	0.1400	8.0610
		0.17	108.2	0.1434	8.0500
		0.1733	108.197	0.1467	8.0470
		0.1766	108.206	0.1500	8.0560
		0.18	108.2	0.1534	8.0500
		0.1833	108.194	0.1567	8.0440
		0.1866	108.197	0.1600	8.0470
		0.19	108.197	0.1634	8.0470
		0.1933	108.194	0.1667	8.0440
		0.1966	108.191	0.1700	8.0410
		0.2	108.191	0.1734	8.0410
		0.2033	108.191	0.1767	8.0410
		0.2066	108.191	0.1800	8.0410
		0.21	108.188	0.1834	8.0380
		0.2133	108.188	0.1867	8.0380
		0.2166	108.185	0.1900	8.0350
		0.22	108.188	0.1934	8.0380
		0.2233	108.182	0.1967	8.0320
		0.2266	108.182	0.2000	8.0320
		0.23	108.182	0.2034	8.0320
		0.2333	108.179	0.2067	8.0290
		0.2366	108.182	0.2100	8.0320
		0.24	108.179	0.2134	8.0290
		0.2433	108.176	0.2167	8.0260
		0.2466	108.176	0.2200	8.0260
		0.25	108.176	0.2234	8.0260
		0.2533	108.173	0.2267	8.0230
		0.2566	108.173	0.2300	8.0230

MW-3

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
--------	--------	------------	---------------	------------	---------------
	5/19/00				correction= - 100.15
		0.26	108.17	0.2334	8.0200
		0.2633	108.173	0.2367	8.0230
		0.2666	108.17	0.2400	8.0200
		0.27	108.17	0.2434	8.0200
		0.2733	108.17	0.2467	8.0200
		0.2766	108.167	0.2500	8.0170
		0.28	108.165	0.2534	8.0150
		0.2833	108.167	0.2567	8.0170
		0.2866	108.167	0.2600	8.0170
		0.29	108.165	0.2634	8.0150
		0.2933	108.165	0.2667	8.0150
		0.2966	108.162	0.2700	8.0120
		0.3	108.162	0.2734	8.0120
		0.3033	108.162	0.2767	8.0120
		0.3066	108.159	0.2800	8.0090
		0.31	108.159	0.2834	8.0090
		0.3133	108.159	0.2867	8.0090
		0.3166	108.159	0.2900	8.0090
		0.32	108.156	0.2934	8.0060
		0.3233	108.156	0.2967	8.0060
		0.3266	108.153	0.3000	8.0030
		0.33	108.153	0.3034	8.0030
		0.3333	108.153	0.3067	8.0030
		0.35	108.144	0.3234	7.9940
		0.3666	108.141	0.3400	7.9910
		0.3833	108.135	0.3567	7.9850
		0.4	108.129	0.3734	7.9790
		0.4166	108.126	0.3900	7.9760
		0.4333	108.12	0.4067	7.9700
		0.45	108.117	0.4234	7.9670
		0.4666	108.112	0.4400	7.9620
		0.4833	108.106	0.4567	7.9560
		0.5	108.103	0.4734	7.9530
		0.5166	108.097	0.4900	7.9470
		0.5333	108.094	0.5067	7.9440
		0.55	108.088	0.5234	7.9380
		0.5666	108.085	0.5400	7.9350
		0.5833	108.079	0.5567	7.9290
		0.6	108.073	0.5734	7.9230

MW-3

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
5/19/00					correction= - 100.15
		0.6166	108.071	0.5900	7.9210
		0.6333	108.068	0.6067	7.9180
		0.65	108.062	0.6234	7.9120
		0.6666	108.059	0.6400	7.9090
		0.6833	108.053	0.6567	7.9030
		0.7	108.05	0.6734	7.9000
		0.7166	108.044	0.6900	7.8940
		0.7333	108.041	0.7067	7.8910
		0.75	108.038	0.7234	7.8880
		0.7666	108.035	0.7400	7.8850
		0.7833	108.029	0.7567	7.8790
		0.8	108.026	0.7734	7.8760
		0.8166	108.021	0.7900	7.8710
		0.8333	108.018	0.8067	7.8680
		0.85	108.015	0.8234	7.8650
		0.8666	108.009	0.8400	7.8590
		0.8833	108.006	0.8567	7.8560
		0.9	108.003	0.8734	7.8530
		0.9166	107.997	0.8900	7.8470
		0.9333	107.991	0.9067	7.8410
		0.95	107.991	0.9234	7.8410
		0.9666	107.988	0.9400	7.8380
		0.9833	107.982	0.9567	7.8320
		1	107.977	0.9734	7.8270
		1.2	107.924	1.1734	7.7740
		1.4	107.883	1.3734	7.7330
		1.6	107.842	1.5734	7.6920
		1.8	107.798	1.7734	7.6480
		2	107.759	1.9734	7.6090
		2.2	107.721	2.1734	7.5710
		2.4	107.689	2.3734	7.5390
		2.6	107.654	2.5734	7.5040
		2.8	107.618	2.7734	7.4680
		3	107.586	2.9734	7.4360
		3.2	107.557	3.1734	7.4070
		3.4	107.527	3.3734	7.3770
		3.6	107.498	3.5734	7.3480
		3.8	107.469	3.7734	7.3190
		4	107.442	3.9734	7.2920

MW-3

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 100.15
		4.2	107.413	4.1734	7.2630
		4.4	107.389	4.3734	7.2390
		4.6	107.363	4.5734	7.2130
		4.8	107.337	4.7734	7.1870
		5	107.313	4.9734	7.1630
		5.2	107.293	5.1734	7.1430
		5.4	107.269	5.3734	7.1190
		5.6	107.249	5.5734	7.0990
		5.8	107.228	5.7734	7.0780
		6	107.202	5.9734	7.0520
		6.2	107.175	6.1734	7.0250
		6.4	107.16	6.3734	7.0100
		6.6	107.146	6.5734	6.9960
		6.8	107.119	6.7734	6.9690
		7	107.102	6.9734	6.9520
		7.2	107.087	7.1734	6.9370
		7.4	107.069	7.3734	6.9190
		7.6	107.055	7.5734	6.9050
		7.8	107.037	7.7734	6.8870
		8	107.019	7.9734	6.8690
		8.2	107.005	8.1734	6.8550
		8.4	106.99	8.3734	6.8400
		8.6	106.978	8.5734	6.8280
		8.8	106.964	8.7734	6.8140
		9	106.949	8.9734	6.7990
		9.2	106.934	9.1734	6.7840
		9.4	106.925	9.3734	6.7750
		9.6	106.911	9.5734	6.7610
		9.8	106.896	9.7734	6.7460
		10	106.884	9.9734	6.7340
		12	106.773	11.9734	6.6230
		14	106.688	13.9734	6.5380

BOUWER AND RICE SLUG TEST ANALYSIS
RISING HEAD TEST MW-5

$$K = \frac{r_c^2 \ln\left(\frac{R_e}{r_w}\right)}{2L_e} \frac{1}{t} \ln \frac{y_0}{y_t}$$

where:

r_c = casing radius (feet);

R_e = effective radius (feet);

L_e = length of screened interval (feet);

r_w = radial distance to undisturbed aquifer (feet)

y_0 = initial drawdown (feet)

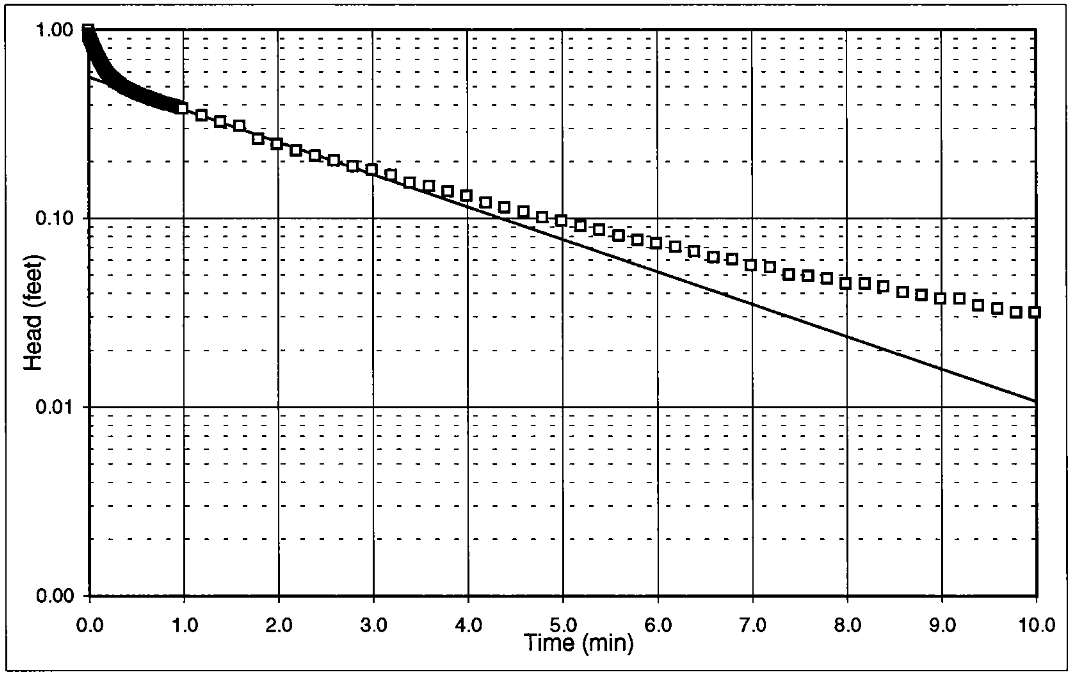
y_t = drawdown (feet) at time t (minutes)

INPUT PARAMETERS

r_c =	0.20
r_w =	0.26
L_e =	7.75
$\ln(R_e/r_w)$=	2.71
y_0 =	0.56
y_t =	0.01
t =	10.0

RESULTS

K=	1.40E-03	cm/sec
K=	3.96E+00	ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 04/23/00

TABLE MW-5

HVORSLEV SLUG TEST ANALYSIS
RISING HEAD TEST MW-5

$$K = \frac{r_c^2}{2L_e} \ln \frac{L_e}{R_e} \left[\frac{\ln\left(\frac{h_1}{h_2}\right)}{(t2 - t1)} \right] 30.48$$

where:

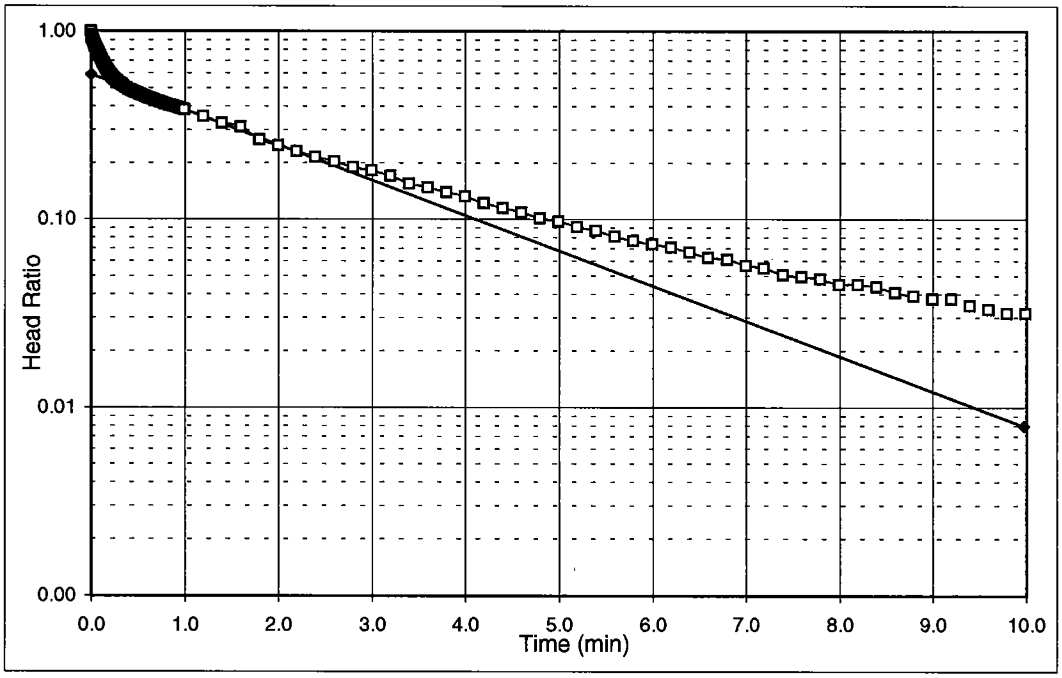
r_c = casing radius (feet)
R_e = equivalent radius (feet)
L_e = length of screened interval (feet)
t = time (minutes)
h_t = head at time t (feet)

INPUT PARAMETERS

r_c =	0.17
R_e =	0.26
L_e =	7.75
t_1 =	0
t_2 =	9.98
h_1/h_0 =	0.59
h_2/h_0 =	0.01

RESULTS

K=	1.33E-03	cm/sec
K=	3.78E+00	ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 04/23/00

RISING HEAD TEST MW-5
WELL NO. MW-5

Bldg. 812
D.O.3M-3/M-2

DATE	4/23/00	
INITIAL DEPTH TO WATER	9.7	FEET (btoc)
CASING DIAMETER	4	INCHES
SAND DIAMETER	6.25	INCHES
TOP OF OPEN INTERVAL	7.9	FEET (btoc)
BOTTOM OF OPEN INTERVAL	17.45	FEET (btoc)
SATURATED THICKNESS	7.75	FEET
WATER TABLE TO BOTTOM OF SCREEN	7.74	FEET
EQUIVALENT DIAMETER	4.79	INCHES
OPEN INTERVAL LENGTH	7.75	FEET
STATIC IN SCREEN?	Y	
MAX. HEAD CHANGE	2.02	FEET
MAX. HEAD IN SCREEN?	Y	

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.00	11.72	0.00	2.02	1.00
0.00	11.64	0.00	1.94	0.96
0.01	11.57	0.01	1.87	0.92
0.01	11.56	0.01	1.86	0.92
0.01	11.58	0.01	1.88	0.93
0.02	11.52	0.02	1.82	0.90
0.02	11.51	0.02	1.81	0.90
0.02	11.49	0.02	1.79	0.89
0.03	11.47	0.03	1.77	0.88
0.03	11.46	0.03	1.76	0.87
0.03	11.45	0.03	1.75	0.87
0.04	11.43	0.04	1.73	0.85
0.04	11.37	0.04	1.67	0.83
0.04	11.41	0.04	1.71	0.85
0.05	11.38	0.05	1.68	0.83
0.05	11.36	0.05	1.66	0.82
0.05	11.35	0.05	1.65	0.82
0.06	11.33	0.06	1.63	0.81
0.06	11.33	0.06	1.63	0.81
0.06	11.31	0.06	1.61	0.80
0.07	11.29	0.07	1.59	0.79
0.07	11.28	0.07	1.58	0.78
0.07	11.27	0.07	1.57	0.78
0.08	11.26	0.08	1.56	0.77
0.08	11.24	0.08	1.54	0.76
0.08	11.23	0.08	1.53	0.76
0.09	11.22	0.09	1.52	0.75
0.09	11.20	0.09	1.50	0.74
0.09	11.19	0.09	1.49	0.74
0.10	11.18	0.10	1.48	0.73
0.10	11.17	0.10	1.47	0.73
0.10	11.16	0.10	1.46	0.72
0.11	11.14	0.11	1.44	0.72
0.11	11.14	0.11	1.44	0.71
0.11	11.12	0.11	1.42	0.71
0.12	11.11	0.12	1.41	0.70
0.12	11.10	0.12	1.40	0.69
0.12	11.09	0.12	1.39	0.69
0.13	11.08	0.13	1.38	0.68
0.13	11.07	0.13	1.37	0.68
0.13	11.06	0.13	1.36	0.67
0.14	11.05	0.14	1.35	0.67
0.14	11.04	0.14	1.34	0.66
0.14	11.03	0.14	1.33	0.66

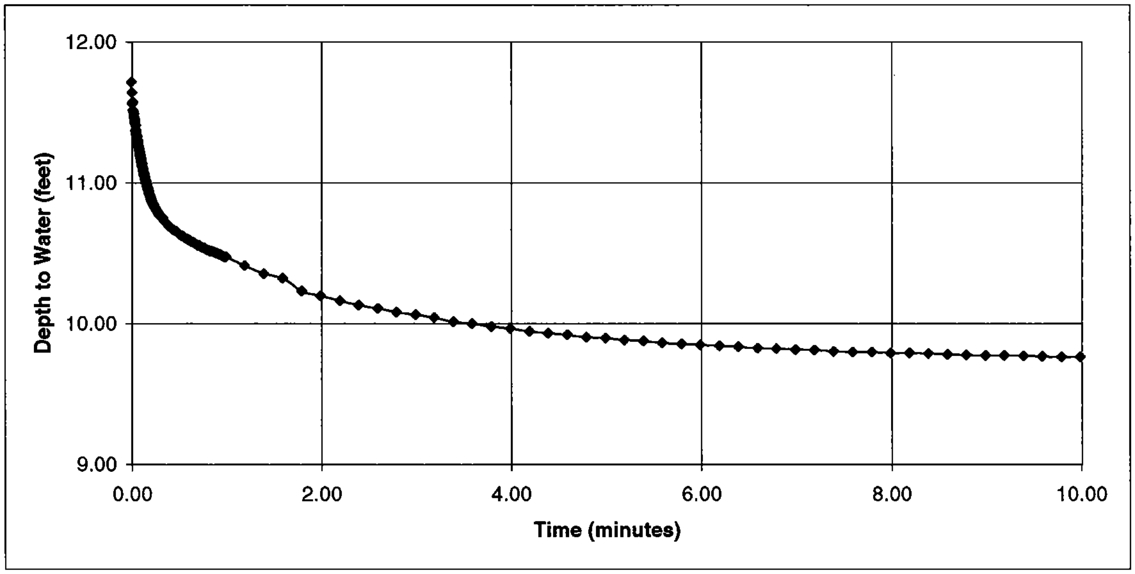
TABLE MW-5

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.15	11.02	0.15	1.32	0.65
0.15	11.01	0.15	1.31	0.65
0.15	11.00	0.15	1.30	0.65
0.16	11.00	0.16	1.30	0.64
0.16	10.99	0.16	1.29	0.64
0.16	10.98	0.16	1.28	0.63
0.17	10.97	0.17	1.27	0.63
0.17	10.96	0.17	1.26	0.63
0.17	10.96	0.17	1.26	0.62
0.18	10.95	0.18	1.25	0.62
0.18	10.94	0.18	1.24	0.61
0.18	10.93	0.18	1.23	0.61
0.19	10.92	0.19	1.22	0.61
0.19	10.92	0.19	1.22	0.60
0.19	10.91	0.19	1.21	0.60
0.20	10.90	0.20	1.20	0.60
0.20	10.90	0.20	1.20	0.59
0.20	10.89	0.20	1.19	0.59
0.21	10.88	0.21	1.18	0.59
0.21	10.88	0.21	1.18	0.58
0.21	10.87	0.21	1.17	0.58
0.22	10.87	0.22	1.17	0.58
0.22	10.86	0.22	1.16	0.58
0.22	10.86	0.22	1.16	0.57
0.23	10.85	0.23	1.15	0.57
0.23	10.85	0.23	1.15	0.57
0.23	10.84	0.23	1.14	0.57
0.24	10.84	0.24	1.14	0.56
0.24	10.84	0.24	1.14	0.56
0.24	10.83	0.24	1.13	0.56
0.25	10.83	0.25	1.13	0.56
0.25	10.82	0.25	1.12	0.56
0.25	10.82	0.25	1.12	0.55
0.26	10.81	0.26	1.11	0.55
0.26	10.81	0.26	1.11	0.55
0.26	10.81	0.26	1.11	0.55
0.27	10.80	0.27	1.10	0.55
0.27	10.80	0.27	1.10	0.54
0.27	10.80	0.27	1.10	0.54
0.28	10.79	0.28	1.09	0.54
0.28	10.79	0.28	1.09	0.54
0.28	10.78	0.28	1.08	0.54
0.29	10.78	0.29	1.08	0.53
0.29	10.78	0.29	1.08	0.53
0.29	10.77	0.29	1.07	0.53
0.30	10.77	0.30	1.07	0.53
0.30	10.77	0.30	1.07	0.53
0.30	10.77	0.30	1.07	0.53
0.31	10.76	0.31	1.06	0.53
0.31	10.76	0.31	1.06	0.53
0.31	10.76	0.31	1.06	0.53
0.32	10.76	0.32	1.06	0.52
0.32	10.76	0.32	1.06	0.52
0.32	10.76	0.32	1.06	0.52
0.33	10.75	0.33	1.05	0.52
0.33	10.75	0.33	1.05	0.52
0.35	10.73	0.35	1.03	0.51
0.36	10.72	0.36	1.02	0.50
0.38	10.71	0.38	1.01	0.50
0.40	10.69	0.40	0.99	0.49
0.41	10.68	0.41	0.98	0.49
0.43	10.67	0.43	0.97	0.48
0.45	10.67	0.45	0.97	0.48
0.46	10.66	0.46	0.96	0.47

TABLE MW-5

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.48	10.65	0.48	0.95	0.47
0.50	10.64	0.50	0.94	0.47
0.51	10.63	0.51	0.93	0.46
0.53	10.63	0.53	0.93	0.46
0.55	10.62	0.55	0.92	0.46
0.56	10.61	0.56	0.91	0.45
0.58	10.61	0.58	0.91	0.45
0.60	10.60	0.60	0.90	0.44
0.61	10.59	0.61	0.89	0.44
0.63	10.59	0.63	0.89	0.44
0.65	10.58	0.65	0.88	0.44
0.66	10.57	0.66	0.87	0.43
0.68	10.57	0.68	0.87	0.43
0.70	10.56	0.70	0.86	0.43
0.71	10.56	0.71	0.86	0.43
0.73	10.55	0.73	0.85	0.42
0.75	10.54	0.75	0.84	0.42
0.76	10.54	0.76	0.84	0.42
0.78	10.53	0.78	0.83	0.41
0.80	10.53	0.80	0.83	0.41
0.81	10.52	0.81	0.82	0.41
0.83	10.52	0.83	0.82	0.40
0.85	10.51	0.85	0.81	0.40
0.86	10.51	0.86	0.81	0.40
0.88	10.51	0.88	0.81	0.40
0.90	10.50	0.90	0.80	0.40
0.91	10.50	0.91	0.80	0.39
0.93	10.49	0.93	0.79	0.39
0.95	10.49	0.95	0.79	0.39
0.96	10.48	0.96	0.78	0.39
0.98	10.48	0.98	0.78	0.38
1.00	10.47	1.00	0.77	0.38
1.20	10.41	1.20	0.71	0.35
1.40	10.36	1.40	0.66	0.33
1.60	10.32	1.60	0.62	0.31
1.80	10.23	1.80	0.53	0.26
2.00	10.20	2.00	0.50	0.25
2.20	10.16	2.20	0.46	0.23
2.40	10.13	2.40	0.43	0.21
2.60	10.11	2.60	0.41	0.20
2.80	10.08	2.80	0.38	0.19
3.00	10.07	3.00	0.37	0.18
3.20	10.04	3.20	0.34	0.17
3.40	10.01	3.40	0.31	0.16
3.60	10.00	3.60	0.30	0.15
3.80	9.98	3.80	0.28	0.14
4.00	9.97	4.00	0.27	0.13
4.20	9.95	4.20	0.25	0.12
4.40	9.93	4.40	0.23	0.11
4.60	9.92	4.60	0.22	0.11
4.80	9.91	4.80	0.21	0.10
5.00	9.90	5.00	0.20	0.10
5.20	9.88	5.20	0.18	0.09
5.40	9.88	5.40	0.18	0.09
5.60	9.86	5.60	0.16	0.08
5.80	9.86	5.80	0.16	0.08
6.00	9.85	6.00	0.15	0.07
6.20	9.84	6.20	0.14	0.07
6.40	9.83	6.40	0.13	0.07
6.60	9.83	6.60	0.13	0.06
6.80	9.82	6.80	0.12	0.06
7.00	9.81	7.00	0.11	0.06
7.20	9.81	7.20	0.11	0.06
7.40	9.80	7.40	0.10	0.05

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
7.60	9.80	7.60	0.10	0.05
7.80	9.80	7.80	0.10	0.05
8.00	9.79	8.00	0.09	0.05
8.20	9.79	8.20	0.09	0.05
8.40	9.79	8.40	0.09	0.04
8.60	9.78	8.60	0.08	0.04
8.80	9.78	8.80	0.08	0.04
9.00	9.78	9.00	0.08	0.04
9.20	9.78	9.20	0.08	0.04
9.40	9.77	9.40	0.07	0.03
9.60	9.77	9.60	0.07	0.03
9.80	9.76	9.80	0.06	0.03
10.00	9.76	10.00	0.06	0.03



MW-5

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
---------	---------	-------------	---------------	-------------	---------------
	5/19/00				correction= - 104.5
		0.0000	115.4270		
		0.0033	116.2180	0.0000	11.7180
		0.0066	116.1420	0.0033	11.6420
		0.01	116.066	0.0067	11.5660
		0.0133	116.063	0.0100	11.5630
		0.0166	116.075	0.0133	11.5750
		0.02	116.016	0.0167	11.5160
		0.0233	116.01	0.0200	11.5100
		0.0266	115.99	0.0233	11.4900
		0.03	115.969	0.0267	11.4690
		0.0333	115.96	0.0300	11.4600
		0.0366	115.946	0.0333	11.4460
		0.04	115.925	0.0367	11.4250
		0.0433	115.873	0.0400	11.3730
		0.0466	115.908	0.0433	11.4080
		0.05	115.875	0.0467	11.3750
		0.533	115.861	0.5297	11.3610
		0.566	115.846	0.5627	11.3460
		0.06	115.829	0.0567	11.3290
		0.0633	115.826	0.0600	11.3260
		0.0666	115.805	0.0633	11.3050
		0.07	115.793	0.0667	11.2930
		0.0733	115.782	0.0700	11.2820
		0.0766	115.767	0.0733	11.2670
		0.08	115.755	0.0767	11.2550
		0.0833	115.741	0.0800	11.2410
		0.0866	115.732	0.0833	11.2320
		0.09	115.717	0.0867	11.2170
		0.0933	115.7	0.0900	11.2000
		0.0966	115.694	0.0933	11.1940
		0.1	115.682	0.0967	11.1820
		0.1033	115.67	0.1000	11.1700
		0.1066	115.656	0.1033	11.1560
		0.11	115.644	0.1067	11.1440
		0.1133	115.635	0.1100	11.1350
		0.1166	115.624	0.1133	11.1240
		0.12	115.612	0.1167	11.1120
		0.1233	115.6	0.1200	11.1000
		0.1266	115.588	0.1233	11.0880

MW-5

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 104.5
		0.13	115.58	0.1267	11.0800
		0.1333	115.568	0.1300	11.0680
		0.1366	115.559	0.1333	11.0590
		0.14	115.55	0.1367	11.0500
		0.1433	115.539	0.1400	11.0390
		0.1466	115.53	0.1433	11.0300
		0.15	115.521	0.1467	11.0210
		0.1533	115.512	0.1500	11.0120
		0.1566	115.503	0.1533	11.0030
		0.16	115.495	0.1567	10.9950
		0.1633	115.486	0.1600	10.9860
		0.1666	115.477	0.1633	10.9770
		0.17	115.468	0.1667	10.9680
		0.1733	115.462	0.1700	10.9620
		0.1766	115.456	0.1733	10.9560
		0.18	115.448	0.1767	10.9480
		0.1833	115.439	0.1800	10.9390
		0.1866	115.43	0.1833	10.9300
		0.19	115.422	0.1867	10.9220
		0.1933	115.416	0.1900	10.9160
		0.1966	115.41	0.1933	10.9100
		0.2	115.404	0.1967	10.9040
		0.2033	115.398	0.2000	10.8980
		0.2066	115.389	0.2033	10.8890
		0.21	115.383	0.2067	10.8830
		0.2133	15.375	0.2100	-89.1250
		0.2166	115.372	0.2133	10.8720
		0.22	115.366	0.2167	10.8660
		0.2233	115.363	0.2200	10.8630
		0.2266	115.357	0.2233	10.8570
		0.23	115.351	0.2267	10.8510
		0.2333	115.348	0.2300	10.8480
		0.2366	115.342	0.2333	10.8420
		0.24	115.337	0.2367	10.8370
		0.2433	115.337	0.2400	10.8370
		0.2466	115.331	0.2433	10.8310
		0.25	115.325	0.2467	10.8250
		0.2533	115.322	0.2500	10.8220
		0.2566	115.319	0.2533	10.8190

MW-5

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 104.5
		0.26	115.313	0.2567	10.8130
		0.2633	115.313	0.2600	10.8130
		0.2666	115.307	0.2633	10.8070
		0.27	115.301	0.2667	10.8010
		0.2733	115.298	0.2700	10.7980
		0.2766	115.296	0.2733	10.7960
		0.28	115.293	0.2767	10.7930
		0.2833	115.29	0.2800	10.7900
		0.2866	115.284	0.2833	10.7840
		0.29	115.278	0.2867	10.7780
		0.2933	115.275	0.2900	10.7750
		0.2966	115.272	0.2933	10.7720
		0.3	115.272	0.2967	10.7720
		0.3033	115.269	0.3000	10.7690
		0.3066	115.266	0.3033	10.7660
		0.31	115.263	0.3067	10.7630
		0.3133	115.263	0.3100	10.7630
		0.3166	115.26	0.3133	10.7600
		0.32	115.257	0.3167	10.7570
		0.3233	115.255	0.3200	10.7550
		0.3266	115.255	0.3233	10.7550
		0.33	115.252	0.3267	10.7520
		0.3333	115.246	0.3300	10.7460
		0.35	115.231	0.3467	10.7310
		0.3666	115.216	0.3633	10.7160
		0.3833	115.205	0.3800	10.7050
		0.4	115.193	0.3967	10.6930
		0.4166	115.184	0.4133	10.6840
		0.4333	115.173	0.4300	10.6730
		0.45	115.167	0.4467	10.6670
		0.4666	115.158	0.4633	10.6580
		0.4833	115.152	0.4800	10.6520
		0.5	115.143	0.4967	10.6430
		0.5166	115.131	0.5133	10.6310
		0.5333	115.126	0.5300	10.6260
		0.55	115.12	0.5467	10.6200
		0.5666	115.111	0.5633	10.6110
		0.5833	115.105	0.5800	10.6050
		0.6	115.096	0.5967	10.5960

MW-5

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
--------	--------	------------	---------------	------------	---------------
	5/19/00				correction= - 104.5
		0.6166	115.093	0.6133	10.5930
		0.6333	115.085	0.6300	10.5850
		0.65	115.079	0.6467	10.5790
		0.6666	115.073	0.6633	10.5730
		0.6833	115.067	0.6800	10.5670
		0.7	115.058	0.6967	10.5580
		0.7166	115.058	0.7133	10.5580
		0.7333	115.049	0.7300	10.5490
		0.75	115.044	0.7467	10.5440
		0.7666	115.038	0.7633	10.5380
		0.7833	115.032	0.7800	10.5320
		0.8	115.026	0.7967	10.5260
		0.8166	115.023	0.8133	10.5230
		0.8333	115.017	0.8300	10.5170
		0.85	115.014	0.8467	10.5140
		0.8666	115.011	0.8633	10.5110
		0.8833	115.006	0.8800	10.5060
		0.9	115.003	0.8967	10.5030
		0.9166	114.997	0.9133	10.4970
		0.9333	114.991	0.9300	10.4910
		0.95	114.988	0.9467	10.4880
		0.9666	114.982	0.9633	10.4820
		0.9833	114.976	0.9800	10.4760
		1	114.973	0.9967	10.4730
		1.2	114.912	1.1967	10.4120
		1.4	114.856	1.3967	10.3560
		1.6	114.824	1.5967	10.3240
		1.8	114.733	1.7967	10.2330
		2	114.698	1.9967	10.1980
		2.2	114.663	2.1967	10.1630
		2.4	114.633	2.3967	10.1330
		2.6	114.61	2.5967	10.1100
		2.8	114.581	2.7967	10.0810
		3	114.566	2.9967	10.0660
		3.2	114.543	3.1967	10.0430
		3.4	114.513	3.3967	10.0130
		3.6	114.499	3.5967	9.9990
		3.8	114.481	3.7967	9.9810
		4	114.467	3.9967	9.9670

MW-5

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 104.5
		4.2	114.446	4.1967	9.9460
		4.4	114.431	4.3967	9.9310
		4.6	114.42	4.5967	9.9200
		4.8	114.405	4.7967	9.9050
		5	114.396	4.9967	9.8960
		5.2	114.384	5.1967	9.8840
		5.4	114.376	5.3967	9.8760
		5.6	114.364	5.5967	9.8640
		5.8	114.355	5.7967	9.8550
		6	114.349	5.9967	9.8490
		6.2	114.343	6.1967	9.8430
		6.4	114.335	6.3967	9.8350
		6.6	114.326	6.5967	9.8260
		6.8	114.323	6.7967	9.8230
		7	114.314	6.9967	9.8140
		7.2	114.311	7.1967	9.8110
		7.4	114.302	7.3967	9.8020
		7.6	114.3	7.5967	9.8000
		7.8	114.297	7.7967	9.7970
		8	114.291	7.9967	9.7910
		8.2	114.291	8.1967	9.7910
		8.4	114.288	8.3967	9.7880
		8.6	114.282	8.5967	9.7820
		8.8	114.279	8.7967	9.7790
		9	114.276	8.9967	9.7760
		9.2	114.276	9.1967	9.7760
		9.4	114.27	9.3967	9.7700
		9.6	114.267	9.5967	9.7670
		9.8	114.264	9.7967	9.7640
		10	114.264	9.9967	9.7640

BOUWER AND RICE SLUG TEST ANALYSIS
RISING HEAD TEST MW-8

$$K = \frac{r_c^2 \ln\left(\frac{R_e}{r_w}\right)}{2L_e} \frac{1}{t} \ln\frac{y_0}{y_t}$$

where:

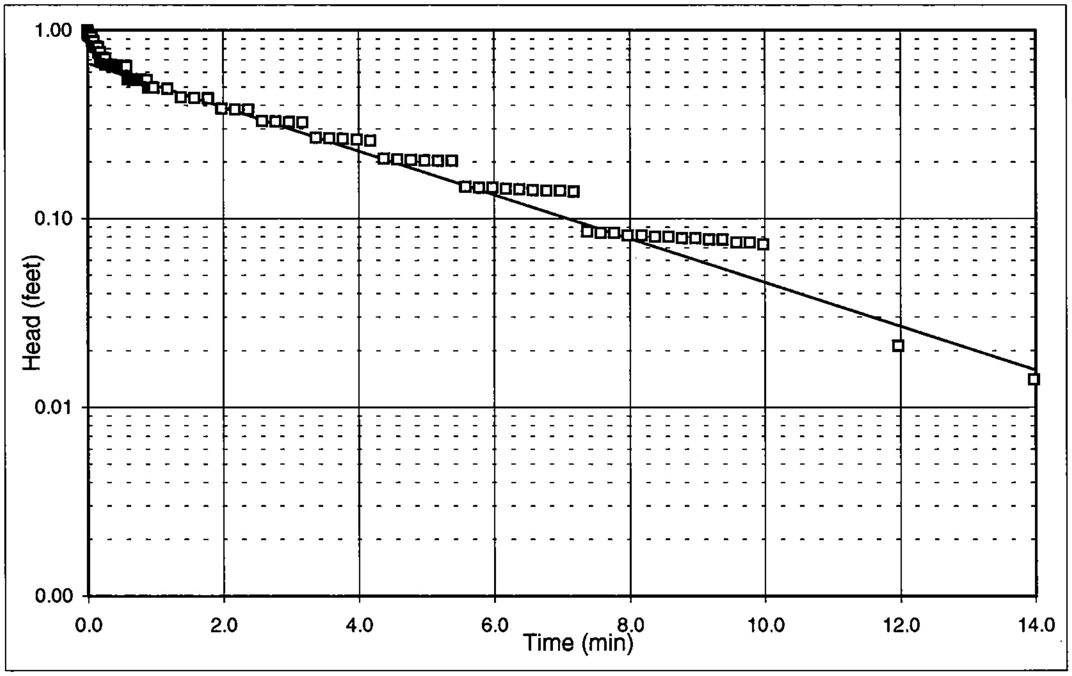
r_c = casing radius (feet);
R_e = effective radius (feet);
L_e = length of screened interval (feet);
r_w = radial distance to undisturbed aquifer (feet)
y_0 = initial drawdown (feet)
y_t = drawdown (feet) at time t (minutes)

INPUT PARAMETERS

r_c =	0.20
r_w =	0.26
L_e =	8.85
$\ln(R_e/r_w)$=	2.73
y_0 =	0.66
y_t =	0.02
t =	14.0

RESULTS

K=	8.34E-04	cm/sec
K=	2.36E+00	ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 04/23/00

HVORSLEV SLUG TEST ANALYSIS
RISING HEAD TEST MW-8

$$K = \frac{r_c^2}{2L_e} \ln \frac{L_e}{R_e} \left[\frac{\ln\left(\frac{h_1}{h_2}\right)}{(t2 - t1)} \right] 30.48$$

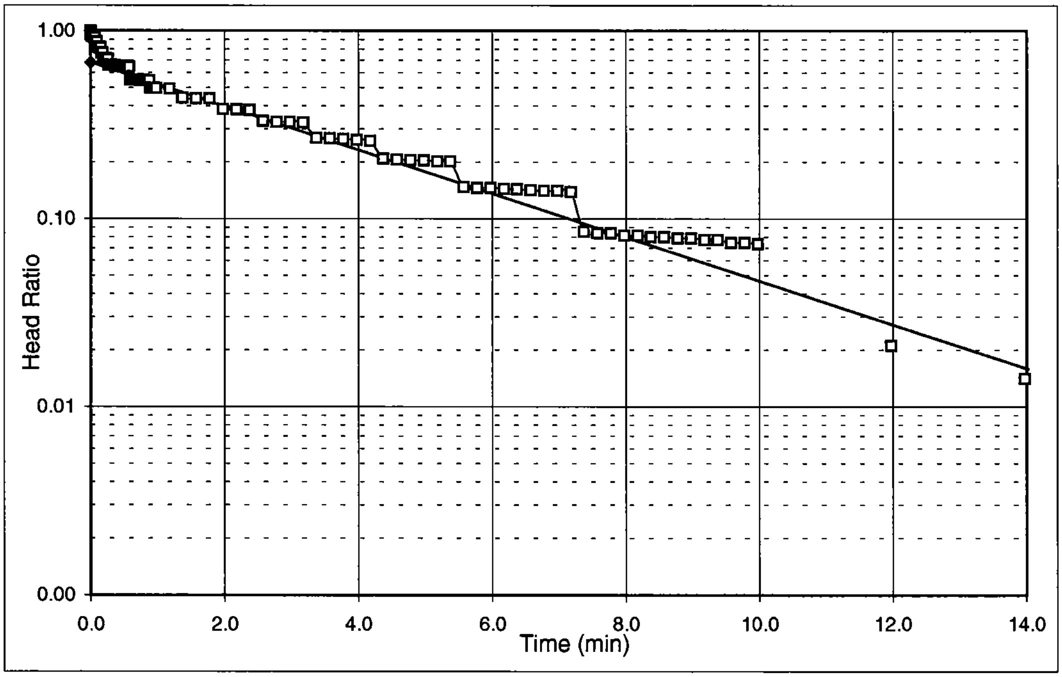
where:
r_c = casing radius (feet)
R_e = equivalent radius (feet)
L_e = length of screened interval (feet)
t = time (minutes)
h_t = head at time t (feet)

INPUT PARAMETERS

r_c = 0.17
R_e = 0.26
L_e = 8.85
t_1 = 0
t_2 = 14.03
h_1/h_0 = 0.68
h_2/h_0 = 0.02

RESULTS

K= 7.52E-04 cm/sec
K= 2.13E+00 ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 04/23/00

TABLE MW-8

RISING HEAD TEST MW-8
WELL NO. MW-8

Bldg. 812
D.O.3M-3/M-2

DATE	4/23/00	
INITIAL DEPTH TO WATER	7.1	FEET (btoc)
CASING DIAMETER	4	INCHES
SAND DIAMETER	6.25	INCHES
TOP OF OPEN INTERVAL	6.4	FEET (btoc)
BOTTOM OF OPEN INTERVAL	15.95	FEET (btoc)
SATURATED THICKNESS	7.75	FEET
WATER TABLE TO BOTTOM OF SCREEN	7.74	FEET
EQUIVALENT DIAMETER	4.79	INCHES
OPEN INTERVAL LENGTH	8.85	FEET
STATIC IN SCREEN?	Y	
MAX. HEAD CHANGE	2.13	FEET
MAX. HEAD IN SCREEN?	Y	

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.00	9.23	0.00	2.13	1.00
0.00	9.14	0.00	2.04	0.96
0.01	9.17	0.01	2.07	0.97
0.01	9.14	0.01	2.04	0.95
0.01	9.12	0.01	2.02	0.95
0.02	9.12	0.02	2.02	0.95
0.02	9.11	0.02	2.01	0.94
0.02	9.10	0.02	2.00	0.94
0.03	9.10	0.03	2.00	0.94
0.03	9.10	0.03	2.00	0.94
0.03	9.09	0.03	1.99	0.93
0.04	9.10	0.04	2.00	0.94
0.04	9.09	0.04	1.99	0.93
0.04	9.09	0.04	1.99	0.93
0.05	9.08	0.05	1.98	0.93
0.05	9.08	0.05	1.98	0.93
0.05	9.08	0.05	1.98	0.93
0.06	9.08	0.06	1.98	0.93
0.06	9.07	0.06	1.97	0.93
0.06	9.07	0.06	1.97	0.92
0.07	8.97	0.07	1.87	0.88
0.07	8.97	0.07	1.87	0.88
0.07	8.97	0.07	1.87	0.88
0.08	8.97	0.08	1.87	0.88
0.08	8.97	0.08	1.87	0.88
0.08	8.97	0.08	1.87	0.88
0.09	8.97	0.09	1.87	0.88
0.09	8.96	0.09	1.86	0.87
0.09	8.84	0.09	1.74	0.82
0.10	8.85	0.10	1.75	0.82
0.10	8.85	0.10	1.75	0.82
0.10	8.85	0.10	1.75	0.82
0.11	8.85	0.11	1.75	0.82
0.11	8.85	0.11	1.75	0.82
0.11	8.85	0.11	1.75	0.82
0.12	8.84	0.12	1.74	0.82
0.12	8.84	0.12	1.74	0.82
0.12	8.84	0.12	1.74	0.82
0.13	8.84	0.13	1.74	0.82
0.13	8.84	0.13	1.74	0.81
0.13	8.84	0.13	1.74	0.82
0.14	8.84	0.14	1.74	0.81
0.14	8.84	0.14	1.74	0.81
0.14	8.83	0.14	1.73	0.81

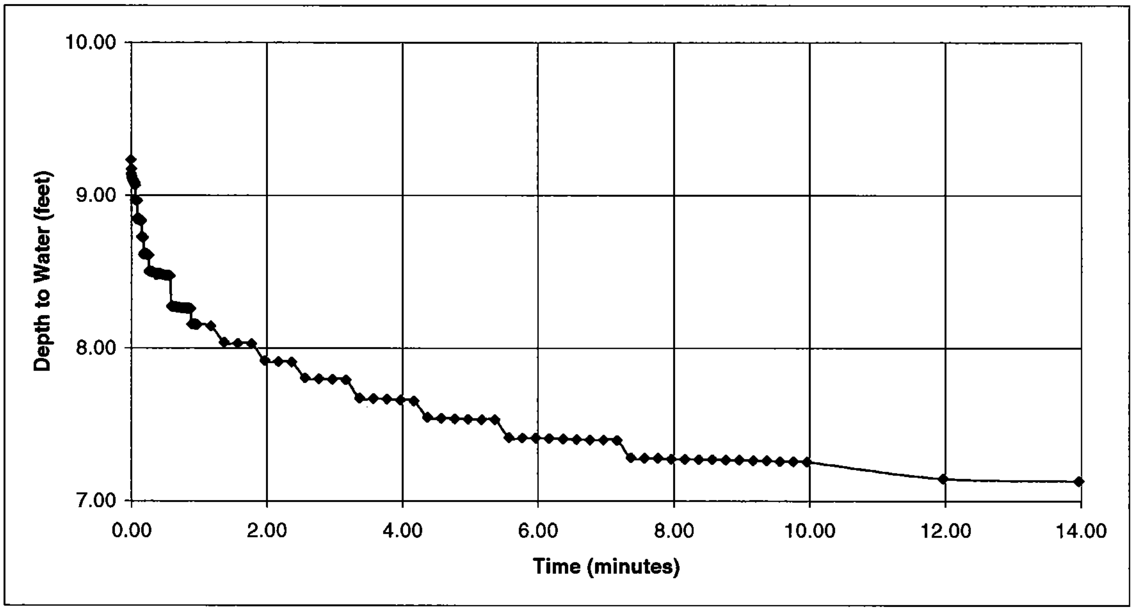
EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.15	8.83	0.15	1.73	0.81
0.15	8.83	0.15	1.73	0.81
0.15	8.83	0.15	1.73	0.81
0.16	8.73	0.16	1.63	0.76
0.16	8.73	0.16	1.63	0.76
0.16	8.73	0.16	1.63	0.76
0.17	8.73	0.17	1.63	0.76
0.17	8.73	0.17	1.63	0.76
0.17	8.73	0.17	1.63	0.76
0.18	8.72	0.18	1.62	0.76
0.18	8.72	0.18	1.62	0.76
0.18	8.72	0.18	1.62	0.76
0.19	8.61	0.19	1.51	0.71
0.19	8.62	0.19	1.52	0.71
0.19	8.62	0.19	1.52	0.71
0.20	8.62	0.20	1.52	0.71
0.20	8.62	0.20	1.52	0.71
0.20	8.62	0.20	1.52	0.71
0.21	8.62	0.21	1.52	0.71
0.21	8.62	0.21	1.52	0.71
0.21	8.62	0.21	1.52	0.71
0.22	8.62	0.22	1.52	0.71
0.22	8.62	0.22	1.52	0.71
0.22	8.62	0.22	1.52	0.71
0.23	8.62	0.23	1.52	0.71
0.23	8.61	0.23	1.51	0.71
0.23	8.61	0.23	1.51	0.71
0.24	8.62	0.24	1.52	0.71
0.24	8.61	0.24	1.51	0.71
0.24	8.61	0.24	1.51	0.71
0.25	8.61	0.25	1.51	0.71
0.25	8.61	0.25	1.51	0.71
0.25	8.61	0.25	1.51	0.71
0.26	8.61	0.26	1.51	0.71
0.26	8.61	0.26	1.51	0.71
0.26	8.50	0.26	1.40	0.66
0.27	8.51	0.27	1.41	0.66
0.27	8.51	0.27	1.41	0.66
0.27	8.51	0.27	1.41	0.66
0.28	8.50	0.28	1.40	0.66
0.28	8.50	0.28	1.40	0.66
0.28	8.50	0.28	1.40	0.66
0.29	8.50	0.29	1.40	0.66
0.29	8.50	0.29	1.40	0.66
0.29	8.50	0.29	1.40	0.66
0.30	8.50	0.30	1.40	0.66
0.30	8.50	0.30	1.40	0.66
0.30	8.50	0.30	1.40	0.66
0.31	8.50	0.31	1.40	0.66
0.31	8.50	0.31	1.40	0.66
0.33	8.50	0.33	1.40	0.66
0.34	8.49	0.34	1.39	0.65
0.36	8.49	0.36	1.39	0.65
0.38	8.48	0.38	1.38	0.65
0.39	8.49	0.39	1.39	0.65
0.41	8.49	0.41	1.39	0.65
0.43	8.49	0.43	1.39	0.65
0.44	8.48	0.44	1.38	0.65
0.46	8.48	0.46	1.38	0.65
0.48	8.48	0.48	1.38	0.65
0.49	8.48	0.49	1.38	0.65
0.51	8.48	0.51	1.38	0.65
0.53	8.48	0.53	1.38	0.65
0.54	8.48	0.54	1.38	0.65

TABLE MW-8

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.56	8.47	0.56	1.37	0.64
0.58	8.47	0.58	1.37	0.64
0.59	8.27	0.59	1.17	0.55
0.61	8.27	0.61	1.17	0.55
0.63	8.27	0.63	1.17	0.55
0.64	8.27	0.64	1.17	0.55
0.66	8.27	0.66	1.17	0.55
0.68	8.27	0.68	1.17	0.55
0.69	8.27	0.69	1.17	0.55
0.71	8.27	0.71	1.17	0.55
0.73	8.26	0.73	1.16	0.55
0.74	8.26	0.74	1.16	0.55
0.76	8.26	0.76	1.16	0.55
0.78	8.26	0.78	1.16	0.55
0.79	8.26	0.79	1.16	0.55
0.81	8.26	0.81	1.16	0.54
0.83	8.26	0.83	1.16	0.54
0.84	8.26	0.84	1.16	0.54
0.86	8.26	0.86	1.16	0.54
0.88	8.26	0.88	1.16	0.54
0.89	8.16	0.89	1.06	0.50
0.91	8.16	0.91	1.06	0.50
0.93	8.16	0.93	1.06	0.50
0.94	8.16	0.94	1.06	0.49
0.96	8.16	0.96	1.06	0.50
0.98	8.16	0.98	1.06	0.49
1.18	8.14	1.18	1.04	0.49
1.38	8.04	1.38	0.94	0.44
1.58	8.03	1.58	0.93	0.44
1.78	8.03	1.78	0.93	0.44
1.98	7.92	1.98	0.82	0.38
2.18	7.91	2.18	0.81	0.38
2.38	7.91	2.38	0.81	0.38
2.58	7.80	2.58	0.70	0.33
2.78	7.80	2.78	0.70	0.33
2.98	7.79	2.98	0.69	0.33
3.18	7.79	3.18	0.69	0.32
3.38	7.67	3.38	0.57	0.27
3.58	7.67	3.58	0.57	0.27
3.78	7.67	3.78	0.57	0.27
3.98	7.66	3.98	0.56	0.26
4.18	7.65	4.18	0.55	0.26
4.38	7.55	4.38	0.45	0.21
4.58	7.54	4.58	0.44	0.21
4.78	7.54	4.78	0.44	0.20
4.98	7.53	4.98	0.43	0.20
5.18	7.53	5.18	0.43	0.20
5.38	7.53	5.38	0.43	0.20
5.58	7.41	5.58	0.31	0.15
5.78	7.41	5.78	0.31	0.15
5.98	7.41	5.98	0.31	0.15
6.18	7.41	6.18	0.31	0.14
6.38	7.41	6.38	0.31	0.14
6.58	7.40	6.58	0.30	0.14
6.78	7.40	6.78	0.30	0.14
6.98	7.40	6.98	0.30	0.14
7.18	7.40	7.18	0.30	0.14
7.38	7.28	7.38	0.18	0.09
7.58	7.28	7.58	0.18	0.08
7.78	7.28	7.78	0.18	0.08
7.98	7.27	7.98	0.17	0.08
8.18	7.27	8.18	0.17	0.08
8.38	7.27	8.38	0.17	0.08
8.58	7.27	8.58	0.17	0.08

TABLE MW-8

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
8.78	7.27	8.78	0.17	0.08
8.98	7.27	8.98	0.17	0.08
9.18	7.27	9.18	0.17	0.08
9.38	7.27	9.38	0.17	0.08
9.58	7.26	9.58	0.16	0.07
9.78	7.26	9.78	0.16	0.07
9.98	7.26	9.98	0.16	0.07
11.98	7.15	11.98	0.04	0.02
13.98	7.13	13.98	0.03	0.01



MW-8

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
5/19/00					correction= - 106.9
		0.0000	113.5050		
		0.0033	113.5050		
		0.0066	114.0360		
		0.01	114.509		
		0.0133	114.683		
		0.0166	115.114		
		0.02	115.02		
		0.0233	116.133	0.0000	9.2330
		0.0266	116.042	0.0033	9.1420
		0.03	116.072	0.0067	9.1720
		0.0333	116.037	0.0100	9.1370
		0.0366	116.022	0.0133	9.1220
		0.04	116.016	0.0167	9.1160
		0.0433	116.01	0.0200	9.1100
		0.0466	116.004	0.0233	9.1040
		0.05	116.001	0.0267	9.1010
		0.533	115.998	0.5097	9.0980
		0.566	115.993	0.5427	9.0930
		0.06	116.001	0.0367	9.1010
		0.0633	115.99	0.0400	9.0900
		0.0666	115.987	0.0433	9.0870
		0.07	115.984	0.0467	9.0840
		0.0733	115.981	0.0500	9.0810
		0.0766	115.981	0.0533	9.0810
		0.08	115.978	0.0567	9.0780
		0.0833	115.975	0.0600	9.0750
		0.0866	115.967	0.0633	9.0670
		0.09	115.87	0.0667	8.9700
		0.0933	115.87	0.0700	8.9700
		0.0966	115.87	0.0733	8.9700
		0.1	115.87	0.0767	8.9700
		0.1033	115.867	0.0800	8.9670
		0.1066	115.867	0.0833	8.9670
		0.11	115.867	0.0867	8.9670
		0.1133	115.864	0.0900	8.9640
		0.1166	115.744	0.0933	8.8440
		0.12	115.752	0.0967	8.8520
		0.1233	115.752	0.1000	8.8520
		0.1266	115.75	0.1033	8.8500

MW-8

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 106.9
		0.13	115.75	0.1067	8.8500
		0.1333	115.75	0.1100	8.8500
		0.1366	115.747	0.1133	8.8470
		0.14	115.744	0.1167	8.8440
		0.1433	115.744	0.1200	8.8440
		0.1466	115.744	0.1233	8.8440
		0.15	115.744	0.1267	8.8440
		0.1533	115.738	0.1300	8.8380
		0.1566	115.741	0.1333	8.8410
		0.16	115.738	0.1367	8.8380
		0.1633	115.738	0.1400	8.8380
		0.1666	115.732	0.1433	8.8320
		0.17	115.735	0.1467	8.8350
		0.1733	115.0732	0.1500	8.1732
		0.1766	115.732	0.1533	8.8320
		0.18	115.629	0.1567	8.7290
		0.1833	115.629	0.1600	8.7290
		0.1866	115.629	0.1633	8.7290
		0.19	115.626	0.1667	8.7260
		0.1933	115.626	0.1700	8.7260
		0.1966	115.626	0.1733	8.7260
		0.2	115.624	0.1767	8.7240
		0.2033	115.624	0.1800	8.7240
		0.2066	115.624	0.1833	8.7240
		0.21	115.512	0.1867	8.6120
		0.2133	115.524	0.1900	8.6240
		0.2166	115.524	0.1933	8.6240
		0.22	115.524	0.1967	8.6240
		0.2233	115.521	0.2000	8.6210
		0.2266	115.518	0.2033	8.6180
		0.23	115.518	0.2067	8.6180
		0.2333	115.518	0.2100	8.6180
		0.2366	115.518	0.2133	8.6180
		0.24	115.518	0.2167	8.6180
		0.2433	115.518	0.2200	8.6180
		0.2466	115.515	0.2233	8.6150
		0.25	115.515	0.2267	8.6150
		0.2533	115.512	0.2300	8.6120
		0.2566	115.512	0.2333	8.6120

MW-8

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
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	5/19/00				correction= - 106.9
		0.26	115.515	0.2367	8.6150
		0.2633	115.512	0.2400	8.6120
		0.2666	115.509	0.2433	8.6090
		0.27	115.509	0.2467	8.6090
		0.2733	115.509	0.2500	8.6090
		0.2766	115.509	0.2533	8.6090
		0.28	115.509	0.2567	8.6090
		0.2833	115.506	0.2600	8.6060
		0.2866	115.404	0.2633	8.5040
		0.29	115.407	0.2667	8.5070
		0.2933	115.407	0.2700	8.5070
		0.2966	115.407	0.2733	8.5070
		0.3	115.404	0.2767	8.5040
		0.3033	115.404	0.2800	8.5040
		0.3066	115.404	0.2833	8.5040
		0.31	115.404	0.2867	8.5040
		0.3133	115.404	0.2900	8.5040
		0.3166	115.401	0.2933	8.5010
		0.32	115.401	0.2967	8.5010
		0.3233	115.401	0.3000	8.5010
		0.3266	115.401	0.3033	8.5010
		0.33	115.401	0.3067	8.5010
		0.3333	115.401	0.3100	8.5010
		0.35	115.398	0.3267	8.4980
		0.3666	115.395	0.3433	8.4950
		0.3833	115.392	0.3600	8.4920
		0.4	115.378	0.3767	8.4780
		0.4166	115.39	0.3933	8.4900
		0.4333	115.387	0.4100	8.4870
		0.45	115.387	0.4267	8.4870
		0.4666	115.384	0.4433	8.4840
		0.4833	115.381	0.4600	8.4810
		0.5	115.381	0.4767	8.4810
		0.5166	115.378	0.4933	8.4780
		0.5333	115.378	0.5100	8.4780
		0.55	115.378	0.5267	8.4780
		0.5666	115.378	0.5433	8.4780
		0.5833	115.375	0.5600	8.4750
		0.6	115.372	0.5767	8.4720

MW-8

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 106.9
		0.6166	115.173	0.5933	8.2730
		0.6333	115.173	0.6100	8.2730
		0.65	115.17	0.6267	8.2700
		0.6666	115.17	0.6433	8.2700
		0.6833	115.17	0.6600	8.2700
		0.7	115.167	0.6767	8.2670
		0.7166	115.167	0.6933	8.2670
		0.7333	115.167	0.7100	8.2670
		0.75	115.164	0.7267	8.2640
		0.7666	115.164	0.7433	8.2640
		0.7833	115.164	0.7600	8.2640
		0.8	115.164	0.7767	8.2640
		0.8166	115.164	0.7933	8.2640
		0.8333	115.161	0.8100	8.2610
		0.85	115.161	0.8267	8.2610
		0.8666	115.161	0.8433	8.2610
		0.8833	115.161	0.8600	8.2610
		0.9	115.158	0.8767	8.2580
		0.9166	115.058	0.8933	8.1580
		0.9333	115.058	0.9100	8.1580
		0.95	115.058	0.9267	8.1580
		0.9666	115.055	0.9433	8.1550
		0.9833	115.058	0.9600	8.1580
		1	115.055	0.9767	8.1550
		1.2	115.044	1.1767	8.1440
		1.4	114.938	1.3767	8.0380
		1.6	114.932	1.5767	8.0320
		1.8	114.929	1.7767	8.0290
		2	114.818	1.9767	7.9180
		2.2	114.812	2.1767	7.9120
		2.4	114.809	2.3767	7.9090
		2.6	114.704	2.5767	7.8040
		2.8	114.698	2.7767	7.7980
		3	114.695	2.9767	7.7950
		3.2	114.692	3.1767	7.7920
		3.4	114.572	3.3767	7.6720
		3.6	114.569	3.5767	7.6690
		3.8	114.566	3.7767	7.6660
		4	114.56	3.9767	7.6600

MW-8

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 106.9
		4.2	114.554	4.1767	7.6540
		4.4	114.446	4.3767	7.5460
		4.6	114.44	4.5767	7.5400
		4.8	114.437	4.7767	7.5370
		5	114.434	4.9767	7.5340
		5.2	114.431	5.1767	7.5310
		5.4	114.431	5.3767	7.5310
		5.6	114.314	5.5767	7.4140
		5.8	114.311	5.7767	7.4110
		6	114.311	5.9767	7.4110
		6.2	114.308	6.1767	7.4080
		6.4	114.305	6.3767	7.4050
		6.6	114.302	6.5767	7.4020
		6.8	114.3	6.7767	7.4000
		7	114.3	6.9767	7.4000
		7.2	114.297	7.1767	7.3970
		7.4	114.182	7.3767	7.2820
		7.6	114.179	7.5767	7.2790
		7.8	114.179	7.7767	7.2790
		8	114.174	7.9767	7.2740
		8.2	114.174	8.1767	7.2740
		8.4	114.171	8.3767	7.2710
		8.6	114.171	8.5767	7.2710
		8.8	114.168	8.7767	7.2680
		9	114.168	8.9767	7.2680
		9.2	114.165	9.1767	7.2650
		9.4	114.165	9.3767	7.2650
		9.6	114.159	9.5767	7.2590
		9.8	114.159	9.7767	7.2590
		10	114.156	9.9767	7.2560
		12	114.045	11.9767	7.1450
		14	114.03	13.9767	7.1300

HVORSLEV SLUG TEST ANALYSIS
RISING HEAD TEST MW-12

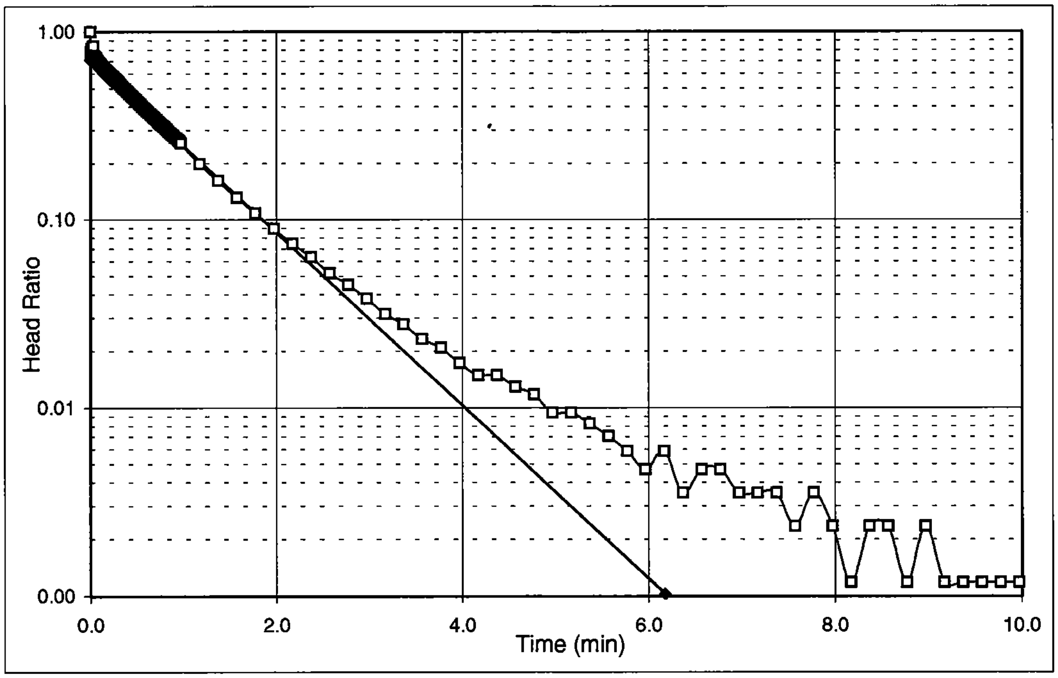
$$K = \frac{r_c^2}{2L_e} \ln\frac{L_e}{R_e}\left[\frac{\ln\left(\frac{h_1}{h_2}\right)}{(t2 - t1)}\right]30.48$$

where:
r_c = casing radius (feet)
R_e = equivalent radius (feet)
L_e = length of screened interval (feet)
t = time (minutes)
h_t = head at time t (feet)

INPUT PARAMETERS	
r_c =	0.17
R_e =	0.26
L_e =	9.55
t_1 =	0
t_2 =	6.18
h_1/h_0 =	0.71
h_2/h_0 =	0.00

RESULTS

K=	2.82E-03	cm/sec
K=	7.98E+00	ft/day



Project Name: Bldg. 812
Project No.: D.O.3M-3/M-2
Test Date: 05/19/00

Analysis By: MJ
Checked By: SV
Analysis Date: 04/24/00

TABLE MW-12

RISING HEAD TEST MW-12
WELL NO. MW-12

Bldg. 812
D.O.3M-3/M-2

DATE	4/24/00	
INITIAL DEPTH TO WATER	4.15	FEET (btoc)
CASING DIAMETER	4	INCHES
SAND DIAMETER	6.25	INCHES
TOP OF OPEN INTERVAL	4.8	FEET (btoc)
BOTTOM OF OPEN INTERVAL	14.35	FEET (btoc)
SATURATED THICKNESS	7.75	FEET
WATER TABLE TO BOTTOM OF SCREEN	7.74	FEET
EQUIVALENT DIAMETER	4.79	INCHES
OPEN INTERVAL LENGTH	9.55	FEET
STATIC IN SCREEN?	N	
MAX. HEAD CHANGE	2.55	FEET
MAX. HEAD IN SCREEN?	Y	

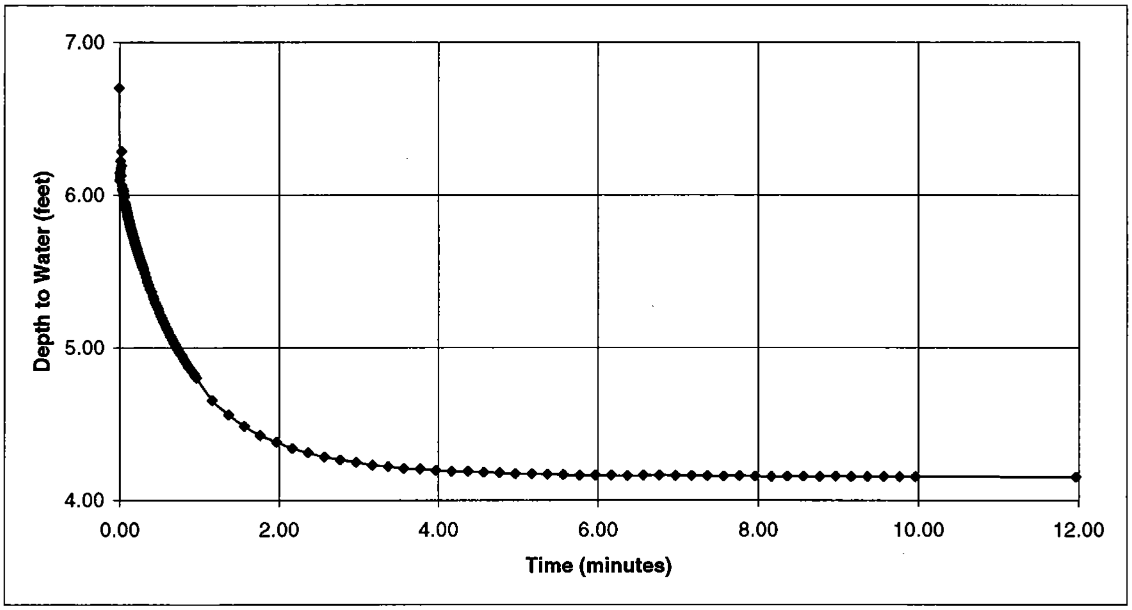
EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.00	6.70	0.00	2.55	1.00
0.00	6.10	0.00	1.95	0.76
0.01	6.14	0.01	1.99	0.78
0.01	6.15	0.01	2.00	0.78
0.01	6.12	0.01	1.97	0.77
0.02	6.22	0.02	2.07	0.81
0.02	6.17	0.02	2.02	0.79
0.02	6.13	0.02	1.98	0.77
0.03	6.19	0.03	2.04	0.80
0.03	6.29	0.03	2.14	0.84
0.03	6.04	0.03	1.89	0.74
0.04	6.06	0.04	1.91	0.75
0.04	6.03	0.04	1.88	0.74
0.04	6.04	0.04	1.89	0.74
0.05	6.04	0.05	1.89	0.74
0.05	6.03	0.05	1.88	0.74
0.05	6.02	0.05	1.87	0.73
0.06	6.01	0.06	1.86	0.73
0.06	6.00	0.06	1.85	0.73
0.06	5.99	0.06	1.84	0.72
0.07	5.99	0.07	1.84	0.72
0.07	5.95	0.07	1.80	0.71
0.07	5.95	0.07	1.80	0.71
0.08	5.94	0.08	1.79	0.70
0.08	5.93	0.08	1.78	0.70
0.08	5.92	0.08	1.77	0.69
0.09	5.91	0.09	1.76	0.69
0.09	5.91	0.09	1.76	0.69
0.09	5.90	0.09	1.75	0.68
0.10	5.89	0.10	1.74	0.68
0.10	5.88	0.10	1.73	0.68
0.10	5.87	0.10	1.72	0.68
0.11	5.87	0.11	1.72	0.67
0.11	5.86	0.11	1.71	0.67
0.11	5.85	0.11	1.70	0.67
0.12	5.85	0.12	1.70	0.66
0.12	5.84	0.12	1.69	0.66
0.12	5.83	0.12	1.68	0.66
0.13	5.82	0.13	1.67	0.66
0.13	5.82	0.13	1.67	0.65
0.13	5.81	0.13	1.66	0.65
0.14	5.80	0.14	1.65	0.65
0.14	5.80	0.14	1.65	0.64
0.14	5.79	0.14	1.64	0.64

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.15	5.78	0.15	1.63	0.64
0.15	5.78	0.15	1.63	0.64
0.15	5.77	0.15	1.62	0.64
0.16	5.76	0.16	1.61	0.63
0.16	5.76	0.16	1.61	0.63
0.16	5.75	0.16	1.60	0.63
0.17	5.74	0.17	1.59	0.63
0.17	5.74	0.17	1.59	0.62
0.17	5.73	0.17	1.58	0.62
0.18	5.73	0.18	1.58	0.62
0.18	5.72	0.18	1.57	0.62
0.18	5.72	0.18	1.57	0.61
0.19	5.71	0.19	1.56	0.61
0.19	5.70	0.19	1.55	0.61
0.19	5.69	0.19	1.54	0.61
0.20	5.69	0.20	1.54	0.60
0.20	5.68	0.20	1.53	0.60
0.20	5.68	0.20	1.53	0.60
0.21	5.67	0.21	1.52	0.60
0.21	5.67	0.21	1.52	0.59
0.21	5.66	0.21	1.51	0.59
0.22	5.66	0.22	1.51	0.59
0.22	5.65	0.22	1.50	0.59
0.22	5.65	0.22	1.50	0.59
0.23	5.64	0.23	1.49	0.58
0.23	5.63	0.23	1.48	0.58
0.23	5.63	0.23	1.48	0.58
0.24	5.62	0.24	1.47	0.58
0.24	5.62	0.24	1.47	0.57
0.24	5.61	0.24	1.46	0.57
0.25	5.60	0.25	1.45	0.57
0.25	5.60	0.25	1.45	0.57
0.25	5.60	0.25	1.45	0.57
0.26	5.59	0.26	1.44	0.56
0.26	5.58	0.26	1.43	0.56
0.26	5.58	0.26	1.43	0.56
0.27	5.58	0.27	1.43	0.56
0.27	5.57	0.27	1.42	0.56
0.27	5.56	0.27	1.41	0.55
0.28	5.56	0.28	1.41	0.55
0.28	5.55	0.28	1.40	0.55
0.28	5.55	0.28	1.40	0.55
0.29	5.55	0.29	1.40	0.55
0.29	5.54	0.29	1.39	0.54
0.29	5.53	0.29	1.38	0.54
0.30	5.53	0.30	1.38	0.54
0.30	5.52	0.30	1.37	0.54
0.30	5.52	0.30	1.37	0.54
0.31	5.51	0.31	1.36	0.53
0.32	5.49	0.32	1.34	0.52
0.34	5.46	0.34	1.31	0.51
0.36	5.43	0.36	1.28	0.50
0.37	5.41	0.37	1.26	0.49
0.39	5.38	0.39	1.23	0.48
0.41	5.36	0.41	1.21	0.48
0.42	5.34	0.42	1.19	0.47
0.44	5.32	0.44	1.17	0.46
0.46	5.29	0.46	1.14	0.45
0.47	5.27	0.47	1.12	0.44
0.49	5.26	0.49	1.11	0.43
0.51	5.23	0.51	1.08	0.42
0.52	5.21	0.52	1.06	0.42
0.54	5.19	0.54	1.04	0.41
0.56	5.17	0.56	1.02	0.40

TABLE MW-12

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
0.57	5.15	0.57	1.00	0.39
0.59	5.14	0.59	0.99	0.39
0.61	5.12	0.61	0.97	0.38
0.62	5.10	0.62	0.95	0.37
0.64	5.08	0.64	0.93	0.36
0.66	5.07	0.66	0.92	0.36
0.67	5.05	0.67	0.90	0.35
0.69	5.03	0.69	0.88	0.35
0.71	5.02	0.71	0.87	0.34
0.72	5.00	0.72	0.85	0.33
0.74	4.99	0.74	0.84	0.33
0.76	4.97	0.76	0.82	0.32
0.77	4.96	0.77	0.81	0.32
0.79	4.94	0.79	0.79	0.31
0.81	4.93	0.81	0.78	0.31
0.82	4.92	0.82	0.77	0.30
0.84	4.90	0.84	0.75	0.29
0.86	4.89	0.86	0.74	0.29
0.87	4.88	0.87	0.73	0.28
0.89	4.87	0.89	0.72	0.28
0.91	4.85	0.91	0.70	0.27
0.92	4.84	0.92	0.69	0.27
0.94	4.83	0.94	0.68	0.27
0.96	4.82	0.96	0.67	0.26
0.97	4.80	0.97	0.65	0.26
1.17	4.66	1.17	0.51	0.20
1.37	4.56	1.37	0.41	0.16
1.57	4.49	1.57	0.34	0.13
1.77	4.43	1.77	0.28	0.11
1.97	4.38	1.97	0.23	0.09
2.17	4.34	2.17	0.19	0.07
2.37	4.31	2.37	0.16	0.06
2.57	4.28	2.57	0.13	0.05
2.77	4.27	2.77	0.11	0.05
2.97	4.25	2.97	0.10	0.04
3.17	4.23	3.17	0.08	0.03
3.37	4.22	3.37	0.07	0.03
3.57	4.21	3.57	0.06	0.02
3.77	4.20	3.77	0.05	0.02
3.97	4.19	3.97	0.04	0.02
4.17	4.19	4.17	0.04	0.01
4.37	4.19	4.37	0.04	0.01
4.57	4.18	4.57	0.03	0.01
4.77	4.18	4.77	0.03	0.01
4.97	4.17	4.97	0.02	0.01
5.17	4.17	5.17	0.02	0.01
5.37	4.17	5.37	0.02	0.01
5.57	4.17	5.57	0.02	0.01
5.77	4.16	5.77	0.01	0.01
5.97	4.16	5.97	0.01	0.00
6.17	4.16	6.17	0.01	0.01
6.37	4.16	6.37	0.01	0.00
6.57	4.16	6.57	0.01	0.00
6.77	4.16	6.77	0.01	0.00
6.97	4.16	6.97	0.01	0.00
7.17	4.16	7.17	0.01	0.00
7.37	4.16	7.37	0.01	0.00
7.57	4.16	7.57	0.01	0.00
7.77	4.16	7.77	0.01	0.00
7.97	4.16	7.97	0.01	0.00
8.17	4.15	8.17	0.00	0.00
8.37	4.16	8.37	0.01	0.00
8.57	4.16	8.57	0.01	0.00
8.77	4.15	8.77	0.00	0.00

EVENT EALAPSED TIME (MIN)	DEPTH TO WATER (FEET)	TEST ELAPSED TIME (MIN)	HEAD (FEET)	HEAD RATIO
8.97	4.16	8.97	0.01	0.00
9.17	4.15	9.17	0.00	0.00
9.37	4.15	9.37	0.00	0.00
9.57	4.15	9.57	0.00	0.00
9.77	4.15	9.77	0.00	0.00
9.97	4.15	9.97	0.00	0.00
11.97	4.15	11.97	0.00	0.00



MW-12

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 107.215
		0.0000	111.3300		
		0.0033	111.3510		
		0.0066	111.3390		
		0.01	112.257		
		0.0133	112.523		
		0.0166	112.512		
		0.02	112.386		
		0.0233	112.814		
		0.0266	113.916	0.0000	6.7010
		0.03	113.312	0.0034	6.0970
		0.0333	113.359	0.0067	6.1440
		0.0366	113.365	0.0100	6.1500
		0.04	113.338	0.0134	6.1230
		0.0433	113.438	0.0167	6.2230
		0.0466	113.388	0.0200	6.1730
		0.05	113.341	0.0234	6.1260
		0.533	113.406	0.5064	6.1910
		0.566	113.502	0.5394	6.2870
		0.06	113.25	0.0334	6.0350
		0.0633	113.277	0.0367	6.0620
		0.0666	113.242	0.0400	6.0270
		0.07	113.256	0.0434	6.0410
		0.0733	113.256	0.0467	6.0410
		0.0766	113.242	0.0500	6.0270
		0.08	113.239	0.0534	6.0240
		0.0833	113.221	0.0567	6.0060
		0.0866	113.218	0.0600	6.0030
		0.09	113.204	0.0634	5.9890
		0.0933	113.201	0.0667	5.9860
		0.0966	113.165	0.0700	5.9500
		0.1	113.165	0.0734	5.9500
		0.1033	113.154	0.0767	5.9390
		0.1066	113.145	0.0800	5.9300
		0.11	113.136	0.0834	5.9210
		0.1133	113.13	0.0867	5.9150
		0.1166	113.121	0.0900	5.9060
		0.12	113.11	0.0934	5.8950
		0.1233	113.104	0.0967	5.8890
		0.1266	113.098	0.1000	5.8830

MW-12

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 107.215
		0.13	113.089	0.1034	5.8740
		0.1333	113.08	0.1067	5.8650
		0.1366	113.072	0.1100	5.8570
		0.14	113.066	0.1134	5.8510
		0.1433	113.06	0.1167	5.8450
		0.1466	113.054	0.1200	5.8390
		0.15	113.045	0.1234	5.8300
		0.1533	113.039	0.1267	5.8240
		0.1566	113.031	0.1300	5.8160
		0.16	113.025	0.1334	5.8100
		0.1633	113.019	0.1367	5.8040
		0.1666	113.01	0.1400	5.7950
		0.17	113.004	0.1434	5.7890
		0.1733	112.3998	0.1467	5.1848
		0.1766	112.993	0.1500	5.7780
		0.18	112.987	0.1534	5.7720
		0.1833	112.978	0.1567	5.7630
		0.1866	112.972	0.1600	5.7570
		0.19	112.966	0.1634	5.7510
		0.1933	112.96	0.1667	5.7450
		0.1966	112.954	0.1700	5.7390
		0.2	112.949	0.1734	5.7340
		0.2033	112.943	0.1767	5.7280
		0.2066	112.937	0.1800	5.7220
		0.21	112.931	0.1834	5.7160
		0.2133	112.925	0.1867	5.7100
		0.2166	112.916	0.1900	5.7010
		0.22	112.91	0.1934	5.6950
		0.2233	112.905	0.1967	5.6900
		0.2266	112.899	0.2000	5.6840
		0.23	112.893	0.2034	5.6780
		0.2333	112.887	0.2067	5.6720
		0.2366	112.881	0.2100	5.6660
		0.24	112.875	0.2134	5.6600
		0.2433	112.872	0.2167	5.6570
		0.2466	112.866	0.2200	5.6510
		0.25	112.861	0.2234	5.6460
		0.2533	112.855	0.2267	5.6400
		0.2566	112.849	0.2300	5.6340

MW-12

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
--------	--------	------------	---------------	------------	---------------
	5/19/00				correction= - 107.215
		0.26	112.843	0.2334	5.6280
		0.2633	112.837	0.2367	5.6220
		0.2666	112.831	0.2400	5.6160
		0.27	112.825	0.2434	5.6100
		0.2733	112.82	0.2467	5.6050
		0.2766	112.817	0.2500	5.6020
		0.28	112.811	0.2534	5.5960
		0.2833	112.805	0.2567	5.5900
		0.2866	112.799	0.2600	5.5840
		0.29	112.0793	0.2634	4.8643
		0.2933	112.79	0.2667	5.5750
		0.2966	112.784	0.2700	5.5690
		0.3	112.779	0.2734	5.5640
		0.3033	112.773	0.2767	5.5580
		0.3066	112.77	0.2800	5.5550
		0.31	112.764	0.2834	5.5490
		0.3133	112.761	0.2867	5.5460
		0.3166	112.755	0.2900	5.5400
		0.32	112.749	0.2934	5.5340
		0.3233	112.743	0.2967	5.5280
		0.3266	112.74	0.3000	5.5250
		0.33	112.735	0.3034	5.5200
		0.3333	112.729	0.3067	5.5140
		0.35	112.702	0.3234	5.4870
		0.3666	112.673	0.3400	5.4580
		0.3833	112.647	0.3567	5.4320
		0.4	112.623	0.3734	5.4080
		0.4166	112.6	0.3900	5.3850
		0.4333	112.579	0.4067	5.3640
		0.45	112.553	0.4234	5.3380
		0.4666	112.532	0.4400	5.3170
		0.4833	112.509	0.4567	5.2940
		0.5	112.488	0.4734	5.2730
		0.5166	112.471	0.4900	5.2560
		0.5333	112.447	0.5067	5.2320
		0.55	112.427	0.5234	5.2120
		0.5666	112.406	0.5400	5.1910
		0.5833	112.386	0.5567	5.1710
		0.6	112.368	0.5734	5.1530

MW-12

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
	5/19/00				correction= - 107.215
		0.6166	112.351	0.5900	5.1360
		0.6333	112.333	0.6067	5.1180
		0.65	112.315	0.6234	5.1000
		0.6666	112.295	0.6400	5.0800
		0.6833	112.283	0.6567	5.0680
		0.7	112.266	0.6734	5.0510
		0.7166	112.248	0.6900	5.0330
		0.7333	112.233	0.7067	5.0180
		0.75	112.216	0.7234	5.0010
		0.7666	112.201	0.7400	4.9860
		0.7833	112.186	0.7567	4.9710
		0.8	112.172	0.7734	4.9570
		0.8166	112.16	0.7900	4.9450
		0.8333	112.145	0.8067	4.9300
		0.85	112.131	0.8234	4.9160
		0.8666	112.116	0.8400	4.9010
		0.8833	112.101	0.8567	4.8860
		0.9	112.09	0.8734	4.8750
		0.9166	112.081	0.8900	4.8660
		0.9333	112.066	0.9067	4.8510
		0.95	112.054	0.9234	4.8390
		0.9666	112.043	0.9400	4.8280
		0.9833	112.031	0.9567	4.8160
		1	112.016	0.9734	4.8010
		1.2	111.87	1.1734	4.6550
		1.4	111.776	1.3734	4.5610
		1.6	111.7	1.5734	4.4850
		1.8	111.641	1.7734	4.4260
		2	111.594	1.9734	4.3790
		2.2	111.556	2.1734	4.3410
		2.4	111.527	2.3734	4.3120
		2.6	111.497	2.5734	4.2820
		2.8	111.48	2.7734	4.2650
		3	111.462	2.9734	4.2470
		3.2	111.445	3.1734	4.2300
		3.4	111.436	3.3734	4.2210
		3.6	111.424	3.5734	4.2090
		3.8	111.418	3.7734	4.2030
		4	111.409	3.9734	4.1940

MW-12

Date	Time	ET (min)	Feet H2O	ET (min)	Feet H2O
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	5/19/00				correction= - 107.215
		4.2	111.403	4.1734	4.1880
		4.4	111.403	4.3734	4.1880
		4.6	111.398	4.5734	4.1830
		4.8	111.395	4.7734	4.1800
		5	111.389	4.9734	4.1740
		5.2	111.389	5.1734	4.1740
		5.4	111.386	5.3734	4.1710
		5.6	111.383	5.5734	4.1680
		5.8	111.38	5.7734	4.1650
		6	111.377	5.9734	4.1620
		6.2	111.38	6.1734	4.1650
		6.4	111.374	6.3734	4.1590
		6.6	111.377	6.5734	4.1620
		6.8	111.377	6.7734	4.1620
		7	111.374	6.9734	4.1590
		7.2	111.374	7.1734	4.1590
		7.4	111.374	7.3734	4.1590
		7.6	111.371	7.5734	4.1560
		7.8	111.374	7.7734	4.1590
		8	111.371	7.9734	4.1560
		8.2	111.368	8.1734	4.1530
		8.4	111.371	8.3734	4.1560
		8.6	111.371	8.5734	4.1560
		8.8	111.368	8.7734	4.1530
		9	111.371	8.9734	4.1560
		9.2	111.368	9.1734	4.1530
		9.4	111.368	9.3734	4.1530
		9.6	111.368	9.5734	4.1530
		9.8	111.368	9.7734	4.1530
		10	111.368	9.9734	4.1530
		12	111.365	11.9734	4.1500

APPENDIX E

SENSITIVE RECEPTOR SURVEY

Environmental Data Resources, Inc.
Southport, CT

Offsite Receptor Report
Inquiry Number: 0511403.1r
June 27, 2000

EDR® Environmental Data Resources, Inc.
an edr™ company

EDR - Offsite Receptor Report

Fort Monmouth Army Base
Fort Monmouth, NJ 07703

Inquiry Number: 0511403.1r

June 27, 2000

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

TABLE OF CONTENTS

Thank you for your business
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer and Other Information

EXECUTIVE SUMMARY

A search of available records was conducted by Environmental Data Resources, Inc. (EDR). The EDR Offsite Receptor Report provides information which may be used to comply with the Clean Air Act Risk Management Program 112-R. *"The rule requires that you estimate in the RMP residential populations within the circle defined by the endpoint for your worst-case and alternative release scenarios (i.e., the center of the circle is the point of release and the radius is the distance to the endpoint). In addition, you must report in the RMP whether certain types of public receptors and environmental receptors are within the circles."*

The address of the subject property, for which the search was intended, is:

FORT MONMOUTH ARMY BASE
FORT MONMOUTH, NJ 07703

Distance Searched: 2.000 miles from subject property

RECEPTOR SUMMARY
An X indicates the presence of the receptor within the search radius.

Residential Population
Estimated population within search radius: 27298 persons.

Other Public Receptors

Type	Within Search Radius	Sites Total
Day Care Centers:	☒	3
Medical Centers:	☐	
Nursing Homes:	☐	
Schools:	☒	15
Hospitals:	☐	
Arena:	☐	
Prison:	☐	

Environmental Receptors

Type	Within Search Radius	Sites Total
Federal Land:	☒	1

CENSUS MAP - 0511403.1r

TARGET PROPERTY:		CUSTOMER:	Versar, Inc.
ADDRESS:	Fort Monmouth Army Base	CONTACT:	Sharon Voss
CITY/STATE/ZIP:	Fort Monmouth NJ 07703	INQUIRY #:	0511403.1r
LAT/LONG:	40.3103 / 74.0532	DATE:	June 27, 2000 10:23 am

CENSUS FINDINGS

Map ID	Tract Number	Total Population	Population in Radius	Total Area(sq.mi.)	Area in Radius(sq.mi.)
T1	8042.00	5713	2315.2	3.36	1.36
T2	8035.00	2184	0.0	0.39	0.00
T3	8043.00	3096	2997.6	2.23	2.15
T4	8045.00	5299	2938.5	2.87	1.59
T5	8053.00	5289	2464.8	3.09	1.44
T6	8046.00	1743	8.8	3.05	0.02
T7	8052.00	857	857.0	0.75	0.75
T8	8044.00	1098	1098.0	0.10	0.10
T9	8049.00	638	638.0	0.35	0.35
T10	8050.01	4589	4529.4	1.00	0.98
T11	8050.02	3708	3708.0	1.22	1.22
T12	8047.97	1713	1713.0	0.41	0.41
T13	8062.00	7690	1769.5	2.91	0.67
T14	8047.98	1737	969.1	0.43	0.24
T15	8051.00	3152	1291.2	2.95	1.21

RECEPTOR MAP - 0511403.1r

★ Target Property

/\/ Roads

/\/ Waterways

▪ Environmental or Public Receptor

/\/ Federal Lands Linear Features

/\/ Federal Lands Area

TARGET PROPERTY:		CUSTOMER:	Versar, Inc.
ADDRESS:	Fort Monmouth Army Base	CONTACT:	Sharon Voss
CITY/STATE/ZIP:	Fort Monmouth NJ 07703	INQUIRY #:	0511403.1r
LAT/LONG:	40.3103 / 74.0532	DATE:	June 27, 2000 10:24 am

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site	EDR ID Database
NA North 0-1/8 mi 0 NA	Name: Fort Monmouth Military Reservation ID: 29120 State FIPS: 34 Feature: Army DOD	US0029120 FED_LAND
1 SSE 1/4-1/2 mi 1487 Higher	Name: Steelman School ID: 882575 Site Type: school Latitude: 40.30700 Longitude: -74.05000	GNS0930612 GNIS_SCH
2 SSE 1/2-1 mi 4211 Higher	Name: MEADOWBROOK E.S. NCES ID: 340441003772 Address: 65 WYCKOFF ROAD EATONTOWN, NJ 07724 School ID: 52913 Telephone: 732-935-3337 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: Primary County: MONMOUTH Lowest Grade: Kindergarten Highest Grade:06	340441003772 CCD
A3 ESE 1-2 mi 5451 Higher	Name: WOLF HILL E.S. NCES ID: 341212004074 Address: 55 WOLFHILL AVE OCEANPORT, NJ 07757 School ID: 53021 Telephone: 732-542-0683 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: Primary County: MONMOUTH Lowest Grade: Kindergarten Highest Grade:04	341212004074 CCD
4 SW 1-2 mi 5630 Higher	Name: Vetter School ID: 882586 Site Type: school Latitude: 40.29700 Longitude: -74.06000	GNS0931468 GNIS_SCH
A5 ESE 1-2 mi 5821 Higher	Name: Oceanport School ID: 882531 Site Type: school Latitude: 40.30700 Longitude: -74.03000	GNS0927961 GNIS_SCH

Map ID Direction Distance Distance (ft.) Elevation	Site	EDR ID Database
B6 SSW 1-2 mi 6825 Higher	Name: MARGARET L. VETTER E.S. NCES ID: 340441003768 Address: 3 GRANT AVENUE EATONTOWN, NJ 07724 School ID: 52911 Telephone: 732-935-3330 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: Primary County: MONMOUTH Lowest Grade: Kindergarten Highest Grade:06	340441003768 CCD
B7 SSW 1-2 mi 6842 Higher	Name: MEMORIAL E.S. NCES ID: 340441003770 Address: 7 GRANT AVENUE EATONTOWN, NJ 07724 School ID: 52912 Telephone: 732-935-3321 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: Middle County: MONMOUTH Lowest Grade: 07 Highest Grade:08	340441003770 CCD
8 NNW 1-2 mi 6988 Higher	Name: Shrewsbury School ID: 882572 Site Type: school Latitude: 40.32800 Longitude: -74.06000	GNS0930190 GNIS_SCH
9 NNW 1-2 mi 7449 Higher	Name: SHREWSBURY E.S. NCES ID: 341497004102 Address: 20 OBRE PLACE SHREWSBURY, NJ 07702 School ID: 53039 Telephone: 732-747-0882 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: Primary County: MONMOUTH Lowest Grade: Kindergarten Highest Grade:08	341497004102 CCD
10 West 1-2 mi 7905 Higher	Name: RANNEY SCHOOL ID: 9023 Site Type: Private sch.	PRV1007246 PRV_SCH

Map ID Direction Distance Distance (ft.) Elevation	Site	EDR ID Database
11 East 1-2 mi 8250 Higher	Name: Lil' Squan University ID: 585451108 Site Type: Daycare ctr	DAY1045371 DAYCARE
12 WNW 1-2 mi 9349 Higher	Name: MAHALA F. ATCHINSON E.S. NCES ID: 341620004112 Address: 961 SYCAMORE AVENUE EATONTOWN, NJ 07724 School ID: 53042 Telephone: 732-542-2500 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: Primary County: MONMOUTH Lowest Grade: Kindergarten Highest Grade:02	341620004112 CCD
13 WNW 1-2 mi 9702 Higher	Name: Tinton Falls Cooperative Nursery School ID: 585451093 Site Type: Daycare ctr	DAY1045366 DAYCARE
14 ESE 1-2 mi 9789 Higher	Name: SHORE REGIONAL H.S. NCES ID: 341494004100 Address: 132 STATE ROUTE 36 WEST LONG BRANCH, NJ 07764 School ID: 53038 Telephone: 732-222-9300 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: High County: MONMOUTH Lowest Grade: 09 Highest Grade:12	341494004100 CCD
C15 NNE 1-2 mi 9992 Higher	Name: MARKHAM PLACE E.S. NCES ID: 340879003898 Address: 99 MARKHAM PL LITTLE SILVER, NJ 07739 School ID: 52955 Telephone: 732-741-7112 Local Code: Urban Fringe of Large City School Type: Regular Elementary and Secondary Schools School Level: Middle County: MONMOUTH Lowest Grade: 05 Highest Grade:08	340879003898 CCD

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation	Site		EDR ID Database
16 NNW 1-2 mi 10140 Higher	Name: ID: Site Type:	Leapfrog Learning Center 585450989 Daycare ctr	DAY1045356 DAYCARE
C17 NNE 1-2 mi 10346 Higher	Name: ID: Site Type: Latitude: Longitude:	Little Silver School 882493 school 40.33800 -74.04000	GNS0926346 GNIS_SCH
18 West 1-2 mi 10543 Higher	Name: ID: Site Type: Latitude: Longitude:	Monmouth Regional High School 883505 school 40.30500 -74.09000	GNS0927201 GNIS_SCH

RECORDS SEARCHED/DATA CURRENCY TRACKING

CENSUS

Source: U.S. Census Bureau
Telephone: 301-457-4100
1990 U.S. Census data was used to estimate residential population following these EPA guidelines: *"Census data are presented by Census tract. If your circle covers only a portion of the tract, you should develop an estimate for that portion...Determine the population density per square mile (total population of the Census tract divided by the number of square miles in the tract) and apply that density figure to the number of square miles within your circle."*

FED_LAND: Federal Lands

Source: USGS
Telephone: 703-648-5094
Federal lands data. Includes data from several Federal land manangement agencies, including Fish and Wildlife Service, Bureau of Land Management, National Park Service, and Forest Service. Includes National Parks, Forests, Monuments; Wildlife Sanctuaries, Preserves, Refuges; Federal Wilderness Areas.
Date of government version: 09/09/97.

HCFA: Provider of Services Listing

Source: The Health Care Financing Administration
Telephone: 410/786-3000
A listing of hospitals with Medicare provider number, produced by The Health Care Financing Administration (HCFA), a federal agency within the U.S. Department of Health and Human Services.
HCFA runs the Medicare and Medicaid programs.
Date of government version: 06/01/98.

CCD: Common Core of Data

Source: National Center for Education Statistics
555 New Jersey Avenue NW
Washington, DC 20208-5651
The Common Core of Data (CCD) is the National Center for Education Statistics' primary database on elementary and secondary public education in the United States. CCD is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.
Date of government version: 1995-96.

GNIS: Geographic Names Information System

Source: USGS
Telephone: 703-648-5094
The Geographic Names Information System (GNIS), developed by the USGS in cooperation with the U.S. Board on Geographic Names (BGN), contains information about almost 2 million physical and cultural geographic features in the United States. The GNIS is our Nation's official repository of domestic geographic names information.
Date of government version: 03/01/98.

PRV_SCH: Private Schools

EDR indicates the location of buildings and facilities - private schools - where individuals who are public receptors are likely to be located.

DAYCARE: Daycare Centers

EDR indicates the location of buildings and facilities - daycare centers - where individuals who are public receptors are likely to be located.

MEDCEN: Medical Centers

EDR indicates the location of buildings and facilities - medical centers - where individuals who are public receptors are likely to be located.

NURSING: Nursing Homes

EDR indicates the location of buildings and facilities - nursing homes - where individuals who are public receptors are likely to be located.

ARENA: Arenas

EDR indicates the location of buildings and facilities - arenas - where individuals who are public receptors are likely to be located.

PRISON: Prisons

EDR indicates the location of buildings and facilities - prisons - where individuals who are public receptors are likely to be located.

BOP: Bureau of Prisons Facilities

Source: Federal Bureau of Prisons
List of facilities operated by the Federal Bureau of Prisons.
Date of government version: 07/01/98.

APPENDIX F

WELL SEARCH SUMMARY

Source: State of New Jersey Department of Environmental Protection
Well Permitting and Regulations Section of the Bureau of Water Allocation, Trenton, NJ
Search Date: 18 January 2001

Well Search Summary
Site 812
U.S. Army Garrison Fort Monmouth, New Jersey

	WELL OWNER	WELL ADDRESS	WELL DESIGNATION	WELL USE CODE	WELL DEPTH (ft)	WELL CAPACITY	PERMIT NUMBER	PERMIT DATE	NJGRID	LATITUDE	LONGITUDE	DRILLER	WELL DATE	COMP. DATE	FIN. DEPTH	WELL CONTACT (If identified)
1	Redacted - Privacy Act			D	150	15	2901016	12/24/53	2913691	401839	740240	GREH				
2				D	46	3	2901308	12/3/54	2913684	401826	740319	BORD				
3				D	60	12	2901788	11/30/55	2913653	401920	740253	APTI				
4	NEW JERSEY STATE OF	140	426	D	75	70	2902453	9/12/57	2913935	401746	740226	STOT		LUCAS		
5	Redacted - Privacy Act			D	100	10	2902505	10/10/57	2913665	401906	740226	TICE				
6	ESSO STANDARD OIL CO			I	110	12	2902919	5/11/59	2913656	401906	740253	TICE				
7	RUMSON COUNTRY CLUB			D	350	600	2904513	10/16/64	2914446	401906	740133	LAUM				
8	RUMSON COUNTRY CLUB			D	350	600	2904513	10/16/64	2914446	401906	740133	LAUM				
9	Redacted - Privacy Act			D	50	12	2904782	8/5/65	2913691	401839	740240	PETE				
10	Redacted - Privacy Ac			D	70	15	2905009	3/21/66	2914457	401853	740119	TICE				
11	Redacted - Privacy Act			D	50	7	2905609	10/7/68	2913655	401906	740306	PETE				
12	P.V.C. CONTAINER CRP			D	100	35	2905673	1/22/69	2913692	401839	740226	TICE				
13	Redacted - Privacy Ac			D	50	10	2906510	6/7/72	2914471	401839	740200	KAYE				
14	Redacted - Privacy A			D	60	10	2908438	8/3/76	2914447	401853	740200	BAIN				
15	Redacted - Privacy Act			D	60	10	2908652	1/18/77	2913923	401800	740253	BILL				
16	Redacted - Privacy Act			D	50	5	2908810	5/12/77	2914472	401839	740146	AMER				
17	Redacted - Privacy Act			D	100	10	2909285	3/13/78	2913922	401800	740306	AMER				
18	FORT MONMOUTH/US ARM			M	25	0	2911063	3/31/81	2913666	401906	740213	HAND				
19	FORT MONMOUTH/US ARM			M	25	0	2911064	3/31/81	2913666	401906	740213	HAND				
20	FORT MONMOUTH/US ARM			M	25	0	2911065	3/31/81	2913666	401906	740213	HAND				
21	FORT MONMOUTH/US ARM			M	25	0	2911066	3/31/81	2913666	401906	740213	HAND				
22	FORT MONMOUTH/US ARM			M	25	0	2911067	3/31/81	2913666	401906	740213	HAND				
23	FORT MONMOUTH/US ARM			M	25	0	2911068	3/31/81	2913666	401906	740213	HAND				
24	Redacted - Privacy Act			D	50	12	2911144	4/8/81	2914714	401746	740200	PICK				
25	Redacted - Privacy Act			D	60	15	2911479	8/18/81	2913923	401800	740253	PICK				
26	Redacted - Privacy Act			H	100	0	2911771	12/22/81	2913653	401920	740253	ENGI				
27	Redacted - Privacy Act			H	100	10	2911772	12/22/81	2913664	401906	740240	ENGI				
28	TEXACO INC.			M	25	0	2912262	8/27/82	2913936	401746	740213	HAND				
29	TEXACO INC.			M	25	0	2912263	8/27/82	2913936	401746	740213	HAND				
30	TEXACO INC.			M	25	0	2912264	8/27/82	2913936	401746	740213	HAND				
31	TEXACO INC.			M	25	0	2912265	8/27/82	2913936	401746	740213	HAND				
32	SHELL OIL COMPANY			M	25	0	2912553	1/21/83	2914447	401846	740152	HAND				
33	SHELL OIL COMPANY			M	25	0	2912554	1/21/83	2914447	401846	740152	HAND				
34	SHELL OIL COMPANY			M	25	0	2912555	1/21/83	2914447	401846	740152	HAND				
35	Redacted - Privacy Act			R	80	12	2912598	2/1/83	2914473	401832	740126	AQUA				
36	Redacted - Privacy Act			D	80	12	2913181	9/12/83	2913697	401806	740232	PICK				
37	N.J. TRANSIT CORP			M	35	0	2913825	6/20/85	2914474	401819	740152	GEOR				
38	Redacted - Privacy Act			D	60	8	2914157	9/15/84	2914448	401846	740139	AJWD				
39	Redacted - Privacy Act			D	120	10	2914244	10/5/84	2913695	401819	740219	PETE				
40	Redacted - Privacy			R	200	8	2914980	5/5/85	2913653	401912	740246	AJWD	10/23/85			
41	MODERATE INCOME MANA			G	200	40	2915008	5/5/85	2913689	401806	740246	PICK	8/12/01			
42	Redacted - Privacy Act			R	80	15	2915297	8/7/85	2913931	401752	740232	PICK	9/4/85			
43	Redacted - Privacy Act		N	D	70	15	2915836	12/10/85	2913697	401806	740232	PICK	2/24/86			
44	Redacted - Privacy Act			D	100	10	2917404	10/21/86	2913689	401806	740246	TIGE	12/8/86			
45	Redacted - Privacy Ac			G	200	15	2921172	9/1/88	2913658	401853	740306	TIGE	1/23/89			
46	Redacted - Privacy Act			G	190	20	2921780	11/10/88	2914449	401853	740133	ENDR	1/20/89			
47	BRIDGEWATER TOWNHOUS	BRIDGEWATER DRIVE	57	G	180	25	2922549	4/12/89	2914473	401839	740133	TIGE	6/8/89	5/30/89	180	DENNIS BUCHANNAN
48	Redacted - Privacy Act	TRAFZLOAR PLACE		G	60	10	2922571	4/14/89	2913653	401920	740253	KAYE	6/16/89	4/24/89	55	POPPE GARY
49	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	M~~11	M	20	0	2922675	5/1/89	2914713	401800	740133	GRAH		5/10/89	20	
50	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW2	M	20	0	2922676	5/1/89	2914713	401800	740133	GRAII		5/12/89	25	

Well Search Summary
Site 812
U.S. Army Garrison Fort Monmouth, New Jersey

	WELL OWNER	WELL ADDRESS	WELL DESIGNATION	WELL USE CODE	WELL DEPTH (ft)	WELL CAPACITY	PERMIT NUMBER	PERMIT DATE	NJGRID	LATITUDE	LONGITUDE	DRILLER	WELL DATE	COMP. DATE	FIN. DEPTH	WELL CONTACT (If identified)
51	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW3	M	20	0	2922677	5/1/89	2914713	401800	740133	GRAII		5/12/89	18	
52	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW4	M	20	0	2922678	5/1/89	2914713	401800	740133	GRAII		5/11/89	20	
53	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW5	M	20	0	2922679	5/1/89	2914713	401800	740133	GRAII		5/9/89	21	
54	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW6	M	20	0	2922680	5/1/89	2914713	401800	740133	GRAII		5/9/89	20	
55	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW7	M	20	0	2922681	5/1/89	2914713	401800	740133	GRAII		5/10/89	12	
56	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW8	M	20	0	2922682	5/1/89	2914713	401800	740133	GRAII		5/10/89	12	
57	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW9	M	20	0	2922683	5/1/89	2914713	401800	740133	GRAII		5/10/89	18	
58	185 MONMOUTH PARKWAY	185 MONMOUTH PARKWAY	MW1O	M	20	0	2922684	5/1/89	2914713	401800	740133	GRAII		5/11/89	18	
59	US ARMY	SALTZMAN AVENUE	1	M	30	0	2923677	11/3/89	2913665	401906	740226	MYBL	3/12/90	11/2/89	15	MYERS GREGORY
60	US ARMY	SALTZMAN AVENUE	2	M	30	0	2923678	11/3/89	2913665	401906	740226	MYBL	3/12/90	11/2/89	17	MYERS GREGORY
61	US ARMY	SALTZMAN	3	M	30	0	2923679	11/3/89	2913665	401906	740226	MYBL	3/12/90	AVENUE	11/2/89	
62	US ARMY	SALTZMAN AVENUE	4	M	30	0	2923680	11/3/89	2913665	401906	740226	MYBL	3/12/90	11/2/89	20	MYERS GREGORY
63	Redacted - Privacy Act	ORCHARD STREET		D	69	15	2923690	11/2/89	2913689	401813	740253	PICK	7/20/90	4/5/90	67	PRIMOST ALLEN
64	US ARMY	176 RIVERSIDE DRIVE		M	30	0	2924639	4/27/90	2913665	401906	740226	MYBL	7/12/90	5/1/90	15	MYERS GREGORY
65	US ARMY	176 RIVERSIDE DRIVE		M	30	0	2924640	4/27/90	2913665	401906	740226	MYBL	7/12/90	5/1/90	14	MYERS GREGORY
66	AMERADA HESS	ROUTE 36	NW5	M	50	0	2924867	6/11/90	2913934	401746	740240	GRAII	7/3/90	6/18/90	20	
67	AMERADA HESS	ROUTE 36	MW6	M	50	0	2924868	6/11/90	2913934	401746	740240	GRAII	7/3/90	6/18/90	19	
68	AMERADA HESS	ROUTE 36	MW7	M	50	0	2924869	6/11/90	2913934	401746	740240	GRAII	7/3/90	6/18/90	19	
69	AMERADA HESS	ROUTE 36	MW8	M	50	0	2924870	6/11/90	2913934	401746	740240	GRAII	7/3/90	6/19/90	20	
70	AMERADA HESS	ROUTE 36	MW9	M	50	0	2924871	6/11/90	2913934	401746	740240	GRAII	7/3/90	6/19/90	35	
71	SHELL OIL CORP	P.O. BOX 1703	GTO1	M	10	0	2924953	6/27/90	2914447	401853	740200	KAVL	9/24/90	7/12/90	12	KAVLUNAS MICHAEL
72	SHELL OIL CORP	P.O. BOX 1703	GTO2	M	10	0	2924954	6/27/90	2914447	401853	740200	KAVL	9/24/90	7/12/90	12	KAVLUNAS MICHAEL
73	SHELL OIL CORP	P.O. BOX 1703	GTO3	M	10	0	2924955	6/27/90	2914447	401853	740200	KAVL	9/24/90	7/12/90	12	KAVLUNAS MICHAEL
74	SHELL OIL CORP	P.O. BOX 1703	GTO4	M	10	0	2924956	6/27/90	2914447	401853	740200	KAVL	9/24/90	7/12/90	11	KAVLUNAS MICHAEL
75	Redacted - Privacy A	1 HIGH TEC		M	20	0	2925357	10/12/90	2913693	401839	740213	WILS	10/19/90	10/15/90	19	ECCLESTON RAYMOND
76	BUEHLER CHEVROLET	ROUTE 36	MW5	M	20	0	2926362	6/13/91	2913934	401746	740240	ENVI	1/22/92	6/19/91	23	
77	BUEHLER CHEVROLET	ROUTE 36	MW7	M	20	0	2926363	6/13/91	2913934	401746	740240	ENVI	11/26/91	6/19/91	15	
78	Redacted - Privacy Act	83 SUNNYBROOK DRIVE		D	230	15	2926704	8/8/91	2913653	401920	740253	KAYE	10/15/91	8/28/91	250	POPPE GARY
79	U.S. ARMY FORT MONMO	BLDG 167	1	M	20	0	2926925	9/24/91	2914444	401906	740200	TABA	10/29/91			
80	U.S. ARMY FORT MONMO	BLDG 167	2	M	20	0	2926926	9/24/91	2914444	401906	740200	TABA	10/29/91	10/1/91	13	HITZELBERGER CHARLE
81	U.S. ARMY FORT MONMO	BLDG 167	3	M	20	0	2926927	9/24/91	2914444	401906	740200	TABA	10/29/91	10/1/91	13	HITZELBERGER CHARLE
82	U.S. ARMY FORT MONMO	BLDG 167	4	M	20	0	2926928	9/24/91	2914444	401906	740200	TABA	10/29/91			
83	U.S. ARMY FORT MONMO	BLDG 167	3	M	20	0	2926929	9/24/91	2914444	401906	740200	TABA	10/29/91	10/3/91	12	HITZELBERGER CHARLE
84	U.S. ARMY FORT MONMO	BLDG 167	1	M	20	0	2926930	9/24/91	2914444	401906	740200	TABA	10/29/91	10/2/91	12	HITZELBERGER CHARLE
85	U.S. ARMY FORT MONMO	BLDG 167	2	M	20	0	2926931	9/24/91	2914444	401906	740200	TABA	10/29/91	10/2/91	11	HITZELBERGER CHARLE
86	U.S. ARMY FORT MONMO	BLDG 167	1	M	20	0	2926938	9/25/91	2914441	401920	740200	TABA	10/29/91	10/8/91	12	HITZELBERGER KARL
87	U.S. ARMY FORT MONMO	BLDG 167	1	M	20	0	2926939	9/25/91	2914441	401920	740200	TABA	10/29/91	10/4/91	14	HITZELBERGER CHARLE
88	U.S. ARMY FORT MONMO	BLDG 167	1	M	20	0	2926940	9/25/91	2914444	401906	740200	TABA	10/29/91	10/7/91	13	HITZELBERGER CHARLE
89	U.S. ARMY FORT MONMO	BLDG 167	2	M	20	0	2926941	9/25/91	2914444	401906	740200	TABA	10/29/91	10/7/91	14	HITZELBERGER CHARLE
90	U.S. ARMY FORT MONMO	BLDG 167	3	M	20	0	2926942	9/25/91	2914444	401906	740200	TABA	10/29/91	10/4/91	15	HITZELBERGER CHARLE
91	FINN ASSOCIATES	300	MW1	M	25	0	2927972	5/5/92	2913936	401746	740213	DIAD	5/20/92	HWY 36	5/14/92	
92	U S ARMY	EVANS AREA BLDG	R-1	E	20	25	2928031	5/14/92	2914444	401906	740200	TABA	6/25/92	5/20/92	20	SHINN WILLIAM
93	AMERADA HESS CORP	ROUTE 36	MW1O	M	25	0	2928548	8/12/92	2913934	401746	740240	GRAII	9/8/92	8/14/92	22	
94	AMERADA HESS CORP	ROUTE 36	MW11	M	25	0	2928549	8/12/92	2913934	401746	740240	GRAII	9/8/92	8/13/92	22	
95	AMERADA HESS CORP	ROUTE 36	MW12	M	25	0	2928550	8/12/92	2913934	401746	740240	GRAII	9/8/92	8/13/92	22	
96	BENDERSON DEVELOPMEN	ROUTE 36	VW1	M	20	0	2928648	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/21/92	16	
97	BENDERSON DEVELOPMEN	ROUTE 36	VW2	M	20	0	2928649	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/21/92	15	
98	BENDERSON DEVELOPMEN	ROUTE 36	VW3	M	20	0	2928650	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/21/92	14	
99	BENDERSON DEVELOPMEN	ROUTE 36	VW4	M	20	0	2928651	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/21/92	12	
100	BENDERSON DEVELOPMEN	ROUTE 36	VW5	M	20	0	2928652	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/22/92	11	

Well Search Summary
Site 812
U.S. Army Garrison Fort Monmouth, New Jersey

	WELL OWNER	WELL ADDRESS	WELL DESIGNATION	WELL USE CODE	WELL DEPTH (ft)	WELL CAPACITY	PERMIT NUMBER	PERMIT DATE	NJGRID	LATITUDE	LONGITUDE	DRILLER	WELL DATE	COMP. DATE	FIN. DEPTH	WELL CONTACT (If identified)
101	BENDERSON DEVELOPMEN	ROUTE 36	VW6	M	20	0	2928653	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/22/92	11	
102	BENDERSON DEVELOPMEN	ROUTE 36	VW7	M	20	0	2928654	8/27/92	2914711	401800	740200	GRAII	10/8/92	9/22/92	12	
103	BENDERSON DEVELOPMEN	ROUTE 36	MW1	M	20	0	2928669	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/22/92	20	
104	BENDERSON DEVELOPMEN	ROUTE 36	MW2	M	20	0	2928670	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/22/92	25	
105	BENDERSON DEVELOPMEN	ROUTE 36	MW3	M	20	0	2928671	8/27/92	2914711	401800	740200	GRAII	10/27/92	9/22/92	20	
106	U.S. ARMY FORT MONMO	BLDG 167		M	20	0	2928907	10/13/92	2914444	401906	740200	TABA	11/5/92	10/14/92	15	HITZELBERGER KARL
107	U.S. ARMY	513 MOTOR POOL		M	20	0	2928992	10/27/92	2914441	401920	740200	GARS	11/6/92	10/30/92	15	BRITTON CLAUDE
108	U.S. ARMY	513 MOTOR POOL		M	20	0	2928993	10/27/92	2914441	401920	740200	GARS	11/6/92	10/30/92	15	BRITTON CLAUDE
109	U.S. ARMY	513 MOTOR POOL		M	20	0	2928994	10/27/92	2914441	401920	740200	GARS	11/6/92	10/30/92	15	BRITTON CLAUDE
110	U.S. ARMY	513 MOTOR POOL		M	20	0	2928995	10/27/92	2914441	401920	740200	GARS	11/6/92	11/3/92	15	BRITTON CLAUDE
111	Redacted - Privacy Act			(R)1	100	10	2929422	3/23/93	2913923	401800	740253	COLN	4/26/93	3/31/93	114	VAN BRUNT DAVID JR.
112	GETTY PETROLEUM CORP	86 DOREMUS AVENUE	MW1.	M	15	0	2929627	5/4/93	2913681	401839	740319	TYRE	6/18/93	5/7/93	10	
113	GETTY PETROLEUM CORP	157 BROAD STREET	MW2	M	15	0	2929628	5/4/93	2913681	401839	740319	TYRE	7/22/93	5/7/93	10	
114	GETTY PETROLEUM CORP	157 BROAD STREET	MW3	M	15	0	2929629	5/4/93	2913681	401839	740319	TYRE	7/22/93	5/7/93	10	
115	JERSEY CENTRAL POWER	201 MONMOUTH ROAD	1	M	4	0	2930262	9/23/93	2913935	401746	740226	ENVI	1/13/94	10/14/93	12	LYNCH THOMAS
116	Redacted - Privacy Ac	126 S. PEMBERTON AVENUE	W1	G	20	10	2930388	11/1/93	2913683	401839	740253	PARE	2/28/95	1/12/95	25	
117	U S ARMY FORT MONMOU			M	15	0	2930957	4/5/94	2914444	401906	740200	TYRE	7/27/94	7/6/94	15	BECK MICHAEL E.
118	U S ARMY FORT MONMOU		MW-1	M	15	0	2930961	4/5/94	2913667	401853	740240	TYRE	7/27/94	7/15/94	13	BECK MICHAEL E.
119	U S ARMY FORT MONMOU		MW-1	M	15	0	2930962	4/5/94	2914444	401906	740200	TYRE	7/27/94	7/8/94	15	BECK MICHAEL E.
120	U S ARMY FORT MONMOU			M	15	0	2930963	4/5/94	2914444	401906	740200	TYRE	7/27/94	7/7/94	15	BECK MICHAEL E.
121	U S ARMY FORT MONMOU		MW-1	M	15	0	2930964	4/5/94	2914444	401906	740200	TYRE	7/27/94	7/6/94	15	BECK MICHAEL E.
122	U S ARMY FORT MONMOU		MW-1	M	15	0	2930965	4/5/94	2913655	401906	740306	TYRE	7/27/94	7/11/94	15	BECK MICHAEL E.
123	U S ARMY FORT MONMOU			M	15	0	2930966	4/5/94	2913656	401906	740253	TYRE	7/27/94	7/15/94	13	BECK MICHAEL E.
124	U S ARMY FORT MONMOU			M	15	0	2930967	4/5/94	2913656	401906	740253	TYRE	7/27/94	7/14/94	13	BECK MICHAEL E.
125	U S ARMY FORT MONMOU		MW-1	M	15	0	2930968	4/5/94	2913656	401906	740253	TYRE	7/27/94	7/8/94	15	BECK MICHAEL E.
126	U S ARMY FORT MONMOU		MW-7	M	15	0	2930973	4/5/94	2913664	401906	740240	TYRE	7/27/94	7/12/94	13	BECK MICHAEL E.
127	U S ARMY FORT MONMOU		MW-B	M	15	0	2930974	4/5/94	2913664	401906	740240	TYRE	7/27/94	7/12/94	13	BECK MICHAEL E.
128	U S ARMY FORT MONMOU		MW-3	M	15	0	2930975	4/5/94	2913661	401920	740240	TYRE	7/29/94	7/11/94	13	BECK MICHAEL E.
129	U S ARMY FORT MONMOU		MW-66	M	15	0	2930976	4/5/94	2913661	401920	740240	TYRE	7/29/94	7/14/94	13	BECK MICHAEL E.
130	U S ARMY FORT MONMOU		MW-1	M	15	0	2930979	4/5/94	2913656	401906	740253	TYRE	7/27/94	7/11/94	15	BECK MICHAEL E.
131	U S ARMY FORT MONMOU		MW-1	M	15	0	2930980	4/5/94	2913664	401906	740240	TYRE	7/27/94	7/13/94	13	BECK MICHAEL E.
132	SHELL OIL COMPANY	1 MAIN STREET	GT1O2	M	25	0	2931158	5/4/94	2914447	401853	740200	KAVL	6/29/94	6/1/94	12	KAVLUNAS MICHAEL
133	SHELL OIL COMPANY	1 MAIN STREET	GT1O1	M	25	0	2931159	5/4/94	2914447	401853	740200	KAVL	6/29/94	6/1/94	12	KAVLUNAS MICHAEL
134	Redacted - Privacy Act	WELFHILL AVENUE	34	G	30	10	2931552	6/30/94	2914449	401853	740133	PARE	8/29/94	7/13/94	35	PARENT GARY
135	US ARMY FORT MONMOUT	SELFM-PW-EV	MW1	M	15	0	2931772	8/3/94	2913664	401906	740240	TYRE	10/13/94	9/14/94	12.5	
136	US ARMY FORT MONMOUT	SELFM-PW-EV	MW1	M	15	0	2931773	8/3/94	2913664	401906	740240	TYRE	10/13/94	9/14/94	10	
137	US ARMY FORT MONMOUT	SELFM-PW-EV	MW1	M	15	0	2931774	8/3/94	2913664	401906	740240	TYRE	10/13/94	9/15/94	13	
138	US ARMY FORT MONMOUT	SELFM-PW-EV	MW1	M	15	0	2931775	8/3/94	2913664	401906	740240	TYRE	10/13/94	9/22/94	12	
139	US ARMY FORT MONMOUT	SELFM-PW-EV	MW1	M	15	0	2931780	8/3/94	2913656	401906	740253	TYRE	10/13/94	9/13/94	12.5	
140	US ARMY FORT MONMOUT	SELFM-PW-EV	MW2	M	15	0	2931781	8/3/94	2913656	401906	740253	TYRE	10/13/94	9/13/94	12.5	
141	US ARMY FORT MONMOUT	SELFM-PW-EV		M	15	0	2931782	8/3/94	2913656	401906	740253	TYRE	10/13/94	9/13/94	12.5	
142	US ARMY FORT MONMOUT	SELFM-PW-EV	MW1	M	15	0	2931785	8/3/94	2913655	401906	740306	TYRE	10/13/94	9/12/94	15	
143	US ARMY ENGINEERS DI	SHERILL & MESSINGE AVES	B3	B	30	0	2932189	10/4/94	2913655	401906	740306	GEOR	10/26/94	10/21/94	12	
144	US ARMY ENGINEERS DI	SHERILL & MESSINGE AVES	B1	B	30	0	2932190	10/4/94	2913655	401906	740306	GEOR	10/26/94	10/19/94	47	
145	US ARMY ENGINEERS DI	SHERILL & MESSINGER AVES	B2	B	30	0	2932191	10/4/94	2913655	401906	740306	GEOR	10/26/94	10/20/94	32	
146	US ARMY ENGINEERS DI	SHERILL & MESSINGER AVES	B4	B	30	0	2932192	10/4/94	2913655	401906	740306	GEOR	10/26/94	10/20/94	27	
147	U. S. ARMY (DIRECTOR	BLDG 167	MW-12	M	25	0	2932560	11/29/94	2913656	401906	7402	ANDE	4/20/95	12/20/94	15	BURGER JR. STEVAN
148	U. S. ARMY (DIRECTOR	BLDG 167	MW-13	M	25	0	2932561	11/29/94	2913656	401906	740253	ANDE	4/20/95	1/17/95	15	REEVE WELLINGTON
149	U. S. ARMY (DIRECTOR	BLDG 167	MW-14	M	25	0	2932562	11/29/94	2913656	401906	7402	ANDE	4/20/95	1/16/95	15	REEVE WELLINGTON
150	U. S. ARMY (DIRECTOR	BLDG 167	MW-1S	M	25	0	2932563	11/29/94	2913656	401906	7402	ANDE	4/20/95	1/17/95	15	REEVE WELLINGTON

Well Search Summary
Site 812
U.S. Army Garrison Fort Monmouth, New Jersey

	WELL OWNER	WELL ADDRESS	WELL DESIGNATION	WELL USE CODE	WELL DEPTH (ft)	WELL CAPACITY	PERMIT NUMBER	PERMIT DATE	NJGRID	LATITUDE	LONGITUDE	DRILLER	WELL DATE	COMP. DATE	FIN. DEPTH	WELL CONTACT (If identified)
151	U. S. ARMY (DIRECTOR	BLDG 167	MW-24	M	25	0	2932565	11/29/94	2913656	401906	7402	ANDE	4/20/95	1/13/95	15	REEVE WELLINGTON
152	U. S. ARMY (DIRECTOR	BLDG 167	MW-25	M	25	0	2932566	11/29/94	2913656	401906	7402	ANDE	4/20/95	1/13/95	15	REEVE WELLINGTON
153	U. S. ARMY (DIRECTOR	BLDG 167	B4MW04-	M	25	0	2932567	11/29/94	2913656	401906	7402	ANDE	4/20/95	1/9/95	15	REEVE WELLINGTON
154	U. S. ARMY (DIRECTOR	BLDG 167	MW-4	M	25	0	2932568	11/29/94	2913655	401906	7403	Ab1DE	4/20/95	1/11/95	23	BURGER JR. STEVAN
155	U. S. ARMY (DIRECTOR	BLDG 167	MW-S	M	25	0	2932569	11/29/94	2913655	401906	7403	Ab1DE	4/20/95	1/9/95	16	BURGER JR. STEVAN
156	U. S. ARMY (DIRECTOR	BLDG 167	MW-+6	M	25	0	2932570	11/29/94	2913655	401906	7403	ANDE	4/20/95	1/1/95	15	REEVE WELLINGTON
157	U. S. ARMY (DIRECTOR	BLDG 167	MW-7	M	25	0	2932571	11/29/94	2913655	401906	7403	ANDE	4/20/95	12/14/94	16	BURGER JR. STEVAN
158	U. S. ARMY (DIRECTOR	BLDG 167	MW-B	M	25	0	2932572	11/29/94	2913655	401906	7403	Ab1DE	4/20/95	12/13/94	19	BURGER JR. STEVAN
159	U. S. ARMY (DIRECTOR	BLDG 167	MW-9	M	25	0	2932573	11/29/94	2913655	401906	7403	ANDE	4/20/95	12/13/94	22	BURGER JR. STEVAN
160	U. S. ARMY (DIRECTOR	BLDG 167	MW1.0	M	25	0	2932574	11/29/94	2913655	401906	7403	Ab1DE	4/20/95	12/14/94	15	BURGER JR. STEVAN
161	U. S. ARMY (DIRECTOR	BLDG 167	MW1.1	M	25	0	2932575	11/29/94	2913655	401906	7403	Ab1DE	4/20/95	12/15/94	15	BURGER JR. STEVAN
162	U. S. ARMY (DIRECTOR	BLDG 167	MW1.6	M	25	0	2932576	11/29/94	2913668	401853	7402	Ab1DE	4/20/95	1/4/95	15	BURGER JR. STEVAN
163	U. S. ARMY (DIRECTOR	BLDG 167	MW1.7	M	25	0	2932577	11/29/94	2913668	401853	7402	Ab1DE	4/20/95	1/11/95	15	BURGER JR. STEVAN
164	U. S. ARMY (DIRECTOR	BLDG 167	MW1.8	M	25	0	2932578	11/29/94	2913668	401853	7402	ANDE	4/20/95	1/11/95	15	BURGER JR. STEVAN
165	U. S. ARMY (DIRECTOR	BLDG 167	MW1.9	M	25	0	2932579	11/29/94	2913668	401853	7402	ANDE	4/20/95	1/4/95	15	BURGER JR. STEVAN
166	U. S. ARMY (DIRECTOR	BLDG 167	MW20	M	25	0	2932580	11/29/94	2913668	401853	7402	Ab1DE	4/20/95	1/4/95	15	REEVE WELLINGTON
167	U. S. ARMY (DIRECTOR	BLDG 167	MW21	M	25	0	2932581	11/29/94	2913668	401853	7402	Ab1DE	4/20/95	1/4/95	16	BURGER JR. STEVAN
168	U. S. ARMY (DIRECTOR	BLDG 167	MW22	M	25	0	2932582	11/29/94	2913668	401853	7402	Ab1DE	4/20/95	12/15/94	15	REEVE WELLINGTON
169	U. S. ARMY (DIRECTOR	BLDG 167	B5	M	25	0	2932583	11/29/94	2913668	401853	7402	Ab1DE	4/20/95	1/11/95	15	REEVE WELLINGTON
170	U. S. ARMY (DIRECTOR	BLDG 167	MW-01	M	25	0	2932584	11/29/94	2913681	401839	7403	Ab1DE	4/20/95	12/14/95	22	REEVE WELLINGTON
171	U. S. ARMY (DIRECTOR	BLDG 167	MW-02	M	25	0	2932585	11/29/94	2913681	401839	7403	ANDE	4/20/95	12/13/95	17	REEVE WELLINGTON
172	U. S. ARMY (DIRECTOR	BLDG 167	MW-03	M	25	0	2932586	11/29/94	2913681	401839	7403	Ab1DE	4/20/95	12/13/95	15	REEVE WELLINGTON
173	U. S. ARMY (DIRECTOR	BLDG 167	MW-O1B	M	25	0	2932587	11/29/94	2913681	401839	7403	Ab1DE	4/20/95	1/9/95	14	BURGER JR. STEVAN
174	U. S. ARMY (DIRECTOR	BLDG 167	MW-02B	M	25	0	2932588	11/29/94	2913681	401839	7403	ANDE	4/20/95	1/6/95	20	BURGER JR. STEVAN
175	U. S. ARMY (DIRECTOR	BLDG 167	MW-03B	M	25	0	2932589	11/29/94	2913681	401839	7403	Ab1DE	4/20/95	1/9/95	26	BURGER JR. STEVAN
176	UNITED STATES GOVERN	FORT MONMOUTH ARMY	B1-B10	B	50	0	2932743	1/20/95	2913656	401906	740253	UNIT	3/6/95	BASE	2/9/95	
177	AMERADA HESS CORP.	1 HESS PLAZA	MW-9	M	22	0	2932937	3/13/95	2913934	401746	740240	GRAII	3/28/95	3/21/95	24	VOGT JOHN
178	AMERADA HESS CORP.	1 HESS PLAZA	MW1O	M	22	0	2932938	3/13/95	2913934	401746	740240	GRAII	3/28/95	3/21/95	24	VOGT JOHN
179	US ARMY - FORT MONMO	BLDG	1122	M	20	0	2933754	7/19/95	2914444	401906	740200	PARE	10/2/95	9/12/95	15	PARENT GARY
180	US ARMY - FORT MONMO	FT. MONMOUTH	1122MW1	M	20	0	2933755	7/19/95	2914444	401906	740200	PARE	11/8/95	9/12/95	18	PARENT GARY
181	EATONTOWN BOROUGH OF	20 LEWIS STREET	MW-7	M	20	0	2933769	7/19/95	2913659	401853	740253	PARE	7/31/95	7/25/95	13	PARENT GARY
182	EATONTOWN BOROUGH OF	20 LEWIS STREET	MW8	M	20	0	2933770	7/19/95	2913659	401853	740253	PARE	7/31/95	7/25/95	13	PARENT GARY
183	EATONTOWN BOROUGH OF	21 LEWIS STREET	MW-3	M	20	0	2933771	7/19/95	2913659	401853	740253	PARE	7/31/95	7/25/95	13	PARENT GARY
184	EATONTOWN BOROUGH OF	21 LEWIS STREET	MW-4	M	20	0	2933772	7/19/95	2913659	401853	740253	PARE	7/31/95	7/25/95	13	PARENT GARY
185	EATONTOWN BOROUGH OF	21 LEWIS STREET	MW-S	M	20	0	2933773	7/19/95	2913659	401853	740253	PARE	7/31/95	7/25/95	13	PARENT GARY
186	US ARMY - FT. MONMOU	BLDG. 167 DEH ENV.	MW296-4	M	20	0	2933989	8/18/95	2913661	401920	740240	PARE	9/18/95	9/12/95	10	PARENT GARY
187	GETTY PETROLEUM CORP	157 BROAD ST.	MW1.2	M	25	0	2934248	9/28/95	2913684	401826	740319	AQUI	11/1/95	10/4/95	15	MALACK GERALD A
188	GETTY PETROLEUM CORP	157 BROAD ST.	MW1.1	M	25	0	2934249	9/28/95	2913684	401826	740319	AQUI	11-01-199S	10/4/95	15	MALACK GERALD A
189	GETTY PETROLEUM CORP	157 BROAD ST.	MW1.0	M	25	0	2934250	9/28/95	2913684	401826	740319	AQUI	11/1/95	10/5/95	15	MALACK GERALD A
190	GETTY PETROLEUM CORP	157 BROAD ST.	MW9	M	25	0	2934251	9/28/95	2913684	401826	740319	AQUI	11/1/95	10/5/95	15	MALACK GERALD A
191	GETTY PETROLEUM CORP	157 BROAD T.	MW7	M	25	0	2934252	9/28/95	2913684	401826	740319	AQUI	11/1/95	10/5/95	15	MALACK GERALD A
192	ALLIED SIGNAL-BENDIX	118 HIGHWAY 35	RW#3	E	45	4	2935127	4/2/96	2913687	401813	740319	HAND	1/14/97	10/3/96	34	KOVELESKY STEVE
193	ALLIED SIGNAL-BENDIX	118 HIGHWAY 35	RW#4	E	45	4	2935128	4/2/96	2913687	401813	740319	HAND	12/2/96	10/3/96	34	KOVELESKY STEVE
194	ALLIED SIGNAL-BENDIX	118 HIGHWAY 35	RW#2	E	45	4	2935129	4/2/96	2913687	401813	740319	HAND	12/3/96	10/4/96	34	KOVELESKY STEVE
195	ALLIED SIGNAL-BENDIX	118 HIGHWAY 35	RW#6	E	45	4	2935130	4/2/96	2913687	401813	740319	HAND	12/2/96	10/4/95	34	KOVELESKY STEVE
196	U. S. ARMY	COOREGIDOR RD.	MW2B1	M	50	0	2935312	5/1/96	2913657	401853	740319	GRAII	5/15/96	5/2/96	41	VOGT JOHN
197	U. S. ARMY	COOREGIDOR RD.	MW282	M	50	0	2935313	5/1/96	2913657	401853	740319	GRAII	5/15/96	5/2/96	16	VOGT JOHN
198	U. S. ARMY	COOREGIDOR RD.	MW291	M	50	0	2935314	5/1/96	2913657	401853	740319	GRAII	5/15/96	5/3/96	16	VOGT JOHN
199	GETTY PETROLEUM CORP	157 BROAD ST.	MW-1.3	M	20	0	2935585	6/19/96	2913684	401826	740319	PARE	7/31/96	7/3/96	20	PARENT GARY
200	OAKHURST SERVICE CEN	ROOSEVELT AVE.	MW#5	M	25	0	2935731	7/17/96	2914484	401826	740119	LUTZ	8/15/96	8/8/96	20	TABOR RICHARD J1.598

Well Search Summary
Site 812
U.S. Army Garrison Fort Monmouth, New Jersey

	WELL OWNER	WELL ADDRESS	WELL DESIGNATION	WELL USE CODE	WELL DEPTH (ft)	WELL CAPACITY	PERMIT NUMBER	PERMIT DATE	NJGRID	LATITUDE	LONGITUDE	DRILLER	WELL DATE	COMP. DATE	FIN. DEPTH	WELL CONTACT (If identified)
201	OAKHURST SERVICE CEN	ROOSEVELT AVE.	MW#6	M	25	0	2935732	7/17/96	2914484	401826	740119	LUTZ	8/15/96	8/8/96	20	TABOR RICHARD
202	ALLIED SIGNAL/BENDIX	118 HIGHWAY 35	RW5	E	35	4	2935931	8/29/96	2913688	401813	740306	HAND	12/2/96	10/7/96	34	KOVELESKY STEVE
203	AMERADA HESS CORP	ROUTE 36	VW1	V	20	0	2936816	4/14/97	2913934	401746	740240	GRAII	7/17/97	6/23/97	11	YOTCOSKI STEVE
204	AMERADA HESS CORP	ROUTE 36	VW2	V	20	0	2936817	4/14/97	2913934	401746	740240	GRAII	7/17/97	6/23/97	11	YOTCOSKI STEVE
205	AMERADA HESS CORP	ROUTE 36	VW3	V	20	0	2936818	4/14/97	2913934	401746	740240	GRAII	7/17/97	6/23/97	11	YOTCOSKI STEVE
206	AMERADA HESS CORP	ROUTE 36	VW4	V	20	0	2936819	4/14/97	2913934	401746	740240	GRAII	7/17/97	6/23/97	11	YOTCOSKI STEVE
207	AMERCOM ENG CORP	RT 36	B1-B7	B	40	0	2936995	5/27/97	2914484	401826	740119	LIPP	9/10/97	7/18/97	40	WOODINGTON BARRIE
208	Redacted - Privacy Act	80 REYNOLDS DR	1	D	180	12	2937223	7/7/97	2913931	401800	740240	RAYS	2/23/98	10/29/97	90	PETERS RAY
209	ALLIED SIGNAL/BENDIX	118 HIGHWAY 35	TRW-2	E	35	8	2937602	9/11/97	2913688	401813	740306	HAND	Feb-97	9/24/97	22	KOVELESKY STEPHEN
210	ALLIED-SIGNAL/BENDIX	118 HIGHWAY 35	TRW-3	E	35	8	2937603	9/11/97	2913688	401813	740306	HAND	Feb-97	9/24/97	21.5	KOVELESKY STPHEN
211	ALLIED SIGNAL/BENDIX	118 HIGHWAY 35	U-2	E	35	8	2937604	9/11/97	2913688	401813	740306	HAND	Feb-97	9/24/97	22	KOVELESKY STEPHEN
212	ALLIED SIGNAL/BENDIX	118 HIGHWAY 35	TRW-1	E	35	8	2937605	9/11/97	2913688	401813	740306	HAND	Feb-97	9/25/97	21.5	KOVESLESKY STEPHEN
213	ALLIED-SIGNAL/BENDIX	118 HIGHWAY 35	U-1	E	35	8	2937606	9/11/97	2913688	401813	740306	HAND	Feb-97	9/25/97	21.5	KOVESLESKY STEPHEN
214	UNITED STATES ARMY	RT. 35	SPG-1	V	25	0	2937737	10/8/97	2913657	401853	740319	PARE	1/9/98	12/2/97	22	GRANESE MIKE
215	UNITED STATES ARMY	RT. 35	SPG-2	V	25	0	2937738	10/8/97	2913657	401853	740319	PARE	1/9/98	12/2/97	22	GRANESE MIKE
216	UNITED STATES ARMY	RT. 35		V	25	0	2937739	10/8/97	2913657	401853	740319	PARE	1/9/98	12/2/97	6	GRANESE MIKE
217	UNITED STATES ARMY	RT. 35	SVE-2	V	25	0	2937740	10/8/97	2913657	401853	740319	PARE	1/9/98	12/2/97	6	GRANESE MIKE
218	Redacted - Privacy Act	6 STIRRUP LN.		(R)1	50	10	2937867	11/13/97	2913932	401800	740226	RPMI	12/12/97	11/16/97	240	MAYER CHRIS S
219	WATERS EDGE TOWN HOM	4 OCEANPORT AVE.		G	120	35	2937878	11/14/97	2914447	401853	740200	MCCR	4/16/98	2/3/98	280	VAN DUSON ALLEN
220	Redacted - Privacy Act	1281EATONTOWN BLVD		M	30	0	2938172	2/11/98	2913695	401826	740226	PARE				
221	MONMOUTH GRACE U.M.	REYNOLDS DRIVE		D	100	16	2938320	11	2913923	25	3/13/98	AQUA	401800			
222	AMERADA HESS CORP.	SO. MONMOUTH ROAD	MW-1S	M	30	0	2938420	4/3/98	2913934	401746	740240	GRAII	4/21/98	4/16/98	15	BURTON JIM
223	CP MANAGEMENT GROUP	271 HIGHWAY-36		M	20	0	2938431	4/6/98	2914714	401746	740200	DIAD				
224	CP MANAGEMENT GROUP	271 HIGHWAY 36		M	20	0	2938768	6/5/98	2914714	401746	740200	DIAD				
225	CP MANAGEMENT GROUP	271 HIGHWAY 36		M	20	0	2938769	6/5/98	2914714	401746	740200	DIAD				
226	N J DOT	RT. 36 MEDIAN @ MONMOUTH		M	20	0	2939277	9/9/98	2914714	401746	740200	DIAD				
227	US ARMY - FT. MONMOU	SELSM-EH-MC BLDG 2700		H	300	0	2939550	10/21/98	2913695	401826	740226	STOT				
228	GETTY PROPERTIES COR	157 BROAD ST		M	20	0	2939826	1/7/99	2913681	401839	740319	AQUI				

Search date: 18 January 2001.
Well search was performed for a 1-mile radius surrounding the center point of Site 812, U.S. Army Garrison Fort Monmouth, Fort Monmouth, New Jersey.

Well Use Codes

A - Unknown/Well Record Use Only
B - Boring
C - Commercial
D - Domestic (Potable)
E - Recovery/Decontamination Pollution Control/Leachate with Pump Capacity
F - Fire
G - Irrigation
H - Heat Pump/Geothermal (Return Well)
I - Industrial
J - Injection
K - Inclinometer
L - Livestock
M - Monitoring Well (Observation)
N - Public Non Community
O - Oil/Gas Exploration
P - Public Supply
Q - Recharge
R - Replacement (Replacement Codes: 1 - Domestic; 2 - Public Community, 5 - Irrigation)
S - Closed Loop
T - Test
U - Non Public (Supply)
V - Gas Vent
W - Dewatering
X - Agricultural/Horticultural/IrrigationWells
Y - Cathodic Protection
Z - Piezometer

APPENDIX G

ANALYTICAL DATA PACKAGE

(under separate cover)