

United States Army
Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

***Building 2562
Charles Wood Area***

**NJDEP UST Registration No. 81515-41
DICAR No. 93-08-16-1243-26**

April 2001

**UNDERGROUND STORAGE TANK
CLOSURE AND SITE INVESTIGATION REPORT**

BUILDING 2562

**CHARLES WOOD AREA
NJDEP UST REGISTRATION NO. 81515-41**

APRIL 2001

PREPARED FOR:

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

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PROJECT NO. 4936-127

2562.DOC

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EXECUTIVE SUMMARY

UST Closure

On August 30, 1993, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) closure procedures at the Charles Wood Area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0081515-41 (Fort Monmouth ID No. 2562), was located south of Building 2562. UST No. 0081515-41 was a 5,000-gallon tank containing gasoline.

Site Assessment-Soil

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. The sampling and laboratory analyses conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes or punctures. No holes or punctures were noted in the UST. Stained soil was observed and appeared to be contaminated. Based on the inspection of the excavation, Directorate of Public Works (DPW) concluded that a discharge of petroleum products was associated with this UST. The NJDEP hotline was notified and the case was assigned DICAR No. 93-08-16-1243-26. Groundwater was encountered at 4.0 feet below ground surface and sheen was observed on groundwater.

On August 30, 1993, following the removal of the UST and potentially petroleum contaminated soil from the excavated area, post-excavation soil samples A, B, C, D, E, F, G, and H (DUP D) were collected from seven (7) locations within the UST excavation area. Excavation floor samples A and B were collected at a depth of 7.0 feet bgs. Sidewall samples C, D, F, G, and H (DUP D) were collected at a depth of 5.5 feet bgs. Sample E was taken with an auger and split spoon outside the excavation at a depth of 4.5 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC), total solids, lead, and Volatile Organic Compounds (VOCs).

Site Assessment-Findings

Analytical results of post-excavation soil samples collected on August 30, 1993, contained either non-detectable concentrations of contaminants or concentrations of contaminants below the NJDEP Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Site Assessment-Groundwater

In response to the observation of potentially contaminated soil near the shallow water table, three (3) shallow overburden monitoring wells (MW-1, MW-2, and MW-3) were installed at the Building 2562 area on July 6 and July 19, 1994. MW-1 was installed

approximately 40 feet southeast of the southeastern corner of Building 2562 in the vicinity of the former excavation. It was screened in the 2.0 to 12.5 foot depth interval, across the water table, which is approximately 4 feet below ground surface.

A second shallow overburden monitoring well (MW-2) was installed at the Building 2562 area on July 6, 1994. It was installed approximately 50 feet south of the southwestern corner of Building 2562 in the vicinity of the former excavation. It was screened in the 2.0 to 15.0 foot depth interval, across the water table, which is approximately 4 feet below ground surface.

A third shallow overburden monitoring well (MW-3) was installed at the Building 2562 area on July 6, 1994. It was installed approximately 5 feet north of the southwestern corner of Building 2562 in the vicinity of the former excavation. It was screened in the 2.0 to 15.0 foot depth interval, across the water table, which is approximately 4 feet below grade surface.

Between November 8, 1994, and January 22, 2001, monitoring wells MW1, MW-2, and MW-3 were sampled on a quarterly basis. The wells were analyzed for lead and VOCs calibrated for xylene plus 15 TICs.

Findings-Groundwater

A review of the historical groundwater analytical results indicates that concentrations of methyl-tert-butyl ether and lead have been detected during these sampling events at concentrations that exceed the respective NJDEP GWQS. As part of the long-term monitoring program for Building 2562, the levels of methyl-tert-butyl ether and lead detected previously are declining and are now in compliance with the NJDEP GWQS.

Conclusion and Recommendations

Based on the analytical results of the post-excavation soil samples collected on August 30, 1993, soil quality at the Building 2562 UST closure site does not exceed the NJDEP RDCSCC. Therefore, no further action is warranted.

Based on the analytical results of the groundwater samples collected between November 8, 1994, and January 22, 2001, groundwater quality at the Building 2562 UST closure site complies with the New Jersey Groundwater Quality Standards

No further action is proposed in regard to the closure and site assessment of UST No. 081515-41 at Building 2562.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 81515-41, was closed at Building 2562 at the Charles Wood area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on August 30, 1993. Refer to the Site Location Map, Figure 1. This report presents the results of the Department of Public Works' (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a steel 5,000-gallon tank containing gasoline.

Decommissioning activities for UST No. 81515-41 complied with all applicable Federal, State, and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 and 1910.120. All permits including but not limited to the NJDEP-approved Decommissioning/Closure Plan were posted onsite for inspection. The decommissioning activities were conducted by DPW personnel who are registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 81515-41 proceeded under the approval of the NJDEP Bureau of Federal Case Management (NJDEP-BFCM). The Standard Reporting Form and signed Site Assessment Summary form for UST No. 81515-41 are included in Appendices A and B, respectively.

This UST Closure and Site Investigation Report has been prepared by Versar, to assist the U.S. Army DPW in complying with the NJDEP regulations. The applicable NJDEP regulations at the date of closure were the *Interim Closure Requirements for Underground Storage Tank Systems* (N.J.A.C. 7:14B-1 et seq. October 1990 and revisions dated November 1, 1991).

This report was prepared using information collected at the time of closure. Section 1 of this UST Closure and Site Investigation Report provides a summary of the UST decommissioning activities. Section 2 of this report describes the site investigation activities. Conclusions and recommendations, including the results of the soil sampling and groundwater investigation, are presented in the final section of this report.

1.2 SITE DESCRIPTION

Building 2562 is located in the Charles Wood area of the Fort Monmouth Army Base. UST No. 0081515-41 was located south of Building 2562 and appurtenant steel piping ran approximately fifteen (15) feet southwest from the UST to a pump station. A Site Map is provided as Figure 2.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding Building 2562. 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 Charles Wood area.

Regional Geology

Monmouth County lies within the New Jersey Section of the Atlantic Coastal Plain physiographic province. The Main Post, Charles Wood, and the Evans areas are located in what may be referred to as the Outer Coastal Plain subprovince, or the Outer Lowlands.

In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, and gravel. These formations typically strike northeast-southwest with a dip ranging from 10 to 60 feet per mile and were deposited on Precambrian and lower Paleozoic rocks (Zapeczka, 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. Over 20 regional geologic units are present within the sediments of the Coastal Plain. Regressive, upward coarsening deposits are usually aquifers (e.g., Englishtown and Kirkwood Formations, and the Cohansey Sand) while the transgressive deposits act as confining units (e.g., the Merchantville, Marshalltown, and Navesink Formations). The individual thickness for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and Zapeczka, 1990).

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Charles Wood area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet 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 (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

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 (Minard, 1969). The upper part of the Tinton is often highly oxidized and iron oxide encrusted (Minard).

Hydrogeology

The water table aquifer at the Charles Wood 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.

Based on records of wells drilled in the Charles Woods area, water is typically encountered at depths of 1 to 9 feet below ground surface (bgs). The depth to ground water measured at three monitoring wells installed at Building 2044 ranged between 0.99 feet (MW-2 on January 9, 1997) and 3.44 feet (MW-3 on November 10, 1994).

According to Jablonski, wells drilled in the Red Bank and Tinton Sands may produce 2 to 25 gallons per minute (gpm). Some well owners have reported acidic water that requires treatment to remove iron.

Due to the proximity of the Atlantic Ocean to Fort Monmouth, shallow groundwater may be tidally influenced and may flow toward creeks and brooks as the tide goes out, and away from creeks and brooks as the tide comes in. However, an abundance of clay lenses and sand deposits were noted in borings installed throughout Fort Monmouth. Therefore the direction of shallow groundwater should be determined on a case by case basis.

1.3 HEALTH AND SAFETY

Before, during, and after all decommissioning activities, hazards at the work site which may have posed a threat to the Health and Safety of all personnel who were involved with, or were affected by, the decommissioning of the UST system were minimized. All areas which posed or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing an organic vapor analyzer (OVA). The individual ascertained if the area was properly vented to render the area safe, as defined by OSHA.

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

- The contractor performing the closure prior to excavation activities identified all underground obstructions (utilities, etc.).
- All activities were carried out with the greatest regard to safety and health and the safeguarding of the environment.
- All excavated soils were visually examined and screened with an Organic Vapor Analyzer (OVA) for evidence of contamination. Potentially contaminated soils were identified and logged during closure activities.

- Surface materials (i.e., asphalt, concrete, etc.) were excavated and staged separately from all soil and recycled in accordance with all applicable regulations and laws.
- A Subsurface Evaluator from the DPW was present during all site assessment activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was cut in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 1,000 gallons of liquid from the UST and associated piping were transported by Clean Venture, Inc. to the Cycle Chem, Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Elizabeth, New Jersey. Refer to Appendix C for the waste manifest.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. Soils were stained and appeared to be contaminated. Soil screening was also performed along the piping associated with the UST. No contamination was noted anywhere along the piping length. Groundwater was encountered at 4.0 feet below ground surface and sheen was observed on groundwater. See Figure 3 for a cross-sectional view of the excavation area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tank was transported in compliance with all applicable regulations and laws to Mazza & Sons, Inc. Please refer to Appendix D for the UST Disposal Certificate.

The UST was labeled prior to transport with the following information:

- Site of origin
- Contact person
- NJDEP UST Facility ID number
- Former contents
- Destination site
- Date

1.6 MANAGEMENT OF EXCAVATED SOILS

All potentially contaminated soils were stockpiled separately from other excavated material and were placed on and covered with polyethylene sheets. Potentially contaminated soils were transported to the soil staging area. Soils that did not exhibit signs of contamination were used as backfill following the removal of the UST. Groundwater was encountered at a depth of 4.0 feet bgs and sheen was observed on groundwater.

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site Investigation was managed and carried out by U.S. Army DPW personnel. All analyses were performed and reported by U.S. Army Fort Monmouth Environmental Laboratory, a NJDEP-certified testing laboratory. All sampling was performed under the direct supervision of a NJDEP Certified Subsurface Evaluator according to the methods described in the NJDEP *Field Sampling Procedures Manual* (1992). Sampling frequency and parameters analyzed complied with the NJDEP document, *Interim Closure Requirements for Underground Storage Tank Systems* (October 1990 and revisions dated November 1, 1991), which was the applicable regulation at the date of the closure. The Fort Monmouth DPW Environmental Office maintains all records of the Site Investigation activities.

The following Parties participated in Closure and Site Investigation Activities:

- Subsurface Evaluator: Charles Appleby
Employer: U.S. Army, Fort Monmouth
Phone Number: (732) 532-0989
NJDEP Certification No.: 002046
- Analytical Laboratory: U.S. Army Fort Monmouth Environmental laboratory
Contact Person: Daniel K. Wright
Phone Number: (732) 532-4359
NJDEP Company Certification No.: 13461
- Hazardous Waste Hauler: Clean Venture Inc.
Phone Number: (908) 442-4900
NJDEP Company Certification No.: S5811

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Subsurface Evaluator using an OVA and visual observations to identify potentially contaminated material. All potentially petroleum-contaminated soils were removed from the excavation area and transported to the Charles Wood petroleum contaminated soil holding area. Soils were removed from the excavation until no evidence of contamination remained. Groundwater was encountered at 8.0 feet below ground surface and sheen was observed on groundwater.

2.3 SOIL SAMPLING

On August 30, 1993, following the removal of the UST and potentially petroleum contaminated soil from the excavated area, post-excavation soil samples A, B, C, D, E, F, G, and H (DUP D) were collected from seven (7) locations within the UST excavation area. Excavation floor samples A and B were collected at a depth of 7.0 feet bgs. Sidewall samples C, D, F, G, and H (DUP D) were collected at a depth of 5.5 feet bgs. Sample E

was taken with an auger and split spoon outside the excavation at a depth of 4.5 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC), total solids, lead, and Volatile Organic Compounds (VOCs).

U.S. Army personnel performed the site assessment in accordance with the NJDEP Technical Requirements and the NJDEP Field Sampling Procedures Manual. A summary of sampling activities including parameters analyzed is provided in Table 1. The post-excavation soil samples were collected using NJDEP *Field Sampling Procedures Manual* (1992) standard sampling procedures. Following soil sampling activities, the samples were chilled and delivered to U.S. Army Fort Monmouth Environmental Laboratory located in Fort Monmouth, New Jersey, for analysis.

2.4 GROUNDWATER SAMPLING

2.4.1 Monitoring Well Installation

Three shallow overburden monitoring wells (MW-1, MW-2, and MW-3) were installed at the Building 2562 area on July 6 and July 19, 1994. MW-1 was installed approximately 40 feet southeast of the southeastern corner of Building 2562 in the vicinity of the former excavation. It was screened in the 2.0 to 12.5 foot depth interval, across the water table, which is approximately 4 feet below ground surface.

A second shallow overburden monitoring well (MW-2) was installed at the Building 2562 area on July 6, 1994. It was installed approximately 50 feet south of the southwestern corner of Building 2562 in the vicinity of the former excavation. It was screened in the 2.0 to 15.0 foot depth interval, across the water table, which is approximately 4 feet below ground surface.

A third shallow overburden monitoring well (MW-3) was installed at the Building 2562 area on July 6, 1994. It was installed approximately 5 feet north of the southwestern corner of Building 2562 in the vicinity of the former excavation. It was screened in the 2.0 to 15.0 foot depth interval, across the water table, which is approximately 4 feet below grade surface.

The three wells were constructed in accordance with NJDEP's well construction protocols outlined in its May 1992 *Field Sampling Procedures Manual*. The NJDEP well permits and well construction logs are presented in Appendix G.

2.4.2 Monitoring Well Sampling

Between November 8, 1994, and January 22, 2001, monitoring wells MW1, MW-2, and MW-3 were sampled on a quarterly basis. The wells were analyzed for Lead and VOCs calibrated for xylene plus 15 TICs.

All sampling and analyses were performed in accordance with the NJDEP *Field Sampling Procedures Manual*, and the *Technical Requirements for Site Remediation*, N.J.A.C. 7:26E (*Technical Requirements*).

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST and associated soils, seven (7) post-excavation sample results were compared to NJDEP Residential Direct Contact Soil Cleanup Criteria (RDCSCC) (N.J.A.C. 7:26D and revisions dated May 12, 1999). Summaries of analytical results for soils are presented in Tables 2 thru 4 and the associated soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

Excavation of potentially contaminated soil from the area surrounding the UST was performed between August 16 and August 30, 1993. All potentially contaminated soil were removed from the excavated area and stored at the Charles Wood petroleum contaminated soil staging area.

Analytical results of post-excavation soil samples collected on August 30, 1993 contained either non-detectable concentrations of contaminants or concentrations of contaminants below the NJDEP RDCSCC.

3.2 GROUNDWATER SAMPLING RESULTS

A review of the historical groundwater analytical results indicates that concentrations of methyl-tert-butyl ether and lead have been detected during these sampling events at concentrations that exceed the respective NJDEP GWQS. As part of the long-term monitoring program for Building 2562, the levels of methyl-tert-butyl ether and lead detected previously are declining and are now in compliance with the NJDEP GWQS. The groundwater analytical data is summarized in Table 5 and the groundwater sampling locations are shown on Figure 5. Refer to Appendix F for the groundwater analytical data package.

3.3 CONCLUSIONS AND RECOMMENDATIONS

Based on the analytical results of the post-excavation soil samples collected on August 30, 1993, soil quality at the Building 2562 UST closure site does not exceed the NJDEP RDCSCC. Therefore, no further action is warranted.

Based on the analytical results of the groundwater samples collected between November 8, 1994, and January 22, 2001, groundwater quality at the Building 2562 UST closure site complies with the New Jersey Groundwater Quality Standards.

No further action is proposed in regard to the closure and site assessment of UST No. 081515-41 at Building 2562.

TABLES

TABLE 1
SUMMARY OF SAMPLING ACTIVITIES- 8/30/93
Charles Wood
Site 2562

Sample Identification /Sample Depths	Analytical Parameters	Sample Type	Date Collected
Site A/7.0'	TPHC,VOCs,Lead	Post-Excavation	08/30/93
Site B/7.0'	TPHC,VOCs,Lead	Post-Excavation	08/30/93
Site C/5.5'	TPHC,VOCs,Lead	Post-Excavation	08/30/93
Site D/5.5'	TPHC,VOCs,Lead	Post-Excavation	08/30/93
Site E/4.5'	TPHC,VOCs,Lead	Post-Excavation	08/30/93
Site F/5.5'	TPHC,VOCs,Lead	Post-Excavation	08/30/93
Site G/5.5'	TPHC,VOCs,Lead	Post-Excavation	08/30/93
Site H/5.5'	TPHC,VOCs,Lead	Post-Excavation	08/30/93

Notes:

TPHC- Total Petroleum Hydrocarbons
VOCs- Volatile Organic Compounds

TABLE 2
SOIL ANALYTICAL RESULTS FOR TPHC- 8/30/93
Charles Wood
Site 2562

Sample Identification	TPHC	Total Solid	NJDEP RDCSCC (mg/kg)	Date Collected
Site A	ND	84	10,000	08/30/93
Site B	ND	81	10,000	08/30/93
Site C	ND	88	10,000	08/30/93
Site D	ND	82	10,000	08/30/93
Site E	18.4	86	10,000	08/30/93
Site F	ND	85	10,000	08/30/93
Site G	ND	87	10,000	08/30/93
Site H	ND	86	10,000	08/30/93

Notes:

1. All results reported in milligrams per kilogram (mg/kg).

TPHC- Total Petroleum Hydrocarbons

RDCSCC- Residential Direct Contact Soil Cleanup Criteria.

ND- Not detected

TABLE 3

SOIL ANALYTICAL RESULTS FOR VOLATILE ORGANIC COMPOUNDS
BUILDING NO. 2562
FORT MONMOUTH, NEW JERSEY

Sample I.D.	Laboratory I.D.	Sample Date	Acetone	Methylene Chloride	Benzene	Toulene	Ethylbenzene	Xylenes(Total)
UNITS:			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
NJDEP CRITERIA:	Residential		1000	49	3	1000	1000	410
A	1266.1	08/30/93	.022 B	.0047 JB	ND	ND	ND	ND
B	1266.2	08/30/93	.026 B	.0043 JB	ND	ND	ND	ND
C	1266.3	08/30/93	.060 B	.0043 JB	ND	ND	ND	.0028 J
D	1266.4	08/30/93	.049 B	.0038 JB	0.014	.0037 J	0.0014	0.145
E	1266.5	08/30/93	.016 B	.0046 JB	ND	ND	ND	.0046 J
F	1266.6	08/30/93	.018 B	.0043 JB	ND	ND	ND	ND
G	1266.7	08/30/93	.018 B	.0043 JB	ND	ND	ND	ND
H	1266.8	08/30/93	.100 B	.0041 JB	ND	ND	ND	ND

Abbreviations:

mg/kg: Milligrams per Kilogram.
 ND: Indicates compound not detected.
 B: Indicates also present in blank.
 J: Compound identified below detection limit.

Notes:

Gray shading indicates exceedance of New Jersey Residential Direct Contact Soil Cleanup Criteria

TABLE 4

SUMMARY OF ANALYTICAL RESULTS FOR LEAD
BUILDING 2562
FORT MONMOUTH, NEW JERSEY

LABORATORY I.D. #	SAMPLE LOCATION	RESULT (mg/kg)	RDCSCC (mg/kg)
1266.1	2562-A	ND	400
1266.2	2562-B	14.0	400
1266.3	2562-C	8.14	400
1266.4	2562-D	ND	400
1266.5	2562-E	50.4	400
1266.6	2562-F	ND	400
1266.7	2562-G	7.7	400
1266.8	2562-H	ND	400

Note:

mg/kg: Milligrams per Kilogram.

ND: Not Detected.

RDCSCC refers to the New Jersey Residential Direct Contact Soil Cleanup Criteria

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 2562
FORT MONMOUTH, NEW JERSEY

Well	Sample Date	MTBE	Lead	TBA	2-Butanone	Acetone
UNITS		ug/L	ug/L	ug/L	ug/L	ug/L
NJDEP CRITERIA		70	10	NLE	300	700
2562MW01	11/08/94	88	6.2	ND	ND	ND
2562MW01	11/30/94	85	5.5	300	ND	ND
2562MW01	06/11/96	ND	1.4	ND	ND	ND
2562MW01	11/07/96	ND	ND	ND	ND	ND
2562MW01	04/14/97	ND	0.5	ND	ND	ND
2562MW01	09/04/97	ND	0.7	ND	ND	ND
2562MW01	12/10/97	ND	ND	ND	ND	ND
2562MW01	03/12/98	ND	0.8	ND	ND	ND
2562MW01	05/28/98	ND	ND	ND	ND	ND
2562MW01	08/26/98	ND	ND	ND	2.80	ND
2562MW01	11/14/98	ND	ND	ND	ND	ND
2562MW01	02/09/99	ND	ND	ND	ND	ND
2562MW01	05/29/99	ND	ND	ND	ND	ND
2562MW01	07/07/99	ND	ND	ND	ND	ND
2562MW01	10/06/99	ND	1.2	ND	ND	ND
2562MW01	01/13/00	ND	ND	ND	ND	ND
2562MW01	05/04/00	ND	ND	ND	ND	ND
2562MW01	08/02/00	ND	2.0	ND	ND	ND
2562MW01	10/12/00	ND	ND	ND	ND	ND
2562MW01	01/22/01	ND	ND	ND	11.01	20.80
2562MW01	1/22/01 D	ND	ND	ND	6.39	12.15

Note:

Gray shading indicates exceedance of New Jersey
Ground Water Quality Criteria (GWQC) defined in
NJAC 7:9-6.

Abbreviations:

MW: Monitoring Well.
ND: Not Detected.
ug/L: Micrograms per liter.
D: Value from dilution.

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 2562
FORT MONMOUTH, NEW JERSEY

Well	Sample Date	MTBE	Lead	2-Butanone	Acetone	Unknown Hydrocarbons
UNITS:		ug/L	ug/L	ug/L	ug/L	ug/L
NJDEP CRITERIA:		70	10	300	700	NLE
2562MW02	11/08/94	4	3.1	ND	ND	ND
2562MW02	11/30/94	5	ND	ND	ND	ND
2562MW02	06/11/96	ND	2.7	ND	ND	ND
2562MW02	11/07/96	ND	ND	ND	ND	ND
2562MW02	04/14/97	ND	7.0	ND	ND	ND
2562MW02	09/04/97	ND	14.0	ND	ND	ND
2562MW02	12/10/97	ND	ND	ND	ND	7
2562MW02	03/12/98	ND	0.7	ND	ND	18
2562MW02	05/28/98	ND	ND	ND	ND	ND
2562MW02	08/26/98	1.22	ND	ND	6.44	ND
2562MW02	11/14/98	ND	ND	ND	ND	ND
2562MW02	02/09/99	2.12	ND	ND	ND	ND
2562MW02	05/29/99	2.77	ND	ND	ND	ND
2562MW02	07/07/99	ND	ND	ND	ND	ND
2562MW02	10/06/99	ND	1.1	ND	ND	ND
2562MW02	01/13/00	1.16	ND	ND	ND	ND
2562MW02	05/04/00	ND	ND	ND	ND	ND
2562MW02	08/02/00	ND	ND	ND	ND	ND
2562MW02	10/12/00	ND	ND	ND	ND	ND
2562MW02	01/22/01	3.41	ND	9.65	18.73	ND

Note:

Gray shading indicates exceedance of New Jersey
Ground Water Quality Criteria (GWQC) defined in
NJAC 7:9-6.

Abbreviations:

MW: Monitoring Well.
ND: Not Detected.
ug/L: Micrograms per liter.

TABLE 5

SUMMARY OF ANALYTICAL RESULTS FOR GROUNDWATER
BUILDING NO. 2562
FORT MONMOUTH, NEW JERSEY

Well	Sample Date	MTBE	Lead	2-Butanone	Acetone	Decane
UNITS:		ug/L	ug/L	ug/L	ug/L	ug/L
NJDEP CRITERIA:		70	10	300	700	NLE
2562MW02	11/08/94	3	75.6	ND	ND	ND
2562MW02	11/30/94	2	3.1	ND	ND	ND
2562MW02	06/11/96	ND	2.0	ND	ND	ND
2562MW02	11/07/96	ND	2.1	ND	ND	ND
2562MW02	04/14/97	ND	26.7	ND	ND	ND
2562MW02	09/04/97	ND	23.4	ND	ND	ND
2562MW02	12/10/97	ND	6.6	ND	ND	4
2562MW02	03/12/98	ND	21.0	ND	ND	ND
2562MW02	05/28/98	ND	6.9	ND	ND	ND
2562MW02	08/26/98	2.80	0.9	ND	ND	ND
2562MW02	11/14/98	ND	18.1	ND	ND	ND
2562MW02	02/09/99	ND	3.3	ND	ND	ND
2562MW02	05/29/99	2.77	ND	ND	ND	ND
2562MW02	07/07/99	1.71	8.7	5.23	5.27	ND
2562MW02	10/06/99	ND	3.7	ND	ND	ND
2562MW02	01/13/00	1.28	3.76	ND	ND	ND
2562MW02	05/04/00	ND	5.5	ND	ND	ND
2562MW02	08/02/00	ND	2.5	ND	ND	ND
2562MW02	10/12/00	ND	2.27	ND	ND	ND
2562MW02	01/22/01	ND	1.54	3.90	7.71	ND

Note:

Gray shading indicates exceedance of New Jersey
Ground Water Quality Criteria (GWQC) defined in
NJAC 7:9-6.

Abbreviations:

MW: Monitoring Well.
ND: Not Detected.
ug/L: Micrograms per liter.

FIGURES

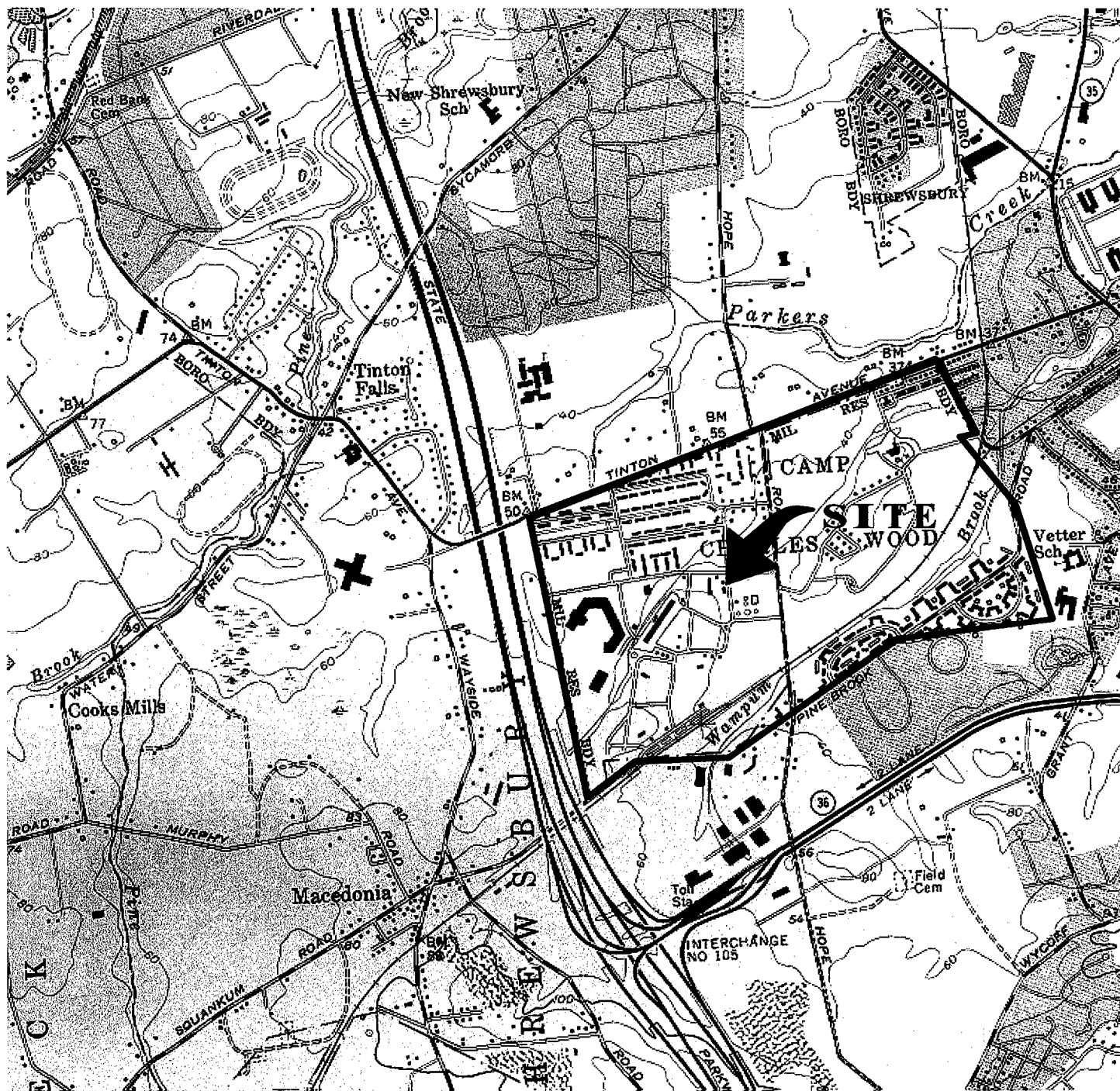


FIGURE 1

LOCATION MAP

Building 2562
Charles Wood
Fort Monmouth Army Base
Monmouth County, NJ

VERSAR

Engineers, Managers, Scientists, & Planners
Bristol, PA

Scale: 1" = 2000'

Date: August 1993

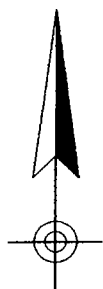
LONG BRANCH, N. J.

40073-C8-TF-024

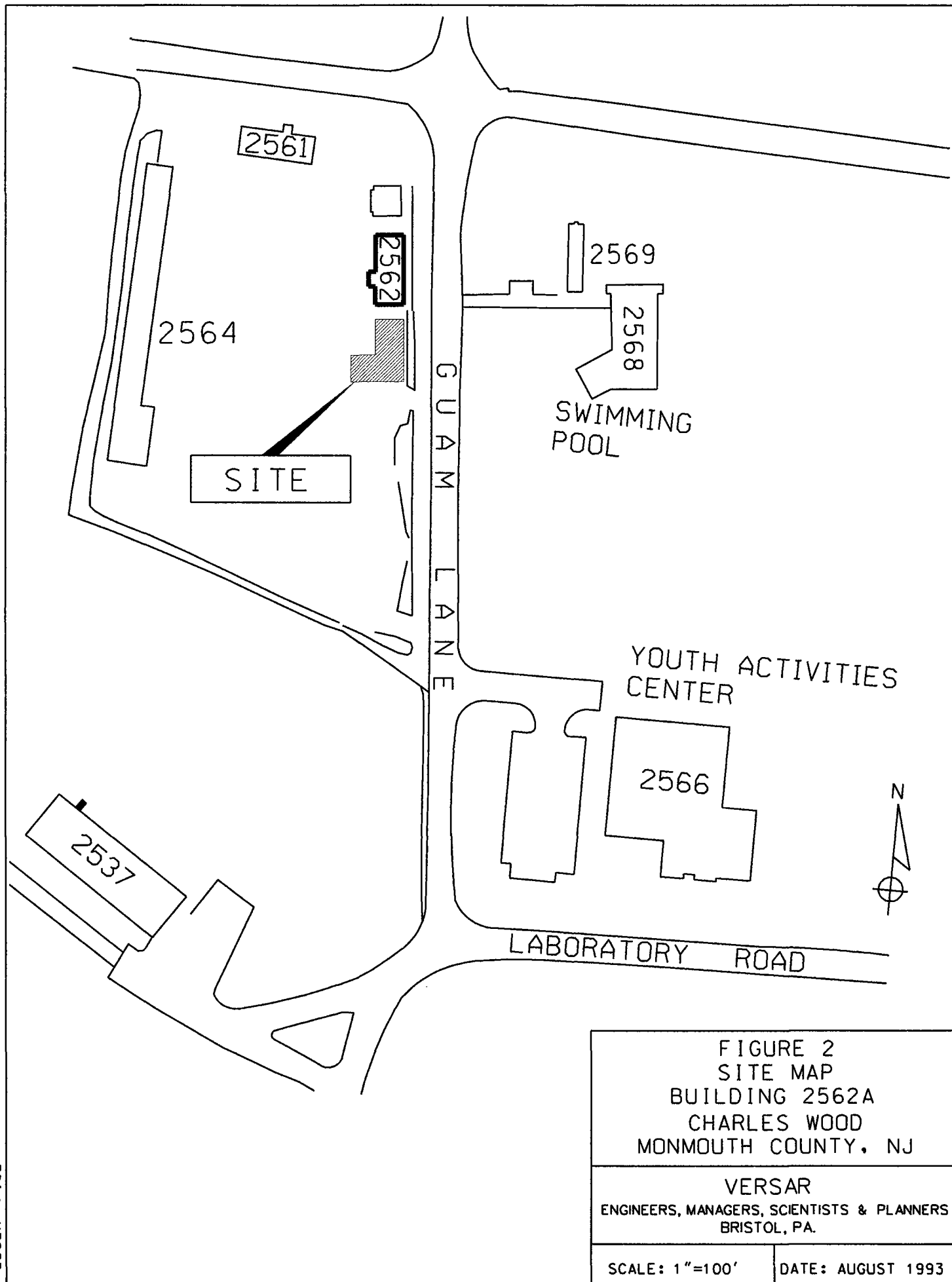
1954

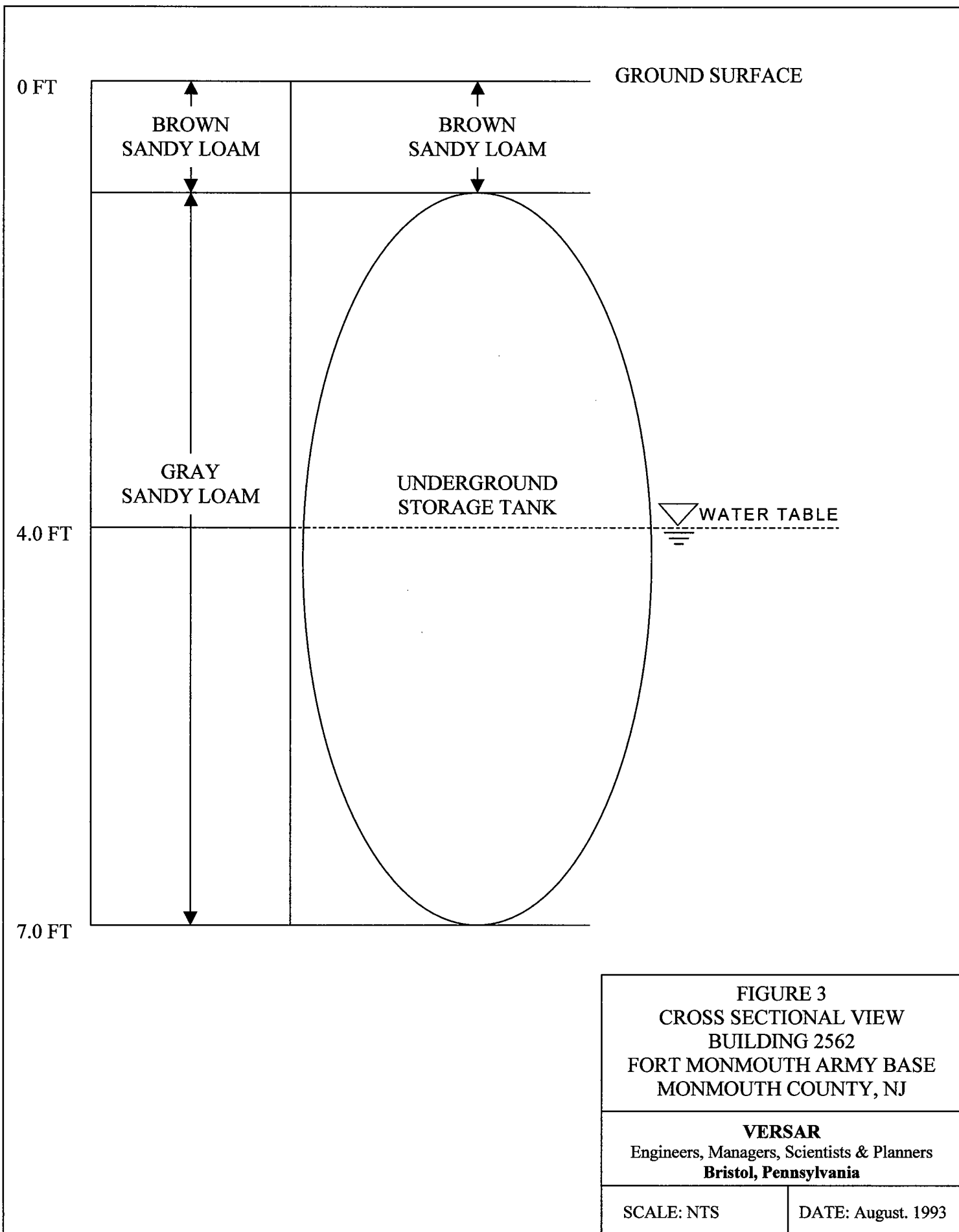
PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822



QUADRANGLE LOCATION





BUILDING 2562

2562-D/5.5' BGS	2562-H/5.5' BGS
TPHC	ND
ND	TPHC
ND	ND

2562-E/4.5' BGS
TPHC 18.40

2562-C/5.5' BGS
TPHC ND

2562-B/7.0' BGS
TPHC ND

2562-F/5.5' BGS
TPHC ND

2562-A/7.0' BGS
TPHC ND

2562-G/5.5' BGS
TPHC ND



LEGEND



SOIL SAMPLE LOCATION
(AUGUST 30, 1993)



LIMIT OF EXCAVATION
(AUGUST 30, 1993)

NOTES:

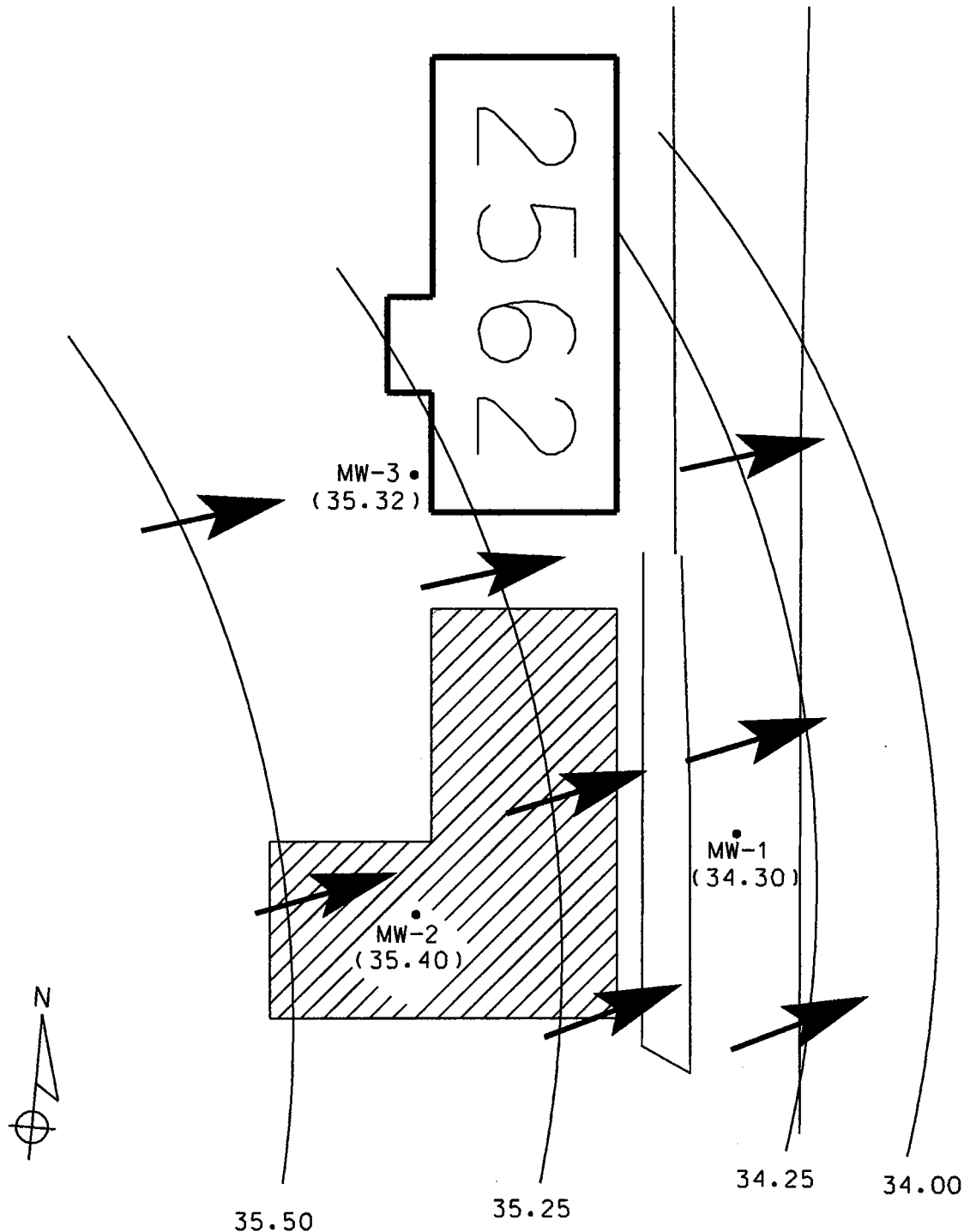
1. ALL RESULTS IN MG/KG.
2. SEE TABLE 2 FOR TPHC RESULTS
3. SEE TABLE 3 FOR VOC RESULTS
4. SEE TABLE 4 FOR LEAD RESULTS
5. BGS = BELOW GROUND SURFACE

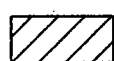
FIGURE 4
SOIL SAMPLING LOCATION MAP
BUILDING 2562A
CHARLES WOOD
MONMOUTH COUNTY, NJ

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

SCALE: 1"=10'

DATE: AUGUST 1993



 LIMIT OF EXCAVATION
(AUGUST 30, 1993)

LEGEND

 ESTIMATED GROUNDWATER ELEVATION CONTOUR (FT)
(34.30) GROUNDWATER ELEVATION ON JANUARY 22, 2001

NOTE:

1. SEE TABLE 5 FOR GROUNDWATER RESULTS.

FIGURE 5
WELL LOCATION AND
GROUNDWATER CONTOUR
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1" = 20'

DATE: AUGUST 1993

APPENDIX A

NJDEP-STANDARD REPORTING FORM



State of New Jersey
 Department of Environmental Protection and Energy
 Division of Responsible Party Site Remediation
 CN 028
 Trenton, NJ 08625-0029

ATTN: UST Program
 (609) 984-3156

For State Use Only

Date Rec'd _____
 Auth. _____
 Routing _____
 UST NO. _____

STANDARD REPORTING FORM
 for reporting activities at an UST facility:

- | | |
|--|---|
| ☐ General Facility Information Changes | ☐ Sale or Transfer |
| ☒ Closure (Abandonment or Removal) | ☐ Substantial Modification |
| ☐ Temporary Closure | ☐ Financial Responsibility |
| ☐ Change in Service | ☐ Address Change Only |

Check ONLY One Type of Activity - Complete Form For That Activity

(More than one tank can be listed per activity)

*** NOTE *** ALL NEW tank installations at existing registered facilities must submit a Registration Questionnaire for the new tanks.

Answer questions 1 through 5 and others as applicable.

1. Company name and address (as it appears on registration questionnaire):

U.S. ARMY Fort Monmouth
 DEH Bldg 167
 Fort Monmouth NJ 07703
 ATTN: Charles APPKby

2. Facility name and location
 (If different from above):

3. Contact person for this activity:

Charles APPKby
 Telephone Number: (908) 532-6224

4. The identification number of the affected tank as it appears in Question Number 12 on the Registration Questionnaire:

Bldg. 2562

41

5. Registration Number (if known):

UST- 0081515

6. For GENERAL FACILITY INFORMATION changes (address, telephone, contact person, etc. - supply NEW information only):

- a. Facility name: _____
 b. Facility location: _____
 c. Owner's mailing address: _____
 _____ NJ _____
 d. Block: _____ Lot: _____
 e. Contact person (facility operator): _____
 f. Contact telephone number: (_____) _____
 g. Other (Specify): _____

(OVER)

7. For CLOSURE (abandonment or removal - check all that apply):

a. ☐ Abandonment Date: 1/1 Case No:

Attach the necessary implementation schedule (3 copies) and all documentation needed for abandonment per N.J.A.C. 7:14B-9.1 (d).

b. ☒ Removal Date: 8/30/93 Case No: None 8-16-1243

Attach the necessary implementation schedule (3 copies): TMS-C-93-2618

8. For CHANGES IN HAZARDOUS SUBSTANCES STORED (check all that apply):

a. ☐ Temporary Closure (12 month maximum time - see N.J.A.C. 7:14B-9.1(b)). Remove all hazardous substances; leave tank in place.

b. ☐ Change in service from a regulated substance to a non-regulated substance. Tank must be cleaned and site assessment performed per N.J.A.C. 7:14B-9.1(e).

c. ☐ Changes in service from one regulated hazardous substance to another regulated hazardous substance.

Tank No. Old New

Tank No. Old New

Tank No. Old New

(Attach additional sheets if more space is needed)

9. For TRANSFER OF OWNERSHIP: Effective Date: / /

a. New Owner (operator)

b. New Facility Name

NJ

County

c. Closing Attorney Tele: () -

10. For SUBSTANTIAL MODIFICATIONS (to include any retrofitted activity - e.g. the addition of spill/overfill protection, monitoring systems, cathodic protection, etc.):

a. Type of Modification Date: / /

b. * NOTE * Substantial modifications require a permit under N.J.A.C. 7:14B-10.

11. For changes in FINANCIAL RESPONSIBILITY to (check appropriate changes and attach copies of new information):

a. Policy Type: ☐

d. Company/Carrier: ☐

b. Policy Number: ☐

e. Expiration Date: ☐

c. Other: ☐

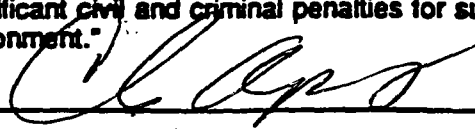
(Specify)

NOTE: ALL appropriate and applicable permits, licenses and certificates required by the above activity(ies) from any local, state and/or federal agencies must be obtained separately from this notification.

CERTIFICATION

This registration form shall be signed by the highest ranking individual at the facility with overall responsibility for that facility (N.J.A.C. 7:14B-2.3 (a) 1).

"I certify under penalty of law that the information provided in this document is true, accurate and complete. I am aware that there are significant civil and criminal penalties for submitting false, inaccurate or incomplete information, including fines and/or imprisonment."

Signature: 

Name (print or type): Charles M. Appleby

Title: Enviro. Prot. Specialist SEIFM-EH-EV Date: 9/10/93

APPENDIX B

SITE ASSESSMENT SUMMARY

Site Remediation Program

UST Site/Remedial Investigation Report Certification Form

A. Facility Name : U.S. Army Fort Monmouth New JerseyFacility Street Address : Directorate of Public Works Building 173Municipality: Oceanport County : MonmouthBlock: _____ Lot(s): _____ Telephone Number : 732-532-6224**B. Owner (RP)'s Name:** _____

Street Address: _____ City : _____

State: _____ Zip: _____ Telephone Number : _____

C. (Check as appropriate)☐ Site Investigation

Report (SIR) \$500 Fee

☐ Remedial Investigation

Report (RIR) \$1000 Fee

☒ NA – Federal
Agreement**D. (Complete all that apply)**

- Assigned Case Manager : Ian Curtis, Federal Case Manager
- UST Registration Number : 81515-41 (7 digits)
- Incident Report Number 93 – 08 – 16 – 1243 – 26 (10 or 12 digits)

- Tank Closure Number : Federal Case Manager

E. Certification by the Subsurface Evaluator:

The attached report conforms to the specific reporting requirements of N.J.A.C. 7:26EYes No

Name: Charles Appleby Signature: See signed UST removal checklist UST Cert. No.: 002056Firm: U.S. Army Fort Monmouth Firm's UST Cert. Number: NA-U.S. ArmyFirm Address: Directorate of Public Works Building 173 City: Fort MonmouthState: NJ Zip: 07703 Telephone Number : 732-532-6224

(NOTE: Certification numbers required only if work was conducted on USTs regulated per N.J.S.A. 58:10A-21 et seq.)

F. Certification by the Responsible Party(ies) of the Facility:

The following certification shall be signed [according to the requirements of N.J.A.C. 7:14B-1.7(b)]as follows:

1. For a Corporation by a person authorized by a resolution of the board of directors to sign the document. A copy of the resolution, certified as a true copy by the secretary of the corporation, shall be submitted along with the certification; or
2. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
3. For a municipality, State, federal or other public agency by either a principal executive officer or ranking elected Official.

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

Name (Print or Type): James Ott Title: Directorate of Public Works

Signature: _____

Company Name: U.S. Army Fort Monmouth Date: _____

U.S. Army
EH Bldg. 167
ELFM-EH
Fort Monmouth, NJ 07703

Date: _____
Building #: _____
NJDEPE UST Reg. #: _____
CLOSURE APPROVAL #: _____

UST #	⁶⁰⁰⁵ OIL/H2O GAL.	UST WASTE REMOVED SLUDGE DRUMS	SOIL (ID27) CUYDS	HAZ. SOILS DRUMS
41	11"			
	748 gal.			
Bill - Plus - 233 gal. for 2044			UST # 2575	190486 - 33
	481 gal.			
TOTALS:				

981 total
4/2044
5" for 2562

5. WHO AUTHORIZED THE BACKFILL OF THE EXCAVATION? N/A
7. AMOUNTS OF BACKFILL USED: CLEAN FILL 0 CUYDS.
WASHED STONE 0 TONS
8. LOOSE WASTE SOILS WERE TRANSPORTED TO: 2539
9. DRUMS OF WASTE WERE TRANSPORTED TO: N/A
10. REMOVAL COMPLETED: TIME: DATE:
11. SIGNATURE OF CONTRACTOR SUPERVISOR: [Signature]
12. SIGNATURE OF SUBSURFACE EVALUATOR: [Signature]

0500 Contractor on Site. I stopped work - for no - Closure Cert. Individual on-site.
815 - Journal Cert Closure on-site Eventual commenced
1000 - Clean Venturi on Site to Vac out UST Contents
1030 - Completed Pump out 233 gal. 5"
Went to 2044 to pump out Ust. - 11" for 2044 = JAC.
9" of water total,
2:00 left for lunch - Called in Discharge - updated data base.
2:30 Return Lt. Rain
2:00 m.m. on-site to inspect - backhoe slower than slow. no organization
re planning
2:30 left Site locked. Contractor left tools in bldg. at our R3K

APPENDIX C
WASTE MANIFEST



State of New Jersey
Department of Environmental Protection and Energy
Hazardous Waste Regulation Program
Manifest Section
CN 028, Trenton, NJ 08625-0028

2562 file.
Lod bar bag from
8/18/93

Please type or print in block letters. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-9

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	Information in the shaded areas is not required by Federal law.
3. Generator's Name and Mailing Address U.S. ARMY COMMUNICATIONS ELECTION COMMAND, Charles Wood FORT MONMOUTH, NJ 07703		1. Generator's US EPA ID No. NJ2210020978		A. State Manifest Document Number NJA 1772203	
4. Generator's Phone: (908) 532-6223		6. US EPA ID Number		B. State Generator's ID	
5. Transporter 1 Company Name CLEAN VENTURE INC.		6. US EPA ID Number NJ10082201016		C. State Trans. ID NJ DEPT 85811	
7. Transporter 2 Company Name		8. US EPA ID Number		D. Transporter's Phone: 908-442-4900	
9. Designated Facility Name and Site Address CYCLE CHEM INC. 217 South First Street Elizabeth NJ 07206		10. US EPA ID Number NJ10002200046		E. State Trans. ID	
11. US DOT Description (including Proper Shipping Name, Hazard Class, and ID Number) RM		12. Containers No. Type		13. Total Quantity	
E. X RQ WASTE FLAMMABLE LIQUID NOS IN 1993		14. Unit Wt/Vol		15. Waste No. D001	
F. 001 TTC		G. 009 G		H. D018	
J. Additional Descriptions for Materials Listed Above gasoline 90% water 10% L,I,E		K. Handling Codes for Wastes Listed Above			
15. Special Handling Instructions and Additional Information emergency # 908-442-4900 plate: TV-761N decals: 45081 UST # 193486-33 > 233 gal, UST # 8155-41, 243-2418-249 gal - 57900 - 57900					
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations. If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.					
Printed/Typed Name Charles M. Appley, DEH Director		Signature <i>[Signature]</i>		Month Day Year 10/1/93	
17. Transporter 1 Acknowledgement of Receipt of Materials Printed/Typed Name Robert F. Cunningham		Signature <i>[Signature]</i>		Month Day Year 10/1/93	
18. Transporter 2 Acknowledgement of Receipt of Materials Printed/Typed Name		Signature		Month Day Year	
19. Discrepancy Indication Space					
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19. Printed/Typed Name Signature Month Day Year					

APPENDIX D

UST DISPOSAL CERTIFICATE

APPENDIX E

SOIL ANALYTICAL DATA PACKAGE

P.O. #:

Chain of Custody

Project #: 093-2618			Sampler: CA + SR.		Date / Time: 8/30		Analysis Parameters				Start:	
Customer: U3 ARMY			Site Name: 2562				T P H C				Finish:	
Phone:			TANK PULL								Preservation Method	
Lab Sample ID Number	Date/Time		Customer Sample Location/ID Number	Sample Matrix	# of Bottles					Remarks		
1266.1	8/30	1330	A	Soil	1		X				10 YR 2/2 V.D. BROWN	40
.2		1325	B		1						4/2 H-2.5Y Dk Gray Brown	
.3		1310	C		1						5/4 H-2.5Y lt olive Brown	
.4		1316	D		1						4/1 H-2.5Y Dk Gray	
.5		1420	E		1						4/1 H-2.5Y Dk Gray	
.6		1340	F		1						5/1 H-2.5Y Gray	
.7		1335	G		1						5/1 H-2.5Y Gray	
.8		1318	H		1						4/1 H-2.5Y Dk Gray	
Relinquished By (signature)			Date / Time		Received By (signature)		Shipped By:					
Relinquished By (signature)			Date / Time		Received for Lab by (signature):		Date / Time					
			8/30 1500		Sarah J. Hubbard							

Note: A drawing depicting sample location should be attached or drawn on the reverse side of this chain of custody.

Report of Analysis
U.S. Army, Fort Monmouth Environmental Laboratory
NJDEPE Certification # 13461

Client: U.S. Army
DEH, SELFM-EH-EV
Bldg. 167
Ft. Monmouth, NJ 07703

Lab. ID #: 1266.1-.8
Sample Rec'd: 08/26/93
Analysis Start: 08/31/93
Analysis Comp: 08/31/93

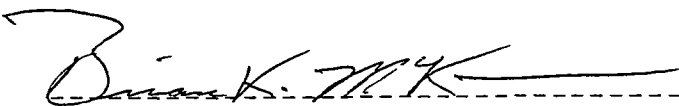
Analysis: 418.1 (TPH)
Matrix: Soil
Analyst: S. Hubbard

NJDEPE UST Reg. #: 0081515-41
TMS #: C-93-2618
NJDEPE Case #: XXXX
Location #: Bldg. # 2562

Lab ID.	Description	%Solid	Result (mg/Kg)	MDL
1266.1	A, 2/2, V.D. Brown	84	ND	3.3
1263.2	B, 4/2, H-2.5Y Dk. Gray Brown	81	ND	3.3
1263.3	C, 5/4, H-2.5Y Lt. Olive Brown	88	ND	3.3
1263.4	D, 4/1, H-2.5Y Dark Gray	82	ND	3.3
1263.5	E, 4/1, H-2.5Y Dark Gray	86	18.4	3.3
1263.6	F, 5/1, H-2.5Y Gray	85	ND	3.3
1263.7	G, 5/1, H-2.5Y Gray	87	ND	3.3
1263.8	H, 4/1, H-2.5Y Dark Gray	86	ND	6.6
M. BL.	Method Blank	100	ND	3.3

Notes: ND = Not Detected, MDL = Method Detection Limit
* = Silica Gel Added

1266.8 Dup = 100%; 1266.8 Spike = 128%; 1266.8 Spike Dup. = 100%


Brian K. McKee
Laboratory Director

PHC Conformance/Non-conformance Summary Report

No Yes

1. Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank

☒ ☐

2. Matrix Spike/Matrix Sp Dup. Recoveries Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range)

☐ ☒

3. IR Spectra submitted for standards, blanks, & samples

☐ ☒

4. Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted.

☐ ☒

5. Extraction holding time met.

(If not met, list number of days exceeded for each sample)

☐ ☒

6. Analysis holding time met.

(If not met, list number of days exceeded for each sample)

☐ ☒

Comments:

EXTRACTED w/SONICATION

Laboratory Authentication Statement

I certify under penalty of law, where applicable, that this laboratory meets the Laboratory Performance Standards and Quality Control requirements specified in N.J.A.C. 7:18 and 40 CFR Part 136 for Water and Wastewater Analyses and SW 846 for Solid Waste Analysis. I have personally examined the information contained in this report, and to the best of my knowledge, I believe that the submitted information is true, accurate, complete, and meets the above referenced standards where applicable. I am aware that there are significant penalties for purposefully submitting falsified information, including the possibility of a fine and imprisonment.

Brian K. McKee

Brian K. McKee
Laboratory Manager



618 HERON DRIVE, P.O. BOX 489 • BRIDGEPORT, NJ 08014-0489 • 609-467-9521

E-SYSTEMS

PROJECT: U.S. ARMY - FORT MONMOUTH, NJ BLDG 2562

ANALYSIS NO:

CLIENT ID:

A 3799	1266.1
A 3800	1266.2
A 3801	1266.3
A 3802	1266.4
A 3803	1266.5
A 3804	1266.6
A 3805	1266.7
A 3806	1266.8
A 3807	1266.9
A 3808	1266.10

DATE RECEIVED: AUGUST 30, 1993

**TWENTY FIRST CENTURY
ENVIRONMENTAL, INC.**

**RICHARD W. LYNCH
LABORATORY MANAGER**

CHAIN OF CUSTODY

A3799-A3808



618 HERDIN DRIVE, P.O. BOX 489 • BRIDGEPORT, NJ 08014-0489
609.467.9521 • 609.467.4523 FAX

CUSTOMER: E-SYSTEMS
ADDRESS: FT MONMOUTH
TELEPHONE: 908-532-6147
PROJECT: UST POLL B 2562
PROJECT MANAGER: _____
PROJECT LOCATION: _____ STATE: _____
PO NUMBER: R3-0151

TURNAROUND (INDICATE CALENDAR DAYS, CONFIRM WITH LAB): 2 5 7 14 21 OTHER: _____
DELIVERABLES (PLEASE CIRCLE): TIER I TIER II ECRA
CLP RESULTS ONLY OTHER: _____ BIAS CORRECTION
FAX RESULTS TO: _____

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS

PROJECT # C93-2618

ADDITIONAL INFORMATION / SPECIAL INSTRUCTIONS								NUMBER OF CONTAINERS	ANALYSIS															ADDITIONAL ANALYSIS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
SAMPLE NUMBER	SAMPLE DESCRIPTION	MATRIX	DATE	TIME	TECO	GRAB	PROJECT # C93-2618		SEMI VOLATILE ORGANICS (SVOCs)	PESTICIDES / PCBs	POB's	THP-PETROLEUM HYDROCARBONS	CORROSIVITY	IGNITABILITY	FLASHPOINT	REACTIVITY	TOC	TRIP METALS	Pb only	TCDF VOLATILE ORGANICS	TCDF SEMI VOLATILE ORGANICS	TCDF PEST / HERB	PRIORITY POLLUTANT METALS (19)	HEAVY METALS (23)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
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21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	03799	DILUTION FACTOR	1.00
CLIENT ID	BLOG 2562 1266.1	QA BATCH	
DATA FILE	>B1380	DATE ANALYZED	08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	59	Bromodichloromethane	ND	6
Acrylonitrile	ND	59	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	22 B	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4.7 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m,p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

<u>SURROGATE COMPOUNDS</u>	<u>% RECOVERY</u>	<u>LIMITS</u>	<u>STATUS</u>
1,2-Dichloroethane-d4	101	70 - 121	OK
Toluene-d8	99.8	81 - 117	OK
Bromofluorobenzene	100	74 - 121	OK

Percent Solid of 85.0 is used for all Target compounds.

(J) Indicates detected below MDL

(B) Indicates also present in blank

(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER
SAMPLE NUMBER A3808
CLIENT ID BLOS 2562 1266.2
DATA FILE >B1381

MATRIX Soil
DILUTION FACTOR 1.00
QA BATCH
DATE ANALYZED 08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	63	Bromodichloromethane	ND	6
Acrylonitrile	ND	63	2-Chloroethylvinylether	ND	13
Chloromethane	ND	13	2-Hexanone	ND	13
Bromomethane	ND	13	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	13	Toluene	ND	6
Chloroethane	ND	13	cis-1,3-Dichloropropene	ND	6
Acetone	26 B	13	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethane	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	13	4-Methyl-2-pentanone	ND	13
Methylene Chloride	4.3 JB	6	Tetrachloroethane	ND	6
1,2-Dichloroethane(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	13	m,p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropene	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	106	70 - 121	OK
Toluene-d8	103	81 - 117	OK
Bromofluorobenzene	101	74 - 121	OK

Percent Solid of 80.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER
SAMPLE NUMBER A3801
CLIENT ID BLDG 2562 1266.3
DATA FILE >B1382

MATRIX Soil
DILUTION FACTOR 1.00
QA BATCH
DATE ANALYZED 08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	58	Bromodichloromethane	ND	6
Acrylonitrile	ND	58	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	60 B	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethane	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4.3 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m,p-Xylenes	2.8 J	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoforn	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

<u>SURROGATE COMPOUNDS</u>	<u>% RECOVERY</u>	<u>LIMITS</u>	<u>STATUS</u>
1,2-Dichloroethane-d4	113	70 - 121	OK
Toluene-d8	101	81 - 117	OK
Bromofluorobenzene	101	74 - 121	OK

Percent Solid of 86.0 is used for all Target compounds.

- (J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	A3802	DILUTION FACTOR	1.00
CLIENT ID	BLDG 2562 1266.4	QA BATCH	
DATA FILE	B1383	DATE ANALYZED	08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	57	Bromodichloromethane	ND	6
Acrylonitrile	ND	57	2-Chloroethylvinylether	ND	11
Chloromethane	ND	11	2-Hexanone	ND	11
Bromomethane	ND	11	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	11	Toluene	3.7 J	6
Chloroethane	ND	11	cis-1,3-Dichloropropene	ND	6
Acetone	49 B	11	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethane	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	11	4-Methyl-2-pentanone	ND	11
Methylene Chloride	3.8 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethane(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	14	6
2-Butanone	ND	11	m,p-Xylenes	110	6
Chloroform	ND	6	o-Xylene	35	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	14	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

<u>SURROGATE COMPOUNDS</u>	<u>% RECOVERY</u>	<u>LIMITS</u>	<u>STATUS</u>
1,2-Dichloroethane-d4	110	70 - 121	OK
Toluene-d8	97.4	81 - 117	OK
Bromofluorobenzene	99.2	74 - 121	OK

Percent Solid of 87.0 is used for all Target compounds.

(J) Indicates detected below MDL

(B) Indicates also present in blank

(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	63803	DILUTION FACTOR	1.00
CLIENT ID	BLDG 2562 1266.5	QA BATCH	
DATA FILE	>81386	DATE ANALYZED	08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	57	Bromodichloromethane	ND	6
Acrylonitrile	ND	57	2-Chloroethylvinylether	ND	11
Chloromethane	ND	11	2-Hexanone	ND	11
Bromomethane	ND	11	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	11	Toluene	ND	6
Chloroethane	ND	11	cis-1,3-Dichloropropene	ND	6
Acetone	16 B	11	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	11	4-Methyl-2-pentanone	ND	11
Methylene Chloride	4.6 JB	6	Tetrachloroethane	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	11	m,p-Xylenes	4.6 J	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethene	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	118	78 - 121	OK
Toluene-d8	99.1	81 - 117	OK
Bromofluorobenzene	99.3	74 - 121	OK

Percent Solid of 87.8 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	83804	DILUTION FACTOR	1.00
CLIENT ID	BLDG 2562 1266.6	QA BATCH	
DATA FILE	81587	DATE ANALYZED	08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	61	Bromodichloromethane	ND	6
Acrylonitrile	ND	61	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	18 B	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethane	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4.3 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethane(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m,p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	114	78 - 121	OK
Toluene-d8	101	81 - 117	OK
Bromofluorobenzene	100	74 - 121	OK

Percent Solid of 82.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	A3804	DILUTION FACTOR	1.00
CLIENT ID	BLOG 2562 1266.6	QA BATCH	
DATA FILE	J81387	DATE ANALYZED	08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	61	Bromodichloromethane	ND	6
Acrylonitrile	ND	61	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	18 B	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4.3 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m,p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	114	70 - 121	OK
Toluene-d8	101	81 - 117	OK
Bromofluorobenzene	100	74 - 121	OK

Percent Solid of 82.0 is used for all Target compounds.

(J) Indicates detected below MDL

(B) Indicates also present in blank

(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	A3805	DILUTION FACTOR	1.00
CLIENT ID	BLDG 2562 1266.7	QA BATCH	
DATA FILE	B1388	DATE ANALYZED	08/31/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	61	Bromodichloromethane	ND	6
Acrylonitrile	ND	61	2-Chloroethylvinylether	ND	12
Chloromethane	ND	12	2-Hexanone	ND	12
Bromomethane	ND	12	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	12	Toluene	ND	6
Chloroethane	ND	12	cis-1,3-Dichloropropene	ND	6
Acetone	100 B	12	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	12	4-Methyl-2-pentanone	ND	12
Methylene Chloride	4.1 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethane(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	ND	6
2-Butanone	ND	12	m,p-Xylenes	ND	6
Chloroform	ND	6	o-Xylene	ND	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoforn	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	116	70 - 121	OK
Toluene-d8	98.9	81 - 117	OK
Bromofluorobenzene	98.5	74 - 121	OK

Percent Solid of 82.6 is used for all Target compounds.

(J) Indicates detected below MDL

(B) Indicates also present in blank

(ND) Indicates compound not detected

21st Century Environmental Inc.
VOLATILE ORGANIC ANALYSIS DATA

JOB NUMBER		MATRIX	Soil
SAMPLE NUMBER	03806	DILUTION FACTOR	1.00
CLIENT ID	BLDG 2562 1266.8	QA BATCH	
DATA FILE	081389	DATE ANALYZED	09/01/93

COMPOUND	UG/KG	MDL	COMPOUND	UG/KG	MDL
Acrolein	ND	57	Bromodichloromethane	ND	6
Acrylonitrile	ND	57	2-Chloroethylvinylether	ND	11
Chloromethane	ND	11	2-Hexanone	ND	11
Bromoethane	ND	11	trans-1,3-Dichloropropene	ND	6
Vinyl Chloride	ND	11	Toluene	ND	6
Chloroethane	ND	11	cis-1,3-Dichloropropene	ND	6
Acetone	38 B	11	1,1,2,2-Tetrachloroethane	ND	6
1,1-Dichloroethene	ND	6	1,1,2-Trichloroethane	ND	6
Carbon Disulfide	ND	11	4-Methyl-2-pentanone	ND	11
Methylene Chloride	4.4 JB	6	Tetrachloroethene	ND	6
1,2-Dichloroethene(trans)	ND	6	Dibromochloromethane	ND	6
1,1-Dichloroethane	ND	6	Chlorobenzene	ND	6
Vinyl Acetate	ND	6	Ethylbenzene	1.6 J	6
2-Butanone	ND	11	m,p-Xylenes	13	6
Chloroform	ND	6	o-Xylene	4.9 J	6
1,1,1-Trichloroethane	ND	6	Styrene	ND	6
Carbon Tetrachloride	ND	6	Bromoform	ND	6
1,2-Dichloroethane	ND	6	m-Dichlorobenzene	ND	6
Benzene	ND	6	p-Dichlorobenzene	ND	6
Trichloroethene	ND	6	o-Dichlorobenzene	ND	6
1,2-Dichloropropane	ND	6			

SURROGATE COMPOUNDS	% RECOVERY	LIMITS	STATUS
1,2-Dichloroethane-d4	112	70 - 121	OK
Toluene-d8	99.2	81 - 117	OK
Bromofluorobenzene	102	74 - 121	OK

Percent Solid of 87.0 is used for all Target compounds.

(J) Indicates detected below MDL
(B) Indicates also present in blank
(ND) Indicates compound not detected

CERTIFICATE OF ANALYSIS**U.S. ARMY-FORT MONMOUTH, NJ BLDG 2562****LEAD**

<u>ANALYSIS NO:</u>	<u>CLIENT ID:</u>	<u>MDL (mg/kg)</u>	<u>REUSLT (mg/kg)</u>
A 3799	1266.1	5.00	N.D.
A 3800	1266.2	5.00	14.0
A 3801	1266.3	5.00	8.14
A 3802	1266.4	5.00	N.D.
A 3803	1266.5	5.00	50.4
A 3804	1266.6	5.00	N.D.
A 3805	1266.7	5.00	7.70
A 3806	1266.8	5.00	N.D.

APPENDIX F

GROUNDWATER ANALYTICAL DATA PACKAGE

	Lab	MTBE	Lead	TBA	2-But anone	Acetone	Depth to Water				Notes
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	Feet				-
NJDEP Criteria:		70	10	NLE	300	700	NA				-
11/08/1994	Nytest	88	6.2	ND	ND	ND	-				A
11/30/1994	Nytest	85	5.5	300	ND	ND	-				V, Pb
06/11/1996	FMETL	ND	1.4	ND	ND	ND	-				V, Pb
11/07/1996	FMETL	ND	ND	ND	ND	ND	-				V, Pb
04/14/1997	FMETL	ND	0.5	ND	ND	ND	4.30				V, Pb
09/04/1997	FMETL	ND	0.7	ND	ND	ND	3.40				V, Pb
12/10/1997	FMETL	ND	ND	ND	ND	ND	3.80				V, Pb
03/12/1998	FMETL	ND	0.8	ND	ND	ND	3.31				V, Pb
05/28/1998	FMETL	ND	ND	ND	ND	ND	3.60				V, Pb
08/26/1998	FMETL	ND	ND	ND	2.80	ND	4.33				V, Pb
11/14/1998	FMETL	ND	ND	ND	ND	ND	4.13				V, Pb
02/09/1999	FMETL	ND	ND	ND	ND	ND	3.34				V, Pb
05/29/1999	FMETL	ND	ND	ND	ND	ND	4.00				V, Pb
07/07/1999	FMETL	ND	ND	ND	ND	ND	4.07				V, Pb
10/06/1999	FMETL	ND	1.2	ND	ND	ND	3.52				V, Pb
01/13/2000	FMETL	ND	ND	ND	ND	ND	3.42				V, Pb
05/04/2000	FMETL	ND	ND	ND	ND	ND	3.75				V, Pb
08/02/2000	FMETL	ND	2.0	ND	ND	ND	3.25				V, Pb
10/12/2000	FMETL	ND	ND	ND	ND	ND	3.89				V, Pb
01/22/2001	FMETL	ND	ND	ND	11.01	20.80	3.23				V,Pb
01/22/2001D	FMETL	ND	ND	ND	6.39	12.15	3.23				V,Pb

SOURCE: 2562MW01

Sampling Dates:
11/08/1994 - 01/22/2001

NOTES:

A - Pb found in Field blank (4.1 ppb).

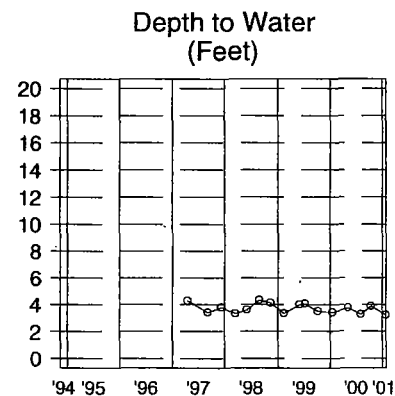
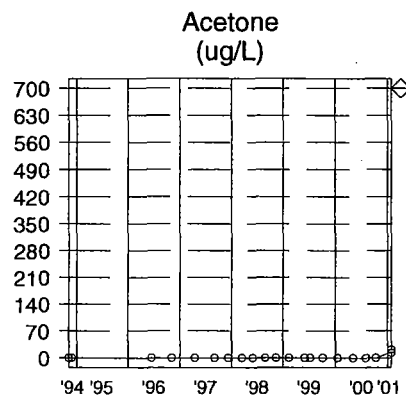
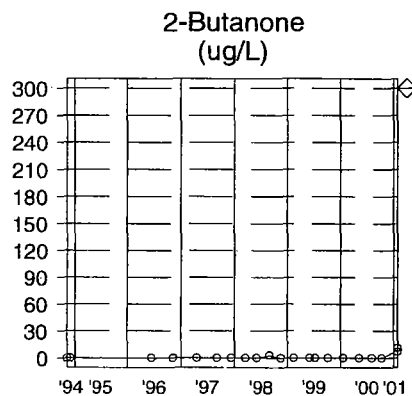
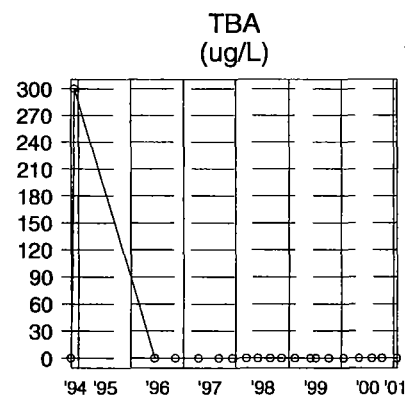
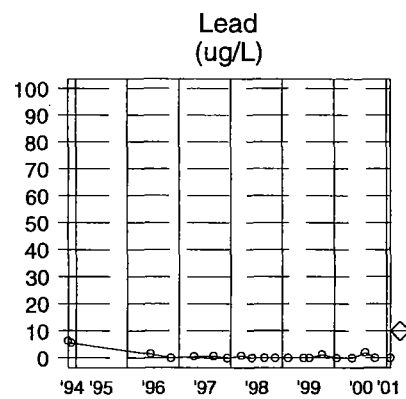
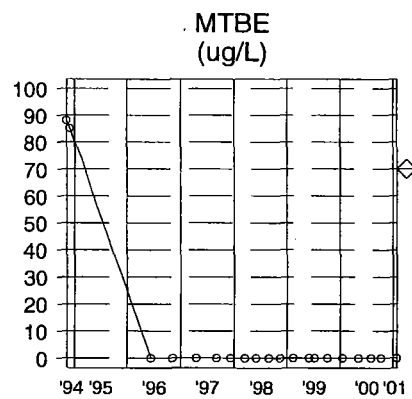
FORT MONMOUTH

GW MONITORING
Bldg. 2562

Source 1 of 3



U.S. ARMY
FORT MONMOUTH
SELF-M-PW-EV



SOURCE: 2562MW01

Sampling Dates:
11/08/1994 - 01/22/2001

LEGEND:

PARAMETER

o = Date
Sampled

NJDEP Criteria

FORT MONMOUTH

GW MONITORING
Bldg. 2562

Source 1 of 3, Graph



U.S. ARMY
FORT MONMOUTH
SELF-M-PW-EV

	Lab	MTBE	Lead	2-But anone	Acetone	Unknown Hydro carbon	Depth to Water				Notes
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	Feet				-
NJDEP Criteria:		70	10	300	700	NLE	NA				-
11/08/1994	Nytest	4	3.1	ND	ND	ND	-				A
11/30/1994	Nytest	5	ND	ND	ND	ND	-				V, Pb
06/11/1996	FMETL	ND	2.7	ND	ND	ND	-				V, Pb
11/07/1996	FMETL	ND	ND	ND	ND	ND	-				V, Pb
04/14/1997	FMETL	ND	7.0	ND	ND	ND	2.80				V, Pb
09/04/1997	FMETL	ND	14.0	ND	ND	ND	3.30				V, Pb
12/10/1997	FMETL	ND	ND	ND	ND	7	3.20				V, Pb
03/12/1998	FMETL	ND	0.7	ND	ND	18	2.52				V, Pb
05/28/1998	FMETL	ND	ND	ND	ND	ND	2.86				V, Pb
08/26/1998	FMETL	1.22	ND	ND	6.44	ND	3.57				V, Pb
11/14/1998	FMETL	ND	ND	ND	ND	ND	3.69				V, Pb
02/09/1999	FMETL	2.12	ND	ND	ND	ND	2.44				V, Pb
05/29/1999	FMETL	2.77	ND	ND	ND	ND	3.25				V, Pb
07/07/1999	FMETL	ND	ND	ND	ND	ND	3.32				V, Pb
10/06/1999	FMETL	ND	1.1	ND	ND	ND	3.02				V, Pb
01/13/2000	FMETL	1.16	ND	ND	ND	ND	2.84				V, Pb
05/04/2000	FMETL	ND	ND	ND	ND	ND	3.12				V, Pb
08/02/2000	FMETL	ND	ND	ND	ND	ND	2.62				V, Pb
10/12/2000	FMETL	ND	ND	ND	ND	ND	3.16				V, Pb
01/22/2001	FMETL	3.41	ND	9.65	18.73	ND	2.39				V, Pb

SOURCE: 2562MW02

Sampling Dates:
11/08/1994 - 01/22/2001

NOTES:

A - Pb found in Field blank (4.1 ppb).

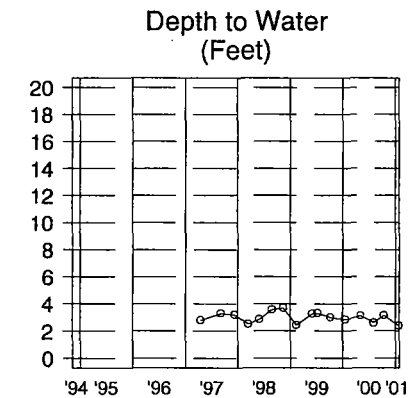
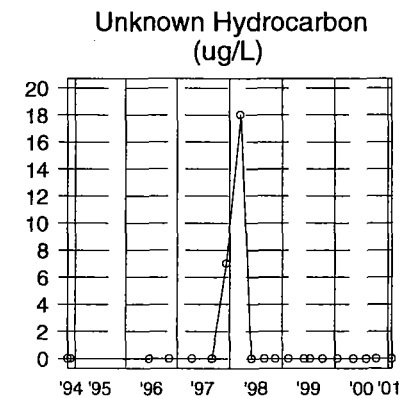
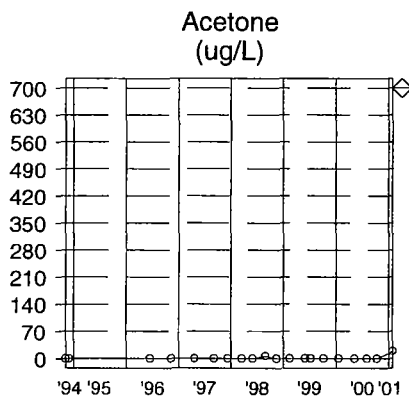
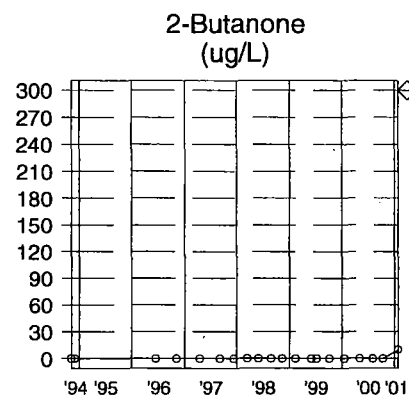
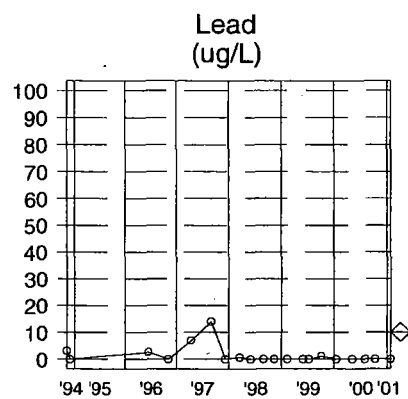
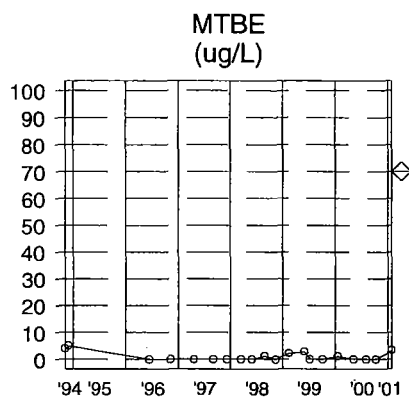
FORT MONMOUTH

GW MONITORING
Bldg. 2562

Source 2 of 3



U.S. ARMY
FORT MONMOUTH
SELF-M-PW-EV



SOURCE: 2562MW02

Sampling Dates:
11/08/1994 - 01/22/2001

LEGEND:

PARAMETER

o = Date
Sampled

NJDEP Criteria

FORT MONMOUTH

GW MONITORING
Bldg. 2562

Source 2 of 3, Graph



U.S. ARMY
FORT MONMOUTH
SELF-M-PW-EV

	Lab	MTBE	Lead	2-But anone	Acetone	Decane	Depth to Water				Notes
Units:		ug/L	ug/L	ug/L	ug/L	ug/L	Feet				-
NJDEP Criteria:		70	10	300	700	NLE	NA				-
11/08/1994	Nytest	3	75.6	ND	ND	ND	-				A
11/30/1994	Nytest	2	3.1	ND	ND	ND	-				V, Pb
06/11/1996	FMETL	ND	2.0	ND	ND	ND	-				V, Pb
11/07/1996	FMETL	ND	2.1	ND	ND	ND	-				V, Pb
04/14/1997	FMETL	ND	26.7	ND	ND	ND	2.63				V, Pb
09/04/1997	FMETL	ND	23.4	ND	ND	ND	3.20				V, Pb
12/10/1997	FMETL	ND	6.6	ND	ND	4	3.10				V, Pb
03/12/1998	FMETL	ND	21.0	ND	ND	ND	2.51				V, Pb
05/28/1998	FMETL	ND	6.9	ND	ND	ND	2.86				V, Pb
08/26/1998	FMETL	2.80	0.9	ND	ND	ND	3.61				V, Pb
11/14/1998	FMETL	ND	18.1	ND	ND	ND	3.79				V, Pb
02/09/1999	FMETL	ND	3.3	ND	ND	ND	2.63				V, Pb
05/29/1999	FMETL	2.77	ND	ND	ND	ND	3.25				V, Pb
07/07/1999	FMETL	1.71	8.7	5.23	5.27	ND	3.39				V, Pb
10/06/1999	FMETL	ND	3.7	ND	ND	ND	3.08				V, Pb
01/13/2000	FMETL	1.28	3.76	ND	ND	ND	2.80				V, Pb
05/04/2000	FMETL	ND	5.5	ND	ND	ND	3.03				V, Pb
08/02/2000	FMETL	ND	2.5	ND	ND	ND	2.68				V, Pb
10/12/2000	FMETL	ND	2.27	ND	ND	ND	3.23				V, Pb
01/22/2001	FMETL	ND	1.54	3.90	7.71	ND	2.44				V,Pb

SOURCE: 2562MW03

Sampling Dates:
11/08/1994 - 01/22/2001

NOTES:

A - Pb found in Field blank (4.1 ppb).

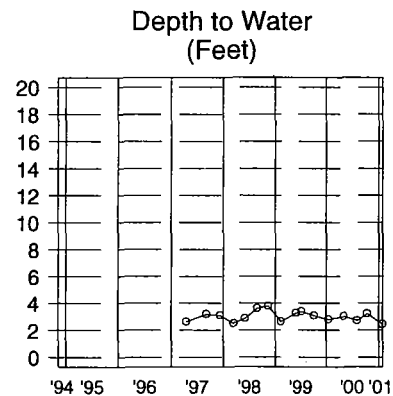
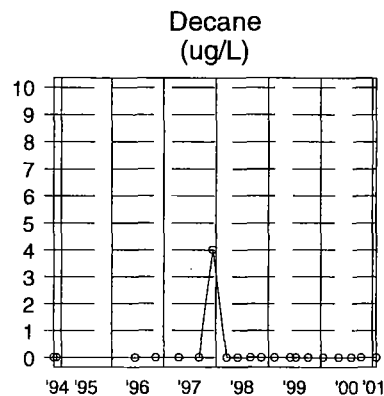
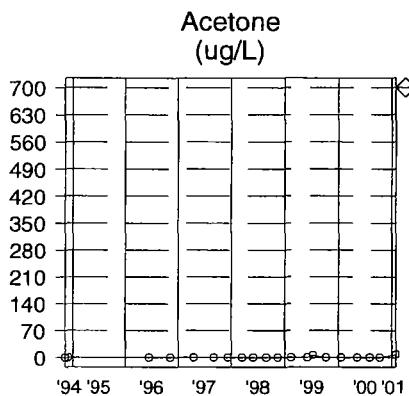
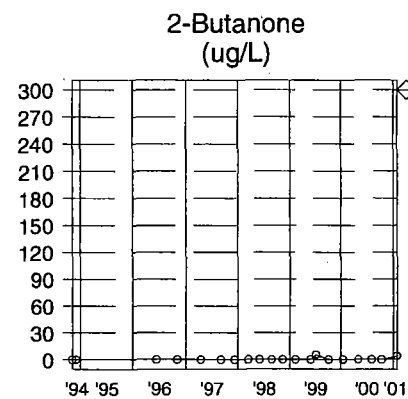
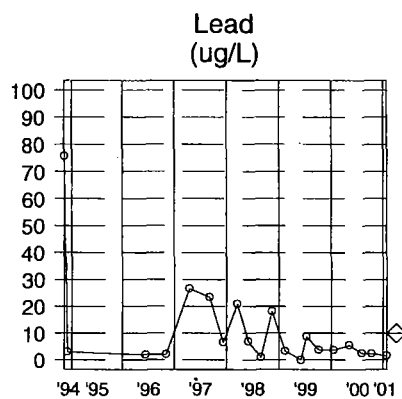
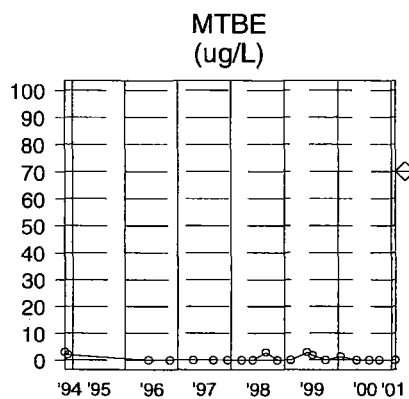
FORT MONMOUTH

GW MONITORING
Bldg. 2562

Source 3 of 3



U.S. ARMY
FORT MONMOUTH
SELF-M-PW-EV



SOURCE: 2562MW03

Sampling Dates:
11/08/1994 - 01/22/2001

LEGEND:

PARAMETER

o = Date
Sampled

◇ NJDEP Criteria

FORT MONMOUTH

GW MONITORING
Bldg. 2562

Source 3 of 3, Graph



**U.S. ARMY
FORT MONMOUTH
SELF-M-PW-EV**

APPENDIX G

WELL PERMITS

2562
DWR-133M (7/92)

SERIAL #

37082

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION AND ENERGY
TRENTON, NJ

Mail to

Permit No.

Water Allocation
CN 029
Trenton, N.J. 08625

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.E.

COORD #:

Owner US Army Fort Monmouth

Driller THREE ORGANIZATION, LTD

Address FORT MONMOUTH, NJ 07703

Address 1350 RT 130 S

Name of Facility GENERAL SIG (CHARGES WARE AREA)

Diameter of Well(s) 4 Inches Proposed Depth of Well(s) 15 Fee

Address BUILDING T-2562

of Wells Applied for (max. 10) 3 Will pumping equipment be installed? YES ☐ NO ☒

Address FORT MONMOUTH, NJ 07703

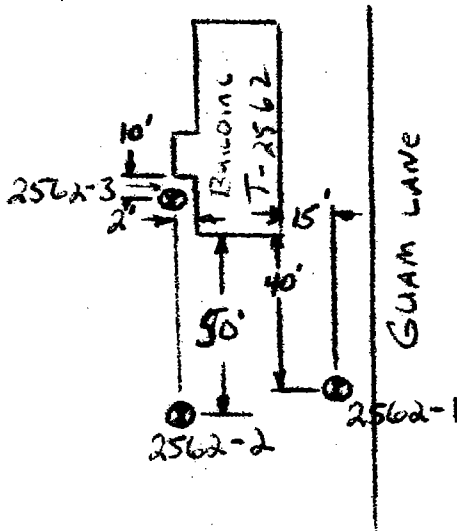
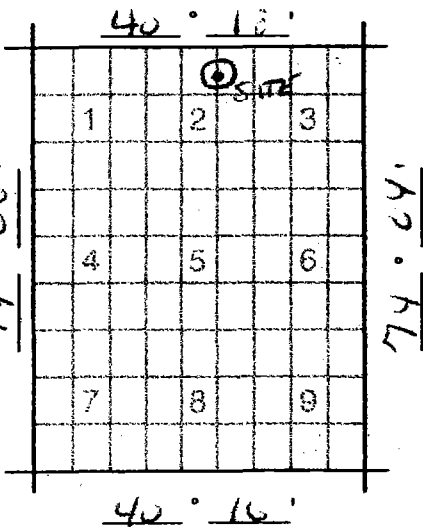
Type of Well (see reverse) MUNICIPAL/RESERVE If Yes, give pump capacity GPM

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
		<u>FORT MONMOUTH</u>	<u>MONMOUTH</u>

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 29



FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Fund Case
- ☐ ECRA Case
- ☐ CERCLA (Superfund) Site
- ☐ RCRA Site
- ☒ Underground Storage Tank
- ☐ NJPDES Municipal Discharge Permit
- ☐ NJPDES Industrial Discharge Permit
- ☐ Water and Hazardous Waste Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well
- ☐ Other (explain)

Case I.D. Number

93-8-16-1243-26

This Space for Approval Stamp

WELL PERMIT APPROVED
Dept. of Environmental Protection
Water Resources/Water Allocation

APR 5 1994

FOR
D.E.P.E.
USE

- ☐ Issuance of this permit is subject to the conditions attached. (see next page)
- ☐ For monitoring purposes only

- ☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date MARCH 22, 1994

Signature of Driller

License # 1421

Signature of Owner

SELF-EMPLOYED

Health Dept. — Yellow

Owner — Blue

Driller — White

COPIES:

Water Allocation — White and Pink

MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: U.S. ARMY
Name of Facility: FORT MONMOUTH
Location: MONMOUTH COUNTY, NJ
Case NJPDES Number: 93-8-16-1243

LAND SURVEYOR'S CERTIFICATION

Well Permit Number:
This number must be permanently affixed to the well casing.

29-30 9 58-

Longitude (to nearest second):

West 74° 04' 53.21"

Latitude (to nearest second):

North 40° 17' 48.32"

Elevation of Top of Inner Casing (cap off)
(one-hundredth of a foot):

37.53

Elevation of ground level (1/100th ft.)

34.88

Source of elevation datum (benchmark, nail, etc.) and year. (If an alternate datum has been approved by the Department, identify here, assume datum of 100', and give approximated actual elevation.)

Source: FM-13

☒ 1927 ☐ 1983

Elev.: 42.26

Owners Well Number (As shown on application or plans):

BLDG 2562 MW-1

Elevations are to be determined by double run, three wire leveling methods using balanced sights, commencing from a well marked and described point. This beginning point shall either be derived from Federal or State benchmarks if not more than 1000 feet from the site or from an alternate datum approved by the Department. Tolerances should meet third order standards, which are 0.05 ft x (mile)^{1/2}. For sections less than 0.1 mile, let miles = 0.1.

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Wayne W. Burgett
PROFESSIONAL LAND SURVEYOR'S SIGNATURE

WAYNE W. BURGETT
PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL

31654
PROFESSIONAL LAND SURVEYOR'S LICENSE #

MONITORING WELL RECORD

Well Permit No. 29 ³⁰⁷⁵⁸
Atlas Sheet Coordinates 29 : 13 : 822OWNER IDENTIFICATION - Owner U.S. ARMY FORT MONMOUTH

Address _____

City FORT MONMOUTH State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. Bldg 2562 MW-1County MONMOUTH Municipality OCEANPORT BORO Lot No. N/A Block No. N/A

Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 7/19/94Regulatory Program Requiring Well DEP Case I.D. # 93-8-16-1243-26

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 12 1/2 ft.Well finished to 12 1/2 ft.

Borehole diameter:

Top 8 in.Bottom 8 in.Well was finished: ☒ above grade
☐ flush mountedWell finished above grade, casing
height (stick up) above land
surface 3 ft.

Was steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 3 ft.Water level was measured using TAPEWell was developed for 1 hours at 10 gpmMethod of development PUMPWas permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AugerDrilling Fluid _____ Type of Rig B-80Name of Driller Michael E BeckHealth and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) (None) D C B AN.J. License No. 1421

Name of Drilling Company _____

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	2'	4"	PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	2'	12 1/2'	4"	2056T PVC
Tail Piece				
Gravel Pack	1'	12 1/2'		#2
Annular Seal/Grout	0	1'		Geonite
Method of Grouting	Poured			

GEOLOGIC LOG

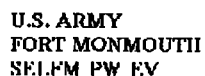
(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-6" TOP Soil
6"-3' dark brown sand
med to fine
3'-12 1/2' dark brown clay
and coarse sand

TYPE III ENVIRONMENTAL TECHNOLOGIST

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
state rules and regulations.Driller's Signature Michael E BeckDate 7-20-94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.



(Page 1 of 1)

Project Name : BLDG. 2562
NJDEP Case # : 93-8-16-1243-26
Logged By : TYREE INC.
Start Date : 7/19/94

Completion Date : 7/19/94
 Northing : N 533580.372
 Easting : E 2163245.600
 Driller : M. Beck

2-29-1996 C:\2562MW\GEO\2562 mw1.ge3

SHEET _____ OF _____

TOTAL DEPTH: 12

LOGGED BY: V Swahen.

EDITED BY:

Trees

Model B 80

Mike Beck

split spoon

30''

1130

DATE:

1450

DATE:

12

2

2

1400

7/19

BACKFILLED, TIME: 1405

DATE: 7/19 BY: Tye

DATUM:

CONDITIONS:

TYREE ENVIRONMENTAL TECHNOLOGIES

CUSTOMER:	Fort N. Smith	DILLING COMPANY:	Tye	
PROJECT / JOB No.:		DRIILLER:	m Beck	
LOCATION:	Bldg # 2562	HELPER / CREW:	J Rider	
BOREHOLE / WELL No.:	new 1	DRIILLER TYPE:	B80	
LOGGED BY:	Vaughn Swanson	DRIILLER		
		APPROVAL BY:		

[illegible]

SBY = STAKESBY
DNT = DOWNTIME
WU = WELL INSTALLATION
DCN = DECONTAMINATION
WDV = WELL DEVELOPMENT
GRT = GROUTING
SPR = SITE SET UP/CLEAN UP
TST = TESTING
MOB = MOBILIZATION
WKS = WORK BREAK
WTR = FILL WATER TRUCK
OTH = OTHER

HSA = HOLLOW STEM AUGERING
MOR = MILD ROTARY
ARR = AIR ROTARY
RTF = ROTARY FLUSH
CST = CABLE TOOL
REM = REAMING -
DCD = DRILL THROUGH CASING DRIVER
DUR = DUAL ROTARY CASING DRIVER
COR = CORING -
RVC = REVERSE CIRCULATION
DHH = DOWNHOLE HAMMER
DAM = DRIVE CASING & TRASH
OTH = OTHER

BS/S = 5-FT 5-PUT 5-POON SAMPLING -
 BS/C = CONTINUOUS 5-PUT 5-POON SAMPLING -
 CS/7 = CALIFORNIA 5-PUT 5-POON SAMPLING -
 (REPLACE 7 WITH SAMPLING INTERVAL)
 CTB = CONTINUOUS TUBE SAMPLING -
 STB = SHALLOW TUBE SAMPLING -
 COR = CORING -
 WTB = WATER SAMPLING
 PKT = PACKER TESTING
 BOP = BOREHOLE GEOPHYSICS
 PNT = PUMPING TESTING
 BOT = BULK TESTING
 OTH = OTHER

[illegible]

MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: U.S. ARMY
Name of Facility: FORT MONMOUTH
Location: MONMOUTH COUNTY, NJ
Case NJPDES Number: 93-8-16-1243

LAND SURVEYOR'S CERTIFICATION

Well Permit Number:
This number must be permanently affixed to the well casing.

29-30959-

Longitude (to nearest second):

West 74° 04' 54.66"

Latitude (to nearest second):

North 40° 17' 48.44"

Elevation of Top of Inner Casing (cap off)
(one-hundredth of a foot):

37.79

Elevation of ground level (1/100th ft.)

38.12

Source of elevation datum (benchmark, nail, etc.) and year. (If an alternate datum has been approved by the Department, identify here, assume datum of 100', and give approximated actual elevation.)

Source: FM-13

☒ 1927 ☐ 1983

Elev.: 42.26

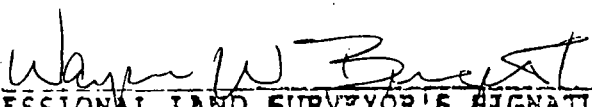
Owners Well Number (As shown on application or plans):

BLDG 2562 MW-Z

Elevations are to be determined by double run, three wire leveling methods using balanced sights, commencing from a well marked and described point. This beginning point shall either be derived from Federal or State benchmarks if not more than 1000 feet from the site or from an alternate datum approved by the Department. Tolerances should meet third order standards, which are 0.05 ft x (mile)^{1/2}. For sections less than 0.1 mile, 1st miles = 0.1.

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.


PROFESSIONAL LAND SURVEYOR'S SIGNATURE

WAYNE W. BURGETT
PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL.

31654
PROFESSIONAL LAND SURVEYOR'S LICENSE #

MONITORING WELL RECORD

Well Permit No. 29 - 32959
Atlas Sheet Coordinates 29 : 13 : 822 ☐OWNER IDENTIFICATION - Owner U S ARMY FORT MONMOUTH

Address _____

City PORT MONMOUTH State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. Blg 2562 MW-2
County MONMOUTH Municipality OCEANPORT BORO Lot No. N/A Block No. N/A
Address _____TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 7/6/94
Regulatory Program Requiring Well DST Case I.D. # 93-8-16-1243-26

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 15 ft.Well finished to 15 ft.

Borehole diameter:

Top 8 in.Bottom 8 in.Well was finished: ☐ above grade
☒ flush mountedWell finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☐ Yes ☐ NoStatic water level after drilling 3 1/2 ft.Water level was measured using TapeWell was developed for 1 hours at _____ gpmMethod of development PumpWas permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AugerDrilling Fluid _____ Type of Rig B-80Name of Driller Michael E. BackHealth and Safety Plan submitted? ☐ Yes ☐ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. 1421

Name of Drilling Company _____

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	6"	2'	4"	PVC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	2'	15'	4"	20 Slot PVC
Tail Piece				
Gravel Pack	1'	15'		#2
Annular Seal/Grout	6"	1'		Gensuite
Method of Grouting	Pours			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-1' Asphalt
1'-4' med to fine sand
4'-5' green clay + sand
5'-15' med to coarse
dark brown sand

TYRRE ENVIRONMENTAL TECHNOLOGY

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
state rules and regulations.Driller's Signature Michael E. BackDate 6-7-94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.



U.S. ARMY
FORT MONMOUTH
SELF PM PW EV

LOG OF BORING 2562-mw2

(Page 1 of 1)

Produced for Charles Appleby

Project Name : BLDG. 2562
NJDEP Case # : 93-8-16-1243-26
Logged By : TYREE INC.
Start Date : 7/6/94

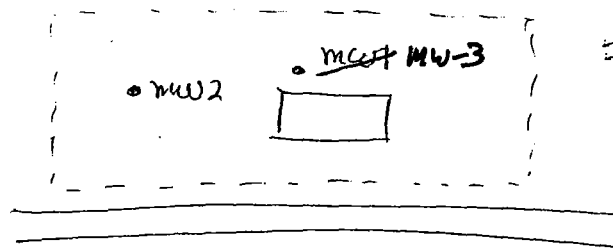
Completion Date : 7/6/94
Northing : N 533591.773
Easting : E 2163133.165
Driller : M. Beck

Depth in Feet	29-30959 ELEV: 37.79	DESCRIPTION	GRAPHIC	USCS	Samples	Blows/Ft	Well Construction Information
0		Asphalt		32			Well Construction Date Completed : 7/6/94 Hole Diameter : 8 in Drill Method : HSA Company Rep : M. Beck Well Casing Material : PVC Diameter : 4 in Joints : Threaded Well Screen Material : PVC Diameter : 4 in Joints : Threaded Opening : 20 Slot Sand Pack : # 2 Morie Sand Annulus Seal : Bentonite/Portland : Tremmie Well Screen Material : PVC Diameter : 4 in
.6							
1		Medium-fine sand		SW			
2							
2							NOTES Well #1 is 2562 MW2
4		Green clay and sand		SC			
6		Medium-coarse dark brown sand					
8							
10				SW			
12							
14							
15							
16							

FIELD LOG OF BORING

SHEET ____ OF ____

LOCATION OF BORING:

Fort Monmouth, Building # 2562
MW2

PROJECT: US Army

BORING NO:

Fort Monmouth.

TOTAL DEPTH:

JOB NO: SELFM-PW-EV

LOGGED BY: V Swanson

PROJ. MGR.: JC

EDITED BY:

DRILLING CONTRACTOR:

Tyree

DRILL RIG TYPE:

Mobil B80

DRILLERS NAME:

Mike Beck

SAMPLING METHODS:

Split Spoon

HAMMER WT.:

140 lb

DROP:

30

STARTED, TIME:

0600

DATE:

7/5/94

COMPLETED, TIME:

1400

DATE:

7/5/94

BORING DEPTH (ft):

15

CASING DEPTH (ft):

2

WATER DEPTH (ft):

3-4

TIME:

DATE:

7/5/94

BACKFILLED, TIME: 1400

DATE: 7/5/94 BY: MB

SURFACE ELEV:

DATUM:

CONDITIONS:

SAMPLE DEPTH	SAMPLER TYPE	BLOWS / 6 IN.	INCHES DRIVEN	INCHES RECOVERED	SAMPLE CONDITION	DRILLING RATE (min./ft.)	PID READING (ppm)	ODOR (Y/N ?)	GRAPHIC WELL CONST.	DEPTH IN FEET	GRAPHIC LOG
0-2	SS	4	6	16			0	N	Casing grout dentonite	1	sc
		8	6								Medium Red Brown Sand with some clay
		5	6								Sample - VO, BN, Pb
		7	6							2	2-3' Green Brown Sand
2-4	SS	2	6	24			0	N	Screen to 15'	3	3-4' Black Clay (very plastic)
		1	6							4	4' water encountered.
		2	6				0	N		5	black Clay
		0	6							6	SAME
4-6									Screen to 15'	7	a
							0	N		8	SAME
										9	
										10	SAME to 15'
6-8							0	N	Screen to 15'		
8-10							0	N	Screen to 15'		
10-12							0	N	Screen to 15'		

[illegible]

MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: U.S. ARMY
Name of Facility: FORT MONMOUTH
Location: MONMOUTH COUNTY, NJ
Case NJPDES Number: 93-8-16-1243

LAND SURVEYOR'S CERTIFICATION

Well Permit Number:
This number must be permanently affixed to the well casing.

29-30960-

Longitude (to nearest second):

West 74° 04' 54.64"

Latitude (to nearest second):

North 40° 17' 49.13"

Elevation of Top of Inner Casing (cap off)
(one-hundredth of a foot):

37.76

Elevation of ground level (1/100th ft.)

38.12

Source of elevation datum (benchmark, nail, etc.) and year. (If an alternate datum has been approved by the Department, identify here, assume datum of 100', and give approximated actual elevation.)

Source: FM-13

☒ 1927 ☐ 1983

Elev.: 42.26

Owners Well Number (As shown on application or plans):

BLOG 2562 MW-3

Elevations are to be determined by double run, three wire leveling methods using balanced sights, commencing from a well marked and described point. This beginning point shall either be derived from Federal or State benchmarks if not more than 1000 feet from the site or from an alternate datum approved by the Department. Tolerances should meet third order standards, which are 0.05 ft x (mile)^{1/2}. For sections less than 0.1 mile, let miles = 0.1.

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

Wayne W. Burgett
PROFESSIONAL LAND SURVEYOR'S SIGNATURE

WAYNE W. BURGETT
PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL

31654
PROFESSIONAL LAND SURVEYOR'S LICENSE #

MONITORING WELL RECORD

Well Permit No. 29 - 30760
Atlas Sheet Coordinates 29 : 13 : 922OWNER IDENTIFICATION - Owner U S ARMY FORT MONMOUTH

Address _____

City FORT MONMOUTH State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. PLG 2502 MW-3County MONMOUTH Municipality OCEANPORT BORO Lot No. N/A Block No. N/A

Address _____

TYPE OF WELL (as per Well Permit Categories) MONITORING Date well completed 7/6/94Regulatory Program Requiring Well USE Case I.D. # 93-8-16-1243-26

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 15 ft.Well finished to 15 ft.

Borehole diameter:

Top 8 in.Bottom 8 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface _____ ft.

Was steel protective casing installed?

☐ Yes ☒ NoStatic water level after drilling 3 1/2 ft.Water level was measured using TAPEWell was developed for 1 hours at _____ gpmMethod of development PUMPWas permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity _____ gpm

Pump type: _____

Drilling Method AugerDrilling Fluid _____ Type of Rig R-80Name of Driller Michael E BeckHealth and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None D C B AN.J. License No. 1421

Name of Drilling Company _____

	Depth to Top (ft.) [From land surface]	Depth to Bottom (ft.) [From land surface]	Diameter (inches)	Type and Material
Inner Casing	6"	2'	4"	POC
Outer Casing (Not Protective Casing)				
Screen (Note slot size)	2'	15'	4"	20 S/GT POC
Tail Piece				
Gravel Pack	1'	15'		#2
Annular Seal/Grout	6"	1'		benignite
Method of Grouting	Pump			

GEOLOGIC LOG

(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-1' ASPHALT
1'-4' MED TO FINE SAND
4'-5' GREEN CLAY
5'-15' MED TO COARSE
BROWN SAND

TYPE ENVIRONMENTAL TECHNOLOGY

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and all applicable
state rules and regulations.Driller's Signature Michael E BeckDate 7-6-94

COPIES: White & Green - DEPE Canary - Driller Pink - Owner Goldenrod - Health Dept.



U.S. ARMY
FORT MONMOUTH
SEI.FM PW EV

LOG OF BORING 2562-mw3

(Page 1 of 1)

Produced for Charles Appleby

Project Name : BLDG. 2562
NJDEP Case # : 93-8-16-1243-26
Logged By : TYREE INC.
Start Date : 7/6/94

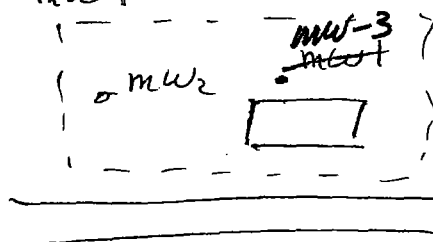
Completion Date : 7/6/94
Northing : N 533661.606
Easting : E 2163134.254
Driller : M. Beck

Depth in Feet	29-30960 ELEV: 37.76	DESCRIPTION	GRAPHIC	USCS	Samples	Blows/Ft	Well Construction Information
0		Asphalt		32			Well Construction Date Completed : 7/6/94 Hole Diameter : 8 in Drill Method : HSA Company Rep : M. Beck Well Casing Material : PVC Diameter : 4 in Joints : Threaded Well Screen Material : PVC Diameter : 4 in Joints : Threaded Opening : 20 Slot Sand Pack : # 2 Morie Sand Annulus Seal : Bentonite/Portland : Tremmie Well Screen Material : PVC Diameter : 4 in
.6							
1		Medium-fine sand		SW			
2							
2				SW			NOTES Well #1 is 2562 MW3
4		Green clay and sand		SC			
6		Medium-coarse dark brown sand					
8							
10				SW			
12							
14							
15							
16							

FIELD LOG OF BORING

SHEET ____ OF ____

LOCATION OF BORING:

Fort Monmouth, Building # 2562
NW1PROJECT: US Army
Fort Monmouth.

BORING NO:

TOTAL DEPTH:

JOB NO: SELFM-PW-EV

LOGGED BY: V Swanson

PROJ. MGR.: J C

EDITED BY:

DRILLING CONTRACTOR:

Tyree

DRILL RIG TYPE:

Mobil B80

DRILLERS NAME:

Mike Beck

SAMPLING METHODS:

Split Spoon

HAMMER WT.:

140 lb

DROP:

30

STARTED, TIME:

8600

DATE:

COMPLETED, TIME:

1200

DATE:

BORING DEPTH (ft):

15

CASING DEPTH (ft):

2

WATER DEPTH (ft):

3-4

TIME:

DATE:

7/5/94

BACKFILLED, TIME:

7/5/94

DATE: 1200

BY: MB

SURFACE ELEV:

DATUM:

CONDITIONS:

Red Brown Clay and
medium sand, semiplastic

Sample - VO, BN, PB ? C4

Green Brown Sand with
medium clay; slightly
plastic.4' encountered water
additional sample taken at
4-5' depth for VO
analysis, soil is
medium green sand
with a trace of silt

SAME

SAME to 15'

SAMPLE DEPTH	SAMPLER TYPE	BLOWS / 6 IN.	INCHES DRIVEN	INCHES RECOVERED	SAMPLE CONDITION	DRILLING RATE (min./ft.)	PID READING (ppm)	ODOR (Y/N ?)	GRAPHIC WELL CONST.	DEPTH IN FEET	GRAPHIC LOG
0-2 SS		4	6	18			0	N		1	
		3	6							2	
		3	6							3	
		5	6	1						4	
2-4 SS		2	6	16			0	N		5	
		2	6							6	
		7	6							7	
		6	6							8	
4-6							0	N		9	
6-8							0	N		10	
8-10							0	N			
10-15							0	N			

Casing /
grout
bent

Screen

to 15'