## **United States Army**

Fort Monmouth, New Jersey

# Underground Storage Tank Closure and Site Investigation Report

Building 492
Main Post-East Area

NJDEP UST Registration No. 90010-59 Dicar No. 97-05-15-1350-20

January 2000

## UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT

#### **BUILDING 492**

MAIN POST-EAST AREA NJDEP UST REGISTRATION NO. 90010-59 DICAR NO. 97-05-15-1350-20

**JANUARY 2000** 

#### PREPARED FOR:

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

PREPARED BY:

VERSAR 1900 FROST ROAD SUITE 110 BRISTOL, PA 19007

PROJECT NO. 4435-018

#### **TABLE OF CONTENTS**

EXECUTIVE SUMMARY	iv
1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES	1
1.1 OVERVIEW	1
1.2 SITE DESCRIPTION	2
	2
1.3 HEALTH AND SAFETY	4
1.4 REMOVAL OF UNDERGROUND STORAGE TANK	4
1.4.1 General Procedures	4
1.4.2 Underground Storage Tank Excavation and Cleaning	4
1.5 UNDERGROUND STORAGE TANK	
TRANSPORTATION AND DISPOSAL	5
1.6 MANAGEMENT OF EXCAVATED SOILS	5
2.0 SITE INVESTIGATION ACTIVITIES	6
2.1 OVERVIEW	6
2.2 FIELD SCREENING/MONITORING	6
2.3 SOIL SAMPLING	7
2.4 GROUNDWATER SAMPLING	7
3.0 CONCLUSIONS AND RECOMMENDATIONS	8
3.1 SOIL SAMPLING RESULTS	8
3.2 GROUNDWATER SAMPLING RESULTS	
3.3 CONCLUSIONS AND RECOMMENDATIONS	9

#### **TABLE OF CONTENTS (CONTINUED)**

#### **TABLES**

Table 1 Summary of Post-Excavation Sampling Activities
--

 Table 2
 Post-Excavation Soil Sampling Results

 Table 3
 Groundwater Sampling Results

#### **FIGURES**

Figure 1 Site Location Map Figure 1A Geological Map

Figure 2 Site Map

Figure 3 Cross Sectional View

Figure 4 Soil Sampling Location Map

Figure 5 Groundwater Sampling Location Map

#### **APPENDICES**

Appendix A NJDEP Standard Reporting Form

Appendix B Site Assessment Summary

Appendix C Waste Manifest

Appendix D UST Disposal Certificate

Appendix E Soil Analytical Data Package

Appendix F Groundwater Analytical Data Package

Appendix G Photographs

Appendix H Electronic Data Deliverables

#### **EXECUTIVE SUMMARY**

#### **UST Closure**

On May 15, 1997, a steel underground storage tank (UST) was closed by removal in accordance with New Jersey Department of Environmental Protection (NJDEP) underground storage tank closure procedures at the Main Post-East area of the US Army Fort Monmouth, Fort Monmouth, New Jersey The UST, NJDEP Registration No 90010-59 (Fort Monmouth ID No 492), was located southeast of Building 492 UST No 90010-59 was a 1,000-gallon No 2 fuel oil UST. The fill port was located directly above the tank

#### Site Assessment

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 analysis 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. Numerous holes were noted in the UST Soils at the location of the holes were dark in color and appeared to be contaminated Based on the inspection of the UST, Directorate of Public Works (DPW) concluded that a discharge was associated with this UST. The NJDEP hotline was notified and the case was assigned DICAR No 97-05-15-1350-20 Approximately 5 cubic yards of potentially contaminated soil were removed from the excavated area and stored at the Fort Monmouth petroleum contaminated soil staging area. Soil samples, which were collected after the removal of the potentially contaminated soil, contained TPHC concentrations ranging from non-detect to 206 31 mg/kg. Groundwater was encountered at 4.0 feet below ground surface and sheen was observed on groundwater

All post excavation soil samples collected from the UST excavation at Building 492 contained TPHC concentrations below the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 milligrams per kilogram (mg/kg) (N J A C 7 26D and revisions dated February 3, 1994) Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with a combination of uncontaminated excavated soil and certified clean fill. The excavation site was then restored to its original condition.

In response to the observation of sheen on groundwater, two (2) groundwater samples were collected at Building 492. On November 6, 1999, and December 22, 1999, Building 492 was sampled for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's). All groundwater analytical results were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC).

No further action is proposed in regard to the closure and site assessment of UST No 90010-59 at Building 492

(2

## 1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

#### 1.1 OVERVIEW 3

One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No 90010-59, was closed at Building 492 at the Main Post-East area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on May 15, 1997. Refer to the site location map on 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 1,000-gallon tank containing No 2 fuel oil.

Decommissioning activities for UST No 90010-59 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 & 1910 120. All permits including but not limited to the NJDEP approved Decommissioning/Closure Plan were posted onsite for inspection. DPW personnel who are registered and certified by the NJDEP for performing UST closure activities conducted the decommissioning activities. Closure of UST No 90010-59 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 90010-59 are included in Appendices A and B, respectively.

After removal of the potentially contaminated soil, the site was assessed. Based on inspecting the UST, field screening of remaining subsurface soils, and reviewing analytical results of soil samples and groundwater samples, the DPW has concluded that no significant historical discharges are associated with the UST or associated piping

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 *Interm 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 492 is located in the Main Post-East area of the Fort Monmouth Army Base UST No 90010-59 was located southeast of Building 492 and appurtenant copper piping ran approximately eight (8) feet west from the excavation to Building 492. A site map is provided on Figure 2.

#### 1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding Building 492 Included is a description of the regional geology of the area surrounding Fort Monmouth as well as descriptions of the local geology and hydrogeology of the Main Post area. A geological map is provided on Figure 1A.

#### 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 (Zapecza, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

The formations record several major transgressive/regressive cycles and contain units which are generally thicker to the southeast and reflect a deeper water environment. More than 20 regional geologic units are present within the sediments of the Coastal Plain 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 thicknesses 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 Zapecza, 1990).

#### Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post 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 in the Main Post area is identified as part of the "composite confining units," or minor aquifers. The minor aquifers include the Navesink formation, Red Bank Sand, Tinton Sand, Hornerstown Sand, Vincentown Formation, Manasquan Formation, Shark River Formation, Piney Point Formation, and the basal clay of the Kirkwood Formation.

Based on records of wells drilled in the Main Post area, water is typically encountered at depths of 2 to 9 feet below ground surface (bgs). 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.

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

- tidal influence (based on proximity to the Atlantic Ocean, rivers, and tributaries)
- topography
- nature of the fill material within the Main Post area
- presence of clay and silt lenses in the natural overburden deposits
- local groundwater recharge areas (i.e., streams, lakes)

Due to the fluvial nature of the overburden deposits (i.e., sand and clay lenses), shallow groundwater flow direction is best determined on a case-by-case basis. This is consistent with lithologies observed in borings installed within the Main Post area, which primarily consisted of fine-to-medium grained sands, with occasional lenses or laminations of gravel silt and/or clay.

Building 492 is located approximately 400 feet north of Oceanport Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 492 is anticipated to be to the south.

#### 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

#### 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 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 Sub-Surface 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 made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 90 gallons of liquid from the UST and its associated piping were transported by Lionetti Oil Recovery Company to Lionetti Oil Recovery Company, Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Old Bridge, 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. Numerous holes were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually for evidence of contamination. Potentially contaminated soils were observed. Approximately 5 cubic yards of potentially contaminated soil were removed, respectively from the excavated area. Soil screening was also performed along the piping run associated with the UST closure. 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 excavated area.

#### 1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The steel tank was transported in compliance with all applicable regulations and laws to Mazza & Sons, Inc., Recycling Division. Refer to Appendix D for the UST disposal certificate and Appendix G for photographs of the UST.

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

Based on visual observations, approximately 5 cubic yards of potentially contaminated soil were removed from the UST excavation. 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 4.0 feet below ground surface 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 Sub-Surface 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 (908) 532-0989
   NJDEP Certification No 2046
- Analytical Laboratory U S Army Fort Monmouth Environmental Laboratory Contact Person : Daniel K Wright Phone Number (908) 532-4359
   NJDEP Company Certification No 13461
- Hazardous Waste Hauler Lorco Petroleum Services Contact Person Richard Dirienzo Phone Number (908) 721-0900

#### 2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using visual observations to identify potentially contaminated material. Soil excavated from around the tank-exhibited evidence of potential contamination. Soils were removed from the excavation until no evidence of contamination remained. Groundwater was encountered at 4.0 feet below ground surface and sheen was observed on groundwater.

#### 2.3 SOIL SAMPLING

On May 15,1997, following the removal of the UST, associated piping, and all potentially contaminated soils, post-excavation soil samples A, B, C, D, E, F, G, and DUP D were collected from a total of seven (7) locations of the UST excavation. Sidewall samples A, B, C, D, and DUP D were collected at a depth of 3.5 feet bgs. Samples E and F were collected along the excavation floor at a depth of 6.0 feet bgs. Sample G was collected along the former piping length of the excavation, which was approximately eight (8) feet in length. The piping sample was collected at a depth of 1.0 feet bgs. All samples were analyzed for TPHC and total solids.

U.S. Army personnel in accordance with the NJDEP Technical Requirements and the NJDEP Field Sampling Procedures Manual performed the site assessment. 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

On November 6, 1999, and December 22, 1999, Building 492 was sampled for volatile organic compounds calibrated for xylene plus 15 tentatively identified compounds (VOC's), and semivolatile organic compounds plus 15 tentatively identified compounds (SVOC's) Sampling and analysis were performed in accordance with the NJDEP *Field Sampling Procedures Manual* and the *Technical Requirements For Site Remediation* Refer to Appendix F for the field sampling documentation

#### 3.0 CONCLUSIONS AND RECOMMENDATIONS

#### 3.1 SOIL SAMPLING RESULTS

To evaluate soil conditions following removal of the UST and associated piping, post-excavation soil samples were collected on May 15,1997 from a total of seven (7) locations All samples were analyzed for TPHC and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N J A C 7 26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected on May 15,1997, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained TPHC concentrations ranging from non-detect to 206 31 mg/kg.

#### 3.2 GROUNDWATER SAMPLING RESULTS

No compounds were detected in the sample collected from Building 492 on November 6, 1999, and December 22, 1999

A summary of the analytical results and comparison to the NJDEP groundwater cleanup criteria is provided in Table 3 and the groundwater sampling locations are shown on Figure 5. The analytical data package is provided in Appendix F. The full data package, including quality control is on file at U.S. Army Fort Monmouth located in Fort Monmouth, New Jersey

Groundwater samples collected on November 6, 1999, and December 22, 1999, were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC)

#### 3.3 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 492 were below the NJDEP soil cleanup criteria for total organic contaminants

Based on the post-excavation sampling results, soil with TPHC concentrations exceeding the NJDEP soil cleanup criteria for total organic contaminants of 10,000 mg/kg, do not exist in the former location of the UST or associated piping

Based on the analytical results of the groundwater samples collected at Building 492 on November 6, 1999, and December 22, 1999, groundwater quality at Building 492 was either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC)

No further action is proposed in regard to the closure and site assessment of UST No 90010-59 at Building 492

**TABLES** 

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES
BUILDING 492, MAIN POST-EAST AREA
FOR I MONMOUTH, NEW JERSEY

Page 1 of 2

Sample ID	Date of Collection	Date Analysis Started	Matrix .	Sample Type	Analytical Parameters*	NJDEP Method
Α	5/15/97	5/16/97	Soil	Post-Excavation	ТРИС	OQA-QAM-025
В	5/15/97	5/16/97	Soil	Post-Excavation	IPHC	OQA-QAM-025
С	5/15/97	5/16/97	Soil	Post-Excavation	IPHC	OQA-QAM-025
D	5/15/97	5/16/97	Soil	Post-Excavation	ГРИС	OQA-QAM-025
Е	5/15/97	5/16/97	Soil	Post-Excavation	ГРНС	OQA-QAM-025
F	5/15/97	5/16/97	Soil	Post-Excavation	1PHC	OQA-QAM-025
G	5/15/97	5/16/97	Soil	Post-Excavation	IPHC	OQA-QAM-025
DUP D	5/15/97	5/16/97	Soil	Post-Excavation	IPHC	OQA-QAM-025

Note

**FPHC** Fotal Petroleum Hydrocarbons

TABLE 1

#### SUMMARY OF SAMPLING ACTIVITIES BUILDING 492, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 2 of 2

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Sampling Method**
4925 01	11/6/99	11/9/99	Agucous	Groundwater	VOCs SVOCs	PPNDP
5043 01	12/22/99	12/29/99	Aqueous	' Groundwater	VOCs, SVOCs	PPNDP

#### Note

\*VOCs V

Volattle Organic Compounds plus 15 tentatively identified compounds

\*SVOCs

Semivolatile organic compounds plus 15 tentatively identified compounds

\*\*PPNDP

Passively Placed Narrow Diameter Point

TABLE 2

## POST-EXCAVATION SOIL SAMPLING RESULTS BUILDING 492, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 1 of 1

	eds nup erra
	-
4 % (	
(mg/kg) (mg/kg)	
Λ/3 5'= 2548 01 5/15/97 5/16/97 Lotal Solid 80 68 %	
TPHC 191 yes ND 10,000 N	0
B/3 5'= 2548 02 5/15/97 5/16/97 1 otal Solid 86 33 %	•
TPHC 168 yes ND 10,000 N	o
C/3 5'= 2548 03 5/15/97 5/16/97 Iotal Solid 83 95 %	•
TPHC 186 yes ND 10,000 N	o
D/3 5'= 2548 04 5/15/97 5/16/97 Total Solid 81 18 %	
ΓΡΗC 182 yes 206 31 10,000 N	o
E/6 0'= 2548 05 5/15/97 5/16/97 Total Solid 82 56 %	•
TPHC 176 yes ND 10,000 N	o
F/6 0'= 2548 06 5/15/97 5/16/97 Total Solid 84 45 %	
ΓΡΗC 178 yes ND 10,000 N	o
G/1 0'= 2548 07 5/15/97 5/16/97 1 otal Solid 79 91 %	
TPHC 194 yes ND 10,000 N	)
DUPD/3 5'= 2548 08 5/15/97 5/16/97 Lotal Solid 79 93 %	
1PHC 185 yes ND 10,000 N	)

#### Note

\* Total Solid results are expressed as a percentage

\*\* NJDEP Residential Direct Contact soil cleanup criteria for total organics

ND Not detected above stated method detection limit

TPHC Total Petroleum Hydrocarbons

-- Not Applicable

## Table 3 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER

Date Sampled 11/6/99 Location 492 Lab Sample ID 4925 01(492-1)

CAS NO	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
107028	Acrolem	1 85	∖ot Detected		50	no
107131	Acrylomtrile	2 78	∖ot Detected		50	RO
75650	tert-Butvl alcohol	8 52	\ot Detected	-	nle	no
1634044	Methyl-tert-Butyl ether	0 16	\o1 Detected	_	nle	no
108203	Di-isopropyl ether 🗧	0.25	Not Detected		nle	по
	Dichlorodifluoromethane	l 68	Not Detected	-	nle	по
74-87-3	Chloromethane	1 16	∖ot Detected	-	30	no
75-01-4	Vinvl Chloride	1 06	Not Detected	-	5	no
74-83-9	Bromomethane	1 10	Not Detected	-	10	no
75-00-3	Chloroethane	1 01	Not Detected	-	nle	no
75-69-4	Trichlorofluoromethane	0 50	Not Detected	-	nle	по
75-35-4	1 1-Dichloroethene	0 24	Not Detected	-	2	no
67-64-1	Acetone	1 36	Not Detected	-	700	по
75-15-0	Carbon Disulfide	0.46	Not Detected	<del>-</del>	nle	no
75- <del>09</del> -2	Methylene Chloride	0 24	Not Detected		2	no
156-60-5	trans 1 2-Dichloroethene	0 16	Not Detected	-	100	no
75 35- <b>3</b>	1 1-Dichloroethane	0 12	∖or Detected	-	70	no
108-05-4	Vinyl Acetate	0 78	Not Detected		nle	no
78-93 3	2-Butanone	0 62	Not Detected	-	300	no
156-59-2	cis-1 2-Dichloroethene	0 17	Not Detected	-	10	no
67-66-3	Chloroform	0 30	∖ot Detected	-	6	no
75-55-6	1 I 1-Trichloroethane	0 23	Not Detected	-	30	no
56-23 5	Carbon Tetrachloride	0 47	Not Detected		2	по
71-43-2	Benzeze	0 23	Not Detected	-	1	no
107-06-2	1 2-Dichloroethane	0.18	Not Detected	-	2	no
79-01-6	Trichloroethene	0 23	Not Detected	-	1	no
78-87-5	1 2-Dichloropropane	0 40	Not Detected	-	1	no
75-27-4	Bromodichloromethane	0 55	Not Detected	-	ı	no
110-75-8	2-Chloroethyl vinyl ether	0 65	Not Detected	-	nle	no
10061-01-5	cis-I 3-Dichloropropene	0 69	Not Detected		nle	no

## Table 3 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER

Date Sampled 11/6/99 Location 492 Lab Sample ID 4925 01(492-1)

11/6/99	Location	<u>492</u>	Lab Sa	ample 1D 4923 0	1(492-1)
COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
4-Methyl-2-Pentanone	0 59	Not Detected	-	400	по
Toluene	0 37	Not Detected	-	1000	no
trans-1 3-Dichloropropene	0 87	Not Detected	-	nle	no
I i 2-Trichloroethane	0 48	Not Detected	-	3	no
Tetrachloroethene	0 32	Not Detected	-	ı	no
2-Hexanone	0 71	Not Detected	-	nle	no
Dibromochloromethane	0 86	Not Detected		10	no
Chlorobenzene	0 39	Not Detected		4	no
Ethvibenz'ene	0 65	Not Detected	-	700	no
m+p-Yylenes '.	1 14	Not Detected	-	nle	no
o-Yvlene	0 62	Not Detected	-	πle	no
Styrene	0.56	Not Detected	-	100	no
Bromoform , , , , , , , ,	0.70	Not Detected	~	4	no
1,1 2,2-Tétrachloroethane	0.47	Not Detected	-	2	nο
1,3-Dichlorobenzene	0 55	Not Detected	-	600	пØ
I 4-Dichlorobenzene	0 57	Not Detected	-	75	no
1 2-Dichlorobenzene	0 64	Not Detected	-	600	no
	COMPOUND NAME  4-Methyl-2-Penianone  Toluene  trans-1 3-Dichloropropene  1 1 2-Trichloroethane  Tetrachloroethene  2-Hexanone  Dibromochloromethane  Chlorobenzene  Ethvibenzene  m+p-Xylenes  o-Xylene  Styrene  Bromoform  1,3-Dichlorobenzene  1 4-Dichlorobenzene	COMPOUND NAME         MDL (ug/L)           4-Methyl-2-Pentanone         0.59           Toluene         0.37           trans-1 3-Dichloropropene         0.87           1 1 2-Trichloroethane         0.48           Tetrachloroethane         0.32           2-Hexanone         0.71           Dibromochloromethane         0.86           Chlorobenzene         0.39           Ethvibenzene         0.65           m+p-Xylenes         1.14           o-Xvlene         0.62           Styrene         0.56           Brounoform         0.70           1,1 2,2-Tetrachloroethane         0.47           1,3-Dichlorobenzene         0.55           1 4-Dichlorobenzene         0.57	COMPOUND NAME MDL (ug/L)  4-Methyl-2-Pentanone 0 59 Not Detected  Toluene 0 37 Not Detected  trans-1 3-Dichloropropene 0 87 Not Detected  I 1 2-Trichloroethane 0 48 Not Detected  Tetrachloroethane 0 32 Not Detected  2-Hexanone 0 71 Not Detected  Dibromochloromethane 0 86 Not Detected  Chlorobenzene 0 39 Not Detected  Ethylbenzene 0 65 Not Detected  m-p-Xylenes 1 14 Not Detected  Styrene 0 66 Not Detected  Bromoform 1 1 Not Detected  Bromoform 0 70 Not Detected  I 1 2,2-Tetrachloroethane 0 47 Not Detected  1,3-Dichlorobenzene 0 55 Not Detected  1 4-Dichlorobenzene 0 57 Not Detected	COMPOUND NAME         MDL (ug/L)         RESULTS         QUALIFIER           4-Methyl-2-Pentanone         0.59         Not Detected         —           Toluene         0.37         Not Detected         —           trans-1 3-Dichloropropene         0.87         Not Detected         —           1 1 2-Trichloroethane         0.48         Not Detected         —           Tetrachloroethane         0.32         Not Detected         —           2-Hexanone         0.71         Not Detected         —           Dibromochloromethane         0.86         Not Detected         —           Chlorobenzene         0.39         Not Detected         —           Ethvibenzene         0.65         Not Detected         —           mrp-Nylenes         —         1.14         Not Detected         —           o-Xylene         0.62         Not Detected         —           Bromoform         0.77         Not Detected         —           1,2,2-Tetrachloroethane         0.47         Not Detected         —           1,3-Dichlorobenzene         0.57         Not Detected         —	COMPOUND NAME         MDL (ug/L)         RESULTS         QUALIFIER LEVEL(ug/L)           4-Methyl-2-Penianone         0.59         Not Detected         -         400           Toluene         0.37         Not Detected         -         1000           trans-1.3-Dichloropropene         0.87         Not Detected         -         nle           1.1.2-Trichloroethane         0.48         Not Detected         -         3           Tetrachloroethane         0.32         Not Detected         -         1           2-Hexanone         0.71         Not Detected         -         nle           Dibromochloromethane         0.86         Not Detected         -         1.0           Chlorobenzene         0.39         Not Detected         -         4           Ethvibenzene         0.05         Not Detected         -         nle           o-Xylene         0.62         Not Detected         -         nle           styrene         0.56         Not Detected         -         1.00           Bromoform         0.77         Not Detected         -         4           1.1.1.2,2-Tétrachloroethane         0.47         Not Detected         -         600           1.4-Dichlorobe

## Table 3 SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name

**FMETL** 

NJDEP#

<u>13461</u>

Matrix (soil/water) WATER

Date Sampled

11/6/99

Location

<u>492</u>

Lab Sample ID 4925 01(492-1)

CAS NO	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1 83	Not Detected		nie	no
62-75-9	N-mitroso-dimethylamine	0 91	Not Detected	-	20	no
62-53-3	Amiline	I 63	\at Detected		nle	no
111-44-4	bis(2-Chloroethyl)ether	1 28	Not Detected	-	10	no
541-73-1	3-Dichlorobenzene	1 19	Not Detected		600	no
106-46-7	1 3-Dichlorobenzene	1 02	Not Detected	-	75	no
100-51-6	Benzył alcohol	1 02	Not Detected	-	nle	по
95-50-1	1 2-Dichlorobenzene	1 13	Not Detected		600	no
108-60-1	bis(2-chloroisopropy f)ether	1 39	Not Detected		300	no
621-64-7	n-Nitroso-di-n-propylamine	1 50	Not Detected	-	20	по
67-72-1	Hexachloroethane, 1/2	0 97	Not Detected	-	10	по
98-95-3	Nitrobenzene	1 01	Not Detected		10	по
78-59-1	Isophorone	1 21	Not Detected		100	по
111-91-1	b15(2-Chloroethoxy)methane	1 75	Not Detected		nle	no
120-82-1	2 4-Trichlorobenzene	1 22	Not Detected		9	по
91 20-3	Naphthalene	1 27	∖ot Detected	-	nle	no
106-47 8	4-Chloroanitine	1 09	∖ot Detected		nle	no
87-68-3	Hexachlorobuladiene	0 71	Not Detected	-	1	пю
91 57-6	2-Methy Inaphthalene	1 03	Not Detected	-	nle	TIQ.
77-47-4	Hexachlorocyclopentadiene	1 32	Not Detected		50	no
91 58-7	2-Chloronaphihalene	3 01	Not Detected	-	nle	no
88-74-4	2 Nitroaniline	0 79	Not Detected		nie	no
131-11 3	Dimethylphthalate	1 52	Not Detected		7000	no
203-96-8	Acenaphthylene	0 96	Not Detected		nle	no

## Table 3 SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER

Date Sampled 11/6/99 Location 492 Lab Sample ID 4925 01(492-1)

d <u>11/6/99</u>	Location	<u>492</u>	Lab Sa	mple ID 4925 0	1(492-1)
COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
2 6-Dimitrotoluene	0 81	∖ot Detected	_	nle	πο
3 Nitroaniline	0 79	Not Detected	-	nle	no
Acenaphthene	1 10	Not Detected		400	no
Dibenzofuran	1 00	Not Detected		nle	по
2 4 Dinitrotoluene	0 87	Not Detected	_	10	по
Diethylphthalate	1 62	Not Detected		5000	no
Fluorene	0 99	Not Detected		300	no
4-Chlorophenyl-phenylether	1 10	Not Detected		nle	no
4-Nuroandine	1 05	Not Detected		nle	no
n-Nitrosodiphenylamine	1 01	Not Detected	-	20	no
Azobenzene	0 67	Not Detected		nie	по
"4 Bromophenyl phenylether	0 76	Not Detected		nle	no
Hexachlorobenzene	0 94	∖ot Detected		10	110
Phenanthrene 3	1 23	Not Detected	-	nle	по
Anthracene	1 12	Not Detected		2000	no
Di n-butylphthalate	1 70	Not Detected	~	900	no
Fluoranthene	164	∖ot Detected	-	300	по
Benzidine	4 18	Not Detected		50	no
Pyrene	1 25	∖ot Detected	-	200	по
Bury ibenzy iphthalate	1 05	Not Detected	_	100	no
Benzo[a]anthracene	1 19	Not Detected		10	по
3 3 -Dichlorobenzidine	1 75	∖ot Detected		60	по
Chrysene	1 38	Not Detected	-	20	ВÓ
bis(2-Ethylhexyl)phthalate	1 74	Not Detected	-	30	no
Di-n-octy lphthalate	1 44	∖ot Detected		100	no
Benzo[b]fluoranthene	1 25	Not Detected		10	по
Benzo(k)fluoranthene	1 29	∖ot Detected	-	2	no
Велго[а]ругеле	1 05	Not Detected	-	20	no
Indeno[1 2 3-cd]pyrene	0 83	Not Detected	-	20	no
Dibenz[a h]anihracene	0 64	Not Detected	-	20	по
Benzo[g h 1]perylene	0 84	Not Detected		nle	по
	COMPOUND NAME  2 6-Dimitrotoluene  3 Nitroaniline  Acenaphthene  Dibenzofuran  2 4 Dimitrotoluene  Diethyliphthalaie  Fluorene  4-Chlorophenyl-phenylether  4-Nitroamline  n-Nitrosodiphenylamine  Azobenzene  4 Bromophenyl phenylether  Hexachlorobenzene  Phenanthrene  Anithracene  Di n-butyliphthalate  Benzidine  Pyrene  Butylbenzyliphthalate  Benzo[a]anthracene  3 3 -Dichlorobenzidine  Chrysene  bis(2-Ethylhexyl)phthalate  Di-n-octyliphthalate  Benzo[b]fluoranthene  Benzo[a]pyrene  Indeno[1 2 3-cd]pyrene  Dibenz[a h]anthracene	COMPOUND NAME         MDL (ug/L)           2 6-Dinitrotoluene         0 81           3 Nitroaniline         0 79           Acenaphthene         1 10           Dibenzofuran         1 00           2 4 Dinitrotoluene         0 87           Diethylphthalate         1 62           Fluorene         0 99           4-Chlorophenyl-phenylether         1 10           4-Nitroaniline         1 05           n-Nitrosodiphenylamine         0 67           4 Bromophenyl phenylether         0 76           Hexachlorobenzene         0 94           Phenanthrene         1 23           Anithracene         1 12           Di n-butylphthalate         1 70           Fluoranthene         1 64           Benzidine         4 18           Pyrene         1 25           Butylbenzylphthalate         1 05           Benzo(aljanthracene         1 19           3 3 -Dichlorobenzidine         1 75           Chrysene         1 38           bis(2-Ethylhexyl)phthalate         1 74           Di-n-octylphthalate         1 74           Di-n-octylphthalate         1 25           Benzo(alphyrene         1 05	COMPOUND NAME  2 6-Dimitrotolucine 3 Nitroaniline 0 79 Not Detected Acenaphthene 1 100 Not Detected Dibenzofuran 1 000 Not Detected 2 4 Dimitrotolucine 0 87 Not Detected Diethylphthalaie 1 62 Not Detected 4-Chlorophenyl-phenylether 1 100 Not Detected 4-Nitroaniline 1 105 Not Detected 1 101 Not Detected 1 102 Phenanthrene 1 1 01 Not Detected 1 1 02 Phenanthrene 1 1 03 Not Detected 1 1 03 Not Detected 1 1 04 Phenanthrene 1 1 05 Phenanthrene 1 1 06 Phenanthrene 1 1 07 Phenanthrene 1 1 07 Phenanthrene 1 1 08 Pyrene 1 1 08 Pyrene 1 1 09	COMPOUND NAME	COMPOUND NAME

## Table 3 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER

Date Sampled 12/22/99 Location 492 Lab Sample ID 5043 01(Bldg 492)

Date Sample	ed <u>12/22/99</u>	Location	<u>492</u>	Lab Sa	mple ID 5043 0	1(Bldg 492)
CAS NO	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
107028	Acrolem	1 85	Not Detected	-	50	no
107131	Acrylonitale	2 78	Not Detected	-	50	no
75650	ten-Butyl alcohol	8 52	Not Detected	_	nle	no
1634044	Methyl-tert Butyl ether	0 16	Not Detected	-	nle	по
108203	Di-isopropyl ether	0 25	Not Detected		nle	no
<u></u>	Dichlorodifluoromethane	1 68	Not Detected		nle	no
74-87-3	Chloromethane	l 16	Not Detected	-	30	no
75-01-4	Vmyl Chlonde	1 06	Not Detected		5	no
74-83-9	Bromomethane	l 10	Not Detected	-	10	no
75-00-3	Chloroethane	1 01	Not Detected	_	nle	no
75- <del>69</del> -4	Trichlorofluoromethane	0 50	Not Detected	_	nle	no
75-35-4	1 1-Dichloroeihene 2	0 24	Not Detected	_	2	no
67-64-1 ~ -	Acetone	1 36	Not Detected		700	no
75 15-0	Carbon Disulfide	0 46	Not Detected	-	nle	no
• 75-09 2	Methylene Chlonde	0 24	Not Detected		2	по
156-60-5	trans-1 2-Dichloroethene	0 16	\ot Detected		100	по
75-35-3	1 1-Dichloroethane	0 12	Not Detected	-	70	nó
108-05-4	Vinyl Acetate	0 78	Not Detected		nle	по
78-93 3	2-Butanone	0 62	Not Detected		300	no
156-59-2	cis-1 2 Dichloroethene	0 17	Not Detected	-	10	no
67- <del>66</del> -3	Chloroform	0 30	Not Detected	-	6	DO DO
75-55-6	I I 1-Trichloroethane	0 23	Not Detected	-	30	no
56-23-5	Carbon Tetrachlonde	0.47	Not Detected		2	no
71-43-2	Benzeze	0 23	Not Detected		1	no
107-06-2	1 2-Dichloroethane	0 18	Not Detected	-	2	no
79-01-6	Trichloroethene	0 23	Not Detected	-		no
78-87-5	I 2 Dichloropropane	0 40	∖ot Detected		1	THÓ
75-27-4	Bromodichloromethane	0.55	Not Detected	-	1	tio
110-75 8	2-Chloroethyl vmyl ether	0 65	Not Detected	-	nle	по
10061-0}-5	cis-I 3-Dichloropropene	0 69	∖ot Detected	_	nle	no

#### Table 3 **VOLATILE ORGANICS ANALYSIS DATA SHEET**

NJDEP # 13461 Matrix (soil/water) WATER **FMETL** Lab Name

Date Sample	d <u>12/22/99</u>	Location	<u>492</u>	Lab Sa	imple ID 5043 0	1(Bldg 492)
CAS NO	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
108-10-1	4-Methyl-2-Pentanone	0 59	Not Detected		400	по
108-88-3	Toluene	0 37	Not Detected	_	1000	по
10061-02-6	trans-1 3-Dichloropropene	0 87	Not Detected		nle	no
79-00-5	1 1 2-Trichloroethane	0 48	Not Detected	_	3	no
127-18-4	Tetrachloroethene	0 32	Not Detected	_	1	по
591-78-6	2-Hexanone	0 71	Not Detected		nle	no
126-48-1	Dibromochloromethane	0 86	Not Detected	-	10	no
108-90-7	Chlorobenzene	0 39	Not Detected	-	4	no
100-41-4	Ethylbenzene	0 65	Not Detected		700	no
1330-20-7	m+p-\\ylenes	1 14	Not Detected		nle	no
1330-20-7	o-Aylene - **	0 62	Not Detected	-	nle	no
100-42-5	Styrene	0 56	Not Detected		100	no
75-25 2 '	Bromoform	0 70	Not Detected		4	по
79 34-5	1 1,2 2-Tetrachloroethane	0 47	Not Detected		2	no
541-73-1	1 3-Dichlorobenzene	0 55	Not Detected		600	no
106-46-7	I 4-Dichlorobenzene	0 57	Not Detected	-	75	по
95 50-1	1 2 Dichlorobenzene	0 64	Not Detected		600	no

## Table 3 SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name

**FMETL** 

NJDEP #

13461

Matrix (soil/water) WATER

Date Sampled

12/22/99

Location

<u>492</u>

Lab Sample ID 5043 01(Bldg 492)

CAS NO	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	1 83	Nat Detected	-	nie	DiO
62-75 9	N natroso-dimethylamine	0 91	Not Detected	-	20	n¢
62-53-3	Andine	1 63	Not Detected	-	nle	11/0
111-44-4	bis(2-Chloroethyl)ether	1 28	Not Detected	-	10	no
541-73-1	I 3-Dichlorobenzene	1 19	Not Detected	-	600	no
106-46-7	I 4-Dichlorobenzene	1 02	Not Detected		75	no
100-51-6	Benzy i alcohol	1 02	∖oi Detected		nle	no
95-50-1	1 2-Dichlorobenzene	1 13	Not Detected	-	600	no
, 108-60-1	bis(2-chloroisopropyl)ether	1 39	∖ot Detected		300	по
, ` 621- <del>64</del> 7	n-Nuroso-di-n-propylamine	1 50	Not Detected	-	20	по
67-72-1 v .	Hexachloroethane	0 97	Not Detected		10	no
98-95 3	Nitrobenzene	1 01	Not Detected	-	10	no
78-59 1	Isophorone	1 21	Not Detected	-	100	пö
111-91-1	bis(2-Chloroethoxy)methane - /	1 75	Not Detected		nle	no
120-82-1	1 2 4-Trichlorobenzene	1 22	Not Detected	-	9	no
91-20-3	Naphthalene	1 27	Not Detected	-	nle	no
106-47-8	4-Chloroamline	1 09	Not Detected	-	nle	по
87-68-3	Hexachlorobutadiene	0 71	Not Detected			nao
91-57-6	2-Methy Inaphthalene	1 08	Not Detected	-	nle	по
77-47-4	Hexachlorocyclopentadiene	1 32	Not Detected		50	no
91 58-7	2-Chloronaphthalene	1 01	∖ot Detected		nle	no
88-74-4	2-Nitroaruhne	0 79	Not Detected	-	nle	по
131-11 3	Dimethy lphthalate	2د ا	\ot Detected	-	7000	по
203-96-8	Acenaphthy lene	0 96	Not Detected	-	nle	no

`8 of 8

## Table 3 SEMI-VOLATILE ANALYSIS DATA SHEET

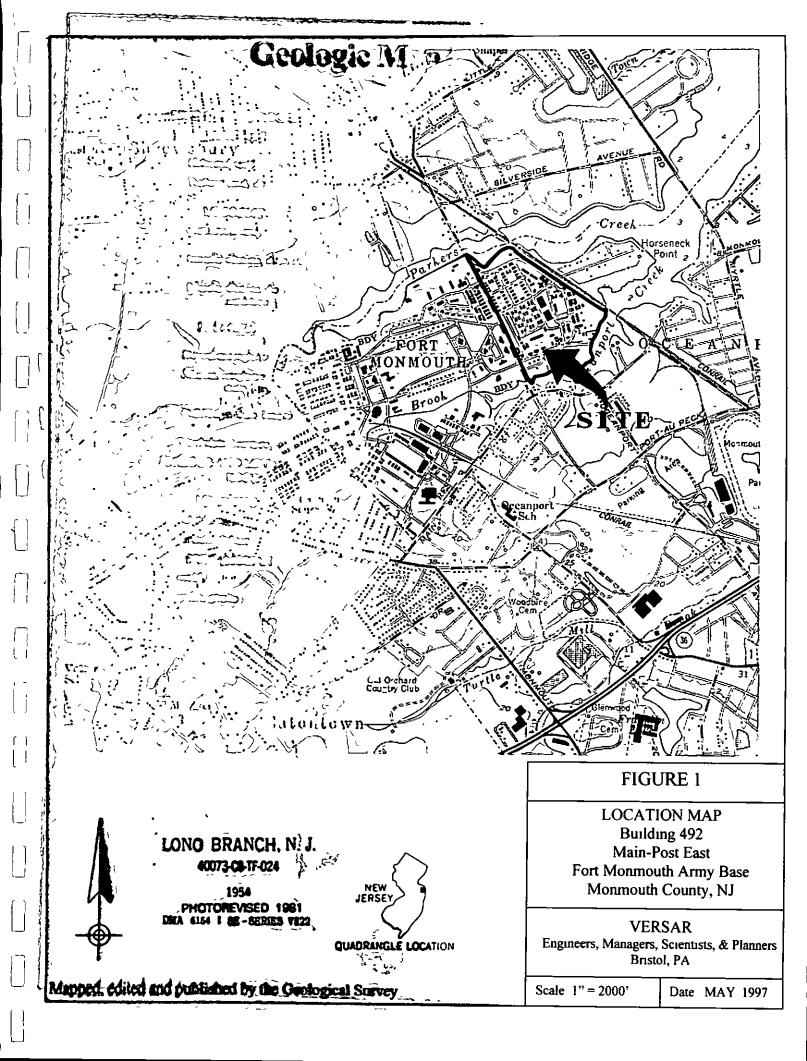
Lab Name FMETL NJDEP # 13461 Matrix (soil/water) WATER

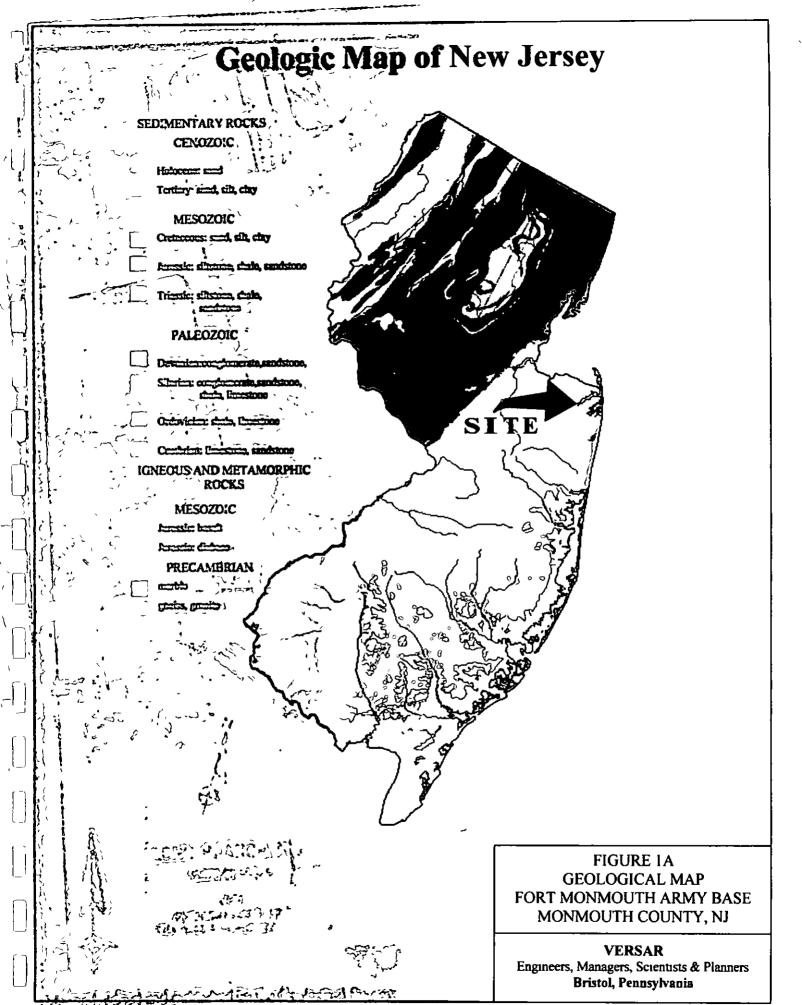
Date Sampled 12/22/99 Location 492 Lab Sample ID 5043 01(Bldg 492)

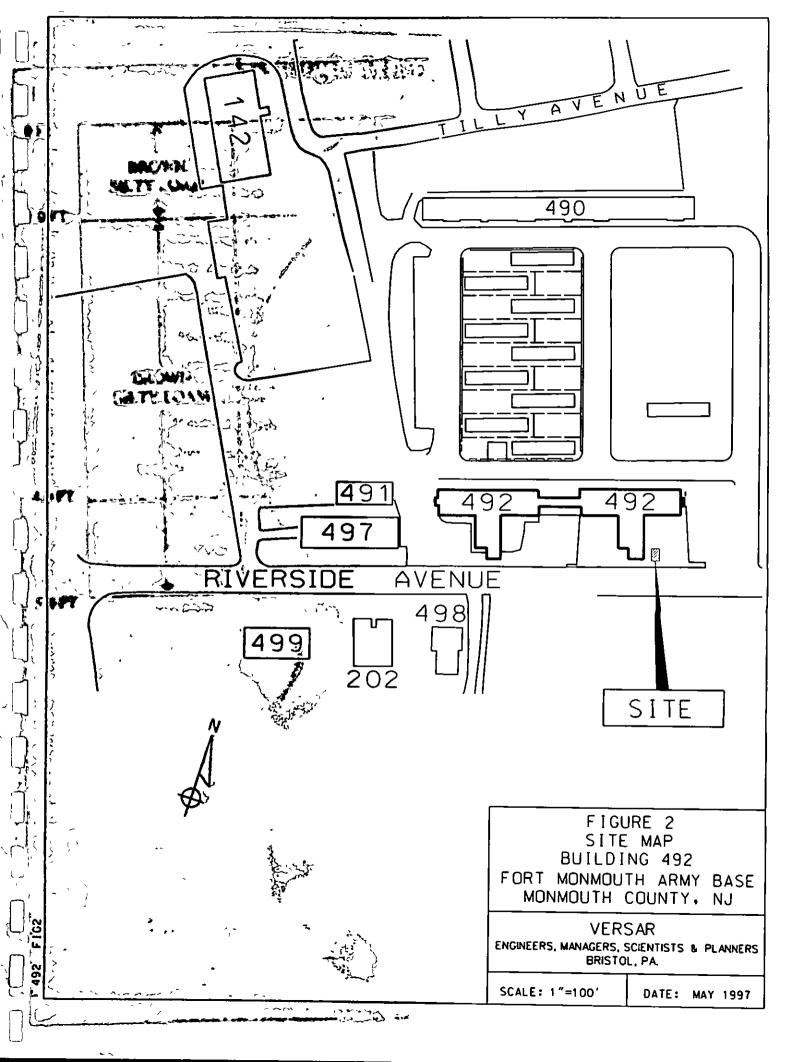
Date Sampled <u>12/22/99</u>		Location	<u>492</u>	Lab Sample ID 5043 01(Bldg 492)		
CAS NO	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2 6-Dinitrotoluene	0 81	Not Detected	-	nie	по
99-09-2	3-Nitroaniline	0 79	Not Detected	-	nle	no
83-32-9	Acenaphthene	1 10	Not Detected	-	400	no
132-64-9	Dibenzofuran	1 00	Not Detected	-	nle	no
121-14-2	2 4-Dinitrotoluene	0 87	∖or Detected	-	10	110
84-66-2	Diethy lphthalate	1 62	Not Detected	-	5000	no
86-73-7	Fluorene	0 99	\ot Detected	-	300	оп
7005-72-3	4-Chloropheny I-pheny lether	1 10	Not Detected	-	nle	no
100-01-6	4-Nitroamline	1 05	Not Detected	-	nle	no
86-30-6	n-Nitrosodiphenylamine	1 01	Not Detected	_	20	no
103-33-3	Azobenzene	0 67	Not Detected	~	nle	no
101 55-3	4-Bromophenyl phenylether	0 76	Not Detected		nle	no
118-74-1	Hexachlorobenzene	0 94	Not Detected		10	no
85-01-8	Phenanthrene	1 23	Not Detected	_	пle	no
120-12-7	Amhracene	1 12	Not Detected		2000	no
84-74-2	Di-n-butylphthalaic	1 70	∖oi Detected	_	900	по
206-44-0	Fluoranthene	1 64	Not Detected		300	no
92-87-5	Benzidine	4 18	Not Detected		50	по
129-00-0	Pyrene	1 25	Not Detected	-	200	no
85-68-7	Buty (benzy (phtha) late	1 05	Not Detected		100	no
56-55-3	Benzo[a]anıhracene	l 19	Not Detected		10	no
91-94-1	3 3 -Dichlorobenzidine	1 75	Not Detected		60	no
218-01 9	Chry sene	1 38	Not Detected		20	no
117-81-7	bis(2-Ethylhexyl)phthalate	1 74	Not Detected		30	no
117-84-0	Di-n-octylphthalate	1 44	Not Detected		100	no
205-99-2	Benzo[b]fluoranthene	1 25	Not Detected		10	по
207-08-9	Benzo[k]fluoranthene	1 29	Not Detected		2	no
50-32-8	Benzo[a]pyrene	1 05	Not Detected		20	no
193-39-5	Indeno[1 2 3-cd]pyrene	0 83	Not Detected		20	no
53-70-3	Dibenz[a h]anthracene	0 64	Not Detected	-	20	no
191 24-2	Benzo(g h i]perylene	0 84	Not Detected	_	nle	no

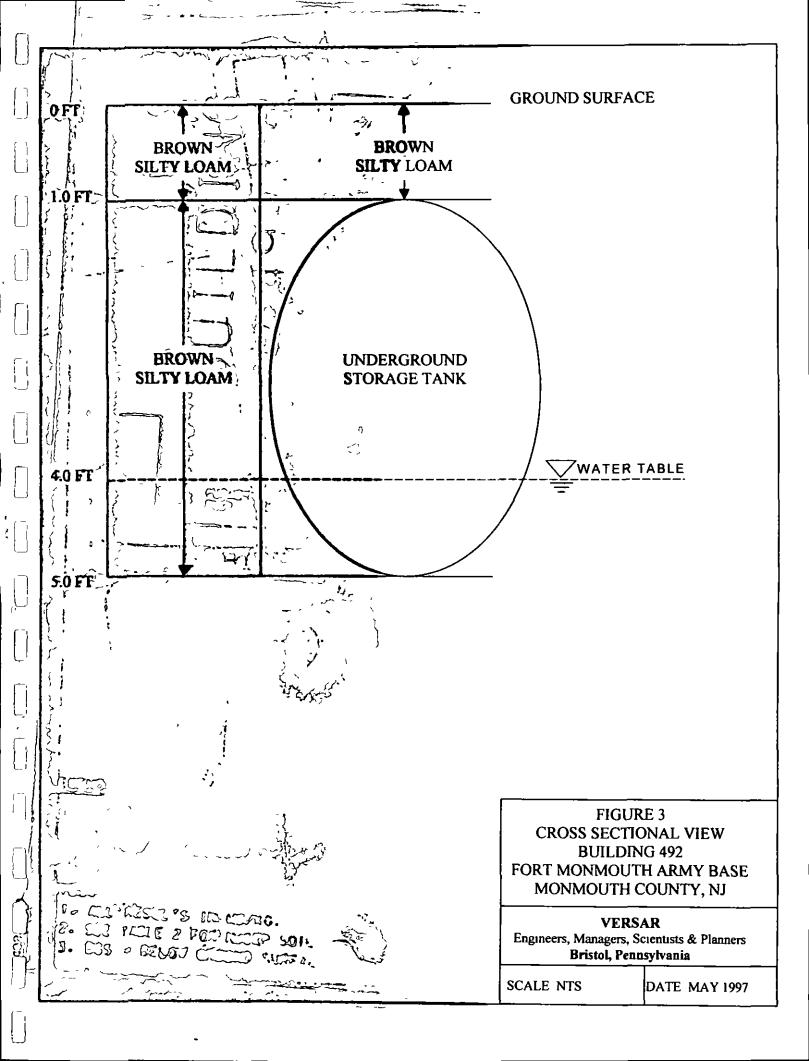


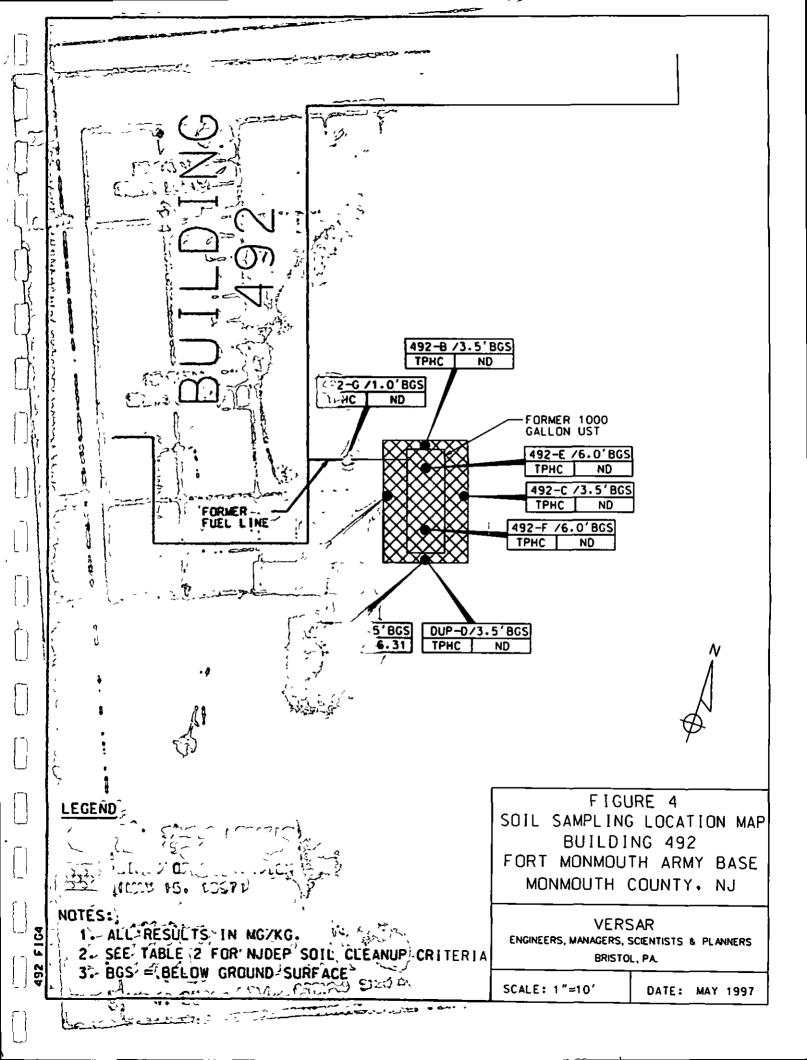
APPENDIX A

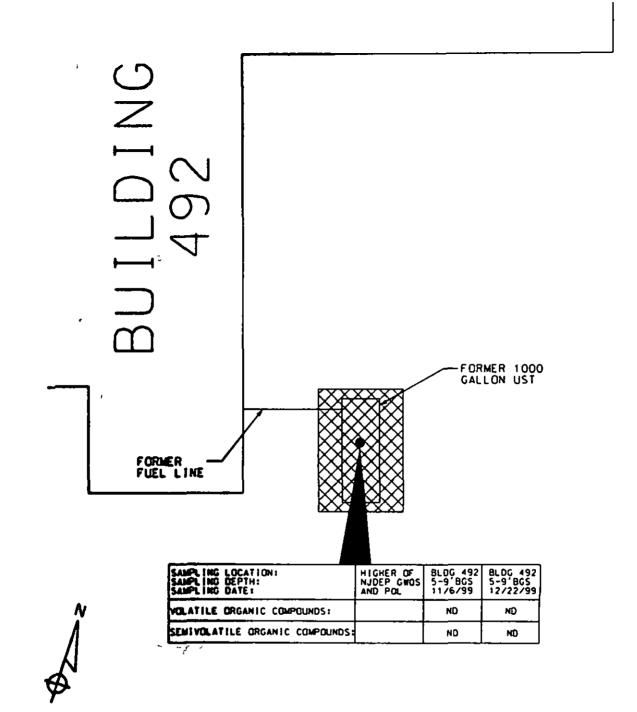












#### LEGEND

SAMPLE LOCATION

( ,1999 AND DECEMBER 22, 1999)

MAY 15. 1997)

#### NOTES:

- 1. ND=INDICATES COMPOUND NOT DETECTED
- 2. NLE= NO LIMIT ESTABLISHED
- 3. ALL RESULTS IN UG/L
- 4. BGS = BELOW GROUND SURFACE

FIGURE 5
GROUNDWATER SAMPLING MAP
BUILDING 492
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

#### VERSAR

ENGINEERS, MANAGERS, SCIENTISTS & PLANNERS BRISTOL, PA.

SCALE: 1"=10"

DATE: MAY 1997

### Appendix A

# APPENDIX A NJDEP-STANDARD REPORTING FORM



### Stare 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

Fo	r Stat	ie Utip	Qnh	1	1
•	a,		, 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	ंड	, it
Date Reci	đ. ' ' '	78 A 23	+4	14	
luth.			· · · · · · · · · · · · · · · · · · ·		
Couting			e ŽŽ	-4.8	A 100 A
JST NO.	•	- TA	<b>X</b> -	*.44 *.*	7.7

	9 7 44
	UNDARD REPORTING FORM orting countings at an UST techniq:
General Facility Informati Closure (Abandoniment o Temporary Closure Change in Service	Sols or Transfor  Substantial Modification  Financial Responsibility  Address Change Only
_ , Check ONLY One Ty	pe of Activity - Complete Form For That Activity
*** NOTE * * * ALL	NEW tank installations at existing registered. Registration Questionnaire for the new tanks.
Answer questions 1 through 5 and others as ap	picable
Company name and address (as it appears on registration questionnaire).	U.S. AKing Fort Monmost NJ Directorate of Public Water. Fort Monmouth NJ 07707.
•	70.77.70700000
2. Facility name and location (f. different from above):	MAN Post East
3 Contact person for this activity:	Charles Appleby
	Telephone Number: ( 908 )
4 The identification number of the affected ta	nx as it appears in Question Number 12 on the Registration Questionners:
5. Registration Number (# timewn):	ust. 59
6. For GENERAL FACILITY INFORMATION CHES	rgas (codress, telephone, context pareon, cit cupply NEW (com: isn only):
o. Facility nama:	
b. Facility tocation:	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
c. Owner's multing oddross:	V ~ ~ ~ ~ ~ ~
	NU CONTRACTOR OF THE PROPERTY
d Blocks	The state of the s
d. Block: Let:	
e. Contact parson (facility opportun):	The state of the s
Contact telaphona number: (      Other (Specific):	
g. Other (Specily);	

(OVER)

7 For CLOSE	IRE (abandonmant or removal – chack all that apply).
a 🗆 Aba	ndonmars Date: Case No:
	ne nocessary implementation schedule (3 copies) and all documentation needed for
apanoo:	nmem per NJ.A.C. 7:14B-9 1 (d).  noval Date: 5 1 15 1 7 7 Case No. 97-5-15-1350 - 80
D. D. Hon	na nacessary implomantation schadule (3 copies).
	· · ·
	SES IN HAZARDOUS SUBSTANCES STORED (chock all that apply):
	portary Closuro (12 month meximum tano – soe N.J.A.C. 7:148-9.1(b)). Remove all hexandous cas, leave tank in place.
	nge in service from a regulated substance to a non-regulated substance. Tank must be cleaned
and site	assessment performed per NJA.C. 7-148-9 1(0).
	nges in sorvice from one regulated hazardous substance to another regulated hazardous substance.
	× No Old Now
	× No Now
Tar	tk No Old Not
	(Artach additional shaets if more space at noodod)
9 For TRANS	FER OF OWNERSHIP: Effective Date://
	mer (operator)
b New Fa	cuity Name
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
	Соилту
c Closing	· · · · · · · · · · · · · · · · · · ·
10 For SUBST	ANTIAL MODIFICATIONS (to include any retrollited activity - e.g. the addition of spill/overfill protection,
monitoring t	systems, exthadre protection, etc.):
<del>'=</del>	Systems, criticalic protection, etc.):  Modification Date:
a. Type of	Moddication Date:
a. Type of b. NOTE	Modification Date: Date:
a. Type of b. NOTE	Modification Date:
a. Type of b. NOTE	Modification Date:
a. Type of b. NOTE	Modification
a. Type of b. NOTE	Modification Date:
a. Type of b. NOTE	Modification
a. Type of b. NOTE	Modification  * Substantial modifications require a permit under N.J.A.C. 7:148-10.  s in Financial Responsibility to (check appropriate changes and attach copies of new information):  a. Poëcy Type.   d. Company/Camer.   b. Poëcy Number.   e. Expiration Date:   c. Other:
a. Type of b. NOTE	Modification
a. Type of b. *NOTE 11 For change	Modification  * Substantial modifications require a permit under N.J.A.C. 7:148-10.  s in Financial Responsibility to (check appropriate changes and attach copies of new information):  a. Poëcy Type.   d. Company/Camer.   b. Poëcy Number.   e. Expiration Date:   c. Other:
a. Type of b. *NOTE 11 For change	Modification Date: // * Substantial modifications require a permit under N.J.A.C. 7:148-10.  In FINANCIAL RESPONSIBILITY to (check appropriate changes and attach copies of new information):  a. Pošcy Type. D  d. Company/Camer. D  b. Pošcy Number: D  e. Expiration Date: D  (Specify)  propriate and applicable permits, feeress and conflicator required by the above activity(ion) from any state analyst feeters invest to obtained separately from this notification.
a. Type of b. *NOTE  11 For change  NOTE. ALL a. tocal,	Modification
a. Type of b. *NOTE  11 For change  NOTE. ALL a tocal,	Modification Date: // * Substantial modifications require a permit under N.J.A.C. 7:148-10.  In FINANCIAL RESPONSIBILITY to (check appropriate changes and attach copies of new information):  a. Pošcy Type. D  d. Company/Camer. D  b. Pošcy Number: D  e. Expiration Date: D  (Specify)  propriate and applicable permits, feeress and conflicator required by the above activity(ion) from any state analyst feeters invest to obtained separately from this notification.
a. Type of b. *NOTE  11 For change.  NOTE. ALL a tocal,  This registrationary (NJAC)	Modification  * Substantial modifications popula a permit under N.J.A.C. 7:14B-10.  \$ in Financial Responsibility to (check appropriate changes and attach copies of new information):  \$ a. Policy Type.   \$ d. Company/Camer.   \$ b. Policy Number.   \$ e. Experition Date:   \$ c. Other.   \$ (Secrety)   Company of the permits and conflictions required by the observe country(ice) from any state and/or federal agencies must be obtained superiorly from this multication.  **CEPTIFICATION**  **CEPTIFICATION**  **COMPANY of the that the information provided in this decement is the permits and conditions are permits of the pe
a. Type of b. NOTE  11 For change  NOTE. ALL a tocal,  This registrat facility (NJAC)  1 certify under that there are s	Modification
a. Type of b. *NOTE  11 For change.  NOTE. ALL a tocal,  This registrationary (NJAC)	Modification
a. Type of b. NOTE  11 For change  NOTE. ALL a tocal,  This registrat facility (NJAC)  1 certify under that there are s	Modification
a. Type of b. NOTE  11 For change  NOTE. ALL a tocal,  This registrat facility (N.J.A.C.  7 certify under that there are sizes and/or imp	Modification  Substantial modifications require a parmit under N.J.A.C. 7:148-10.  In Financial Responsibility to (check appropriate changes and attach copies of new information):  a. Pošcy Type:   d. Company/Camer.  b. Pošcy Number:   e. Experition Date:   C. Other:   (Secrity)  C. Other:   (Secrity)  C. Other:   C.
a. Type of b. *NOTE  11 For change.  11 For change.  NOTE. ALL a tocal,  This registrat facility (N.J.A.C.  1 certify under that there are stimes and/or important the control of the cont	Date:
a. Type of b. NOTE  11 For change  NOTE. ALL a tocal,  This registrat facility (N.J.A.C.  7 certify under that there are sines and/or important than the control of the con	Modification Date: // Substantial modifications require a parms under N.J.A.C. 7:148-10.  In FINANCIAL RESPONSIBILITY to (check appropriate changes and strach copies of new information):  a. Posey Yype:   d. Company/Camer.    b. Posey Number.   e. Experition Date:    c. Other:   (Specify)

(INIT/MID-2/92)

Appendix B

# APPENDIX B SITE ASSESSMENT SUMMARY

## New Jersey Department of Environmental Protection Site Remediation Program

### **UST Site/Remedial Investigation Report Certification Form**

A. Facility Name U.S. Army Fort Monmouth New Jersey							
Facility Street Address Directorate of Public Works Building 173							
Municipality Oceanport . County Monmouth							
Block Lot(s) Telephone Number 732-532-6224							
B. Owner (RP)'s Name							
Street Address City							
State Zip Telephone Number							
C. (Check as appropriate) D. (Complete all that apply)							
Site Investigation Assigned Case Manager Ian Curtis, Federal Case Manager							
Report (SIR) \$500 Fee UST Registration Number 90010-59 (7 digits)							
Report (RIR) \$1000 Fee Incident Report Number 97 - 05 - 15 - 1350 - 20 (10 or 12 digits)							
X NA – Federal Agreement  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 26E  Yes No  Name Charles Appleby Signature See Signed Subsurface Removal Log UST Cert No 2046							
Firm US Army Fort Monmouth Firm's UST Cert Number NA-US Army							
Firm Address Directorate of Public Works Building 173 City Fort Monmouth							
State NJ Zip 107703 Telephone Number 732-532-6224  (NOTE Certification numbers required only if work was conducted on USTs regulated per NUS A 58 10A 21 et sea.)							
(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 I knowingly direct or authorize the violation of any statute, I am personally liable for the penalties."							
Name (Print or Type) James Ott							
Signature Come Off							
Company Name U.S. Army Fort Monmouth Date 7/31/00							

## DAILY UST SUBSURFACE REMOVAL LOG

	BLDG # 492 REG #: 90010 - 59 CLOSURE# Blanket	
	DATE 5/15/97 TOA. 1220 TOD: NJDEP CERT.#.	
	REMOVAL/CONTRACTOR SAT Inc. TVS Inc	
	CLOSURE SUPERVISOR Gray Don't the TVS NJDEP CERT #	
	WEATHER: Sura War- N 700F	
	ACTIVITY	YES/
١	THE SUPERVISOR (CLOSURE CERT ) WAS ON-SITE DURING ALL CLOSURE RELATED ACTIVITIES	4705
1	THE SSE WAS ON-SITE DURING UST REMOVAL AND SITE SCREENING AND SAMPLING ACTIVITIES	475
{	ALL ON-SITE PERSONNEL HAD TRAINING IAW ALL SAFETY REQUIREMENTS (E G 29CFR)	C-5
	A CONFINED ENTRY PERMIT WAS COMPLETED AND POSTED ON-SITE BY THE CONTRACTOR	nyp1
	THE UST WAS PLACED ONTO PLASTIC, SCRAPED OFF, INSPECTED FOR HOLES AND PHOTOGRAPHED	55
!	A DISCHARGE WAS REPORTED TO THE NJDEP (609-292-7172), CASE# 17-5-15-150 - 30	4/5.
	PHOTOS HAVE UST#, BLDG #, DATE, TIME, NAME OF SSE AND DESCR WRITTEN ON BACK	4-5
	GROUNDWATER WAS ENCOUNTERED AT 4 FEET BG, A SHEEN (WAS WAS NOT) OBSERVED ON GW	415
	IF OVA/"nu WAS USED 'WAS IT CAL AND FOUND TO BE OPERATIONAL (cal data on COC)	715
ı	IF SAMPLES WERE TAKEN COC, SCALED SITE MAP (VERT SOIL HORIZONS AND PLOT PLAN)	47.5
	ALL SAMPLE COLLECTION ACTIVITIES WERE AS DESCRIBED IN THE NUMER PSPM, 1992	705
	ALL SAMPLING WAS BIASED TOWARD HIGHEST OVA/FID RECORDED SITES IAW 7 26E-3 6 et seg.	475.
	ALL PETROL CONT SOILS WERE SECURED FROM THE WEATHER BY CLOSE OF BUSINESS TODAY	4-5
;	THE SSE AUTHORIZED BACKFILLING THE EXCAVATION (STONE TO 1" ABOVE GROUNDWATER)	NO
	ADDITIONAL NOTES WERE TAKEN AND ARE RECORDED ON THE BACK OF THIS FORM	405
i ,	THE FOLLOWING DOCUMENTS WERE ADDED TO THE PROJECT FOLDER TODAY (CIRCLE EACH)	7
:	SCRAP TICKET, CSE PERMIT, ACCIDENT REPORT, HAZ WASTE MANIFEST, DAILY UST CLOSURE LOG, SCALED SITE PAP (SAMPLING) SRF-CLOSURE, CHAIN OF CUSTODY, SOIL ANALYTICAL RESULTS, CLEAN FILL TICKETS (IN YDS), PHOTOGRAPHS (UST, EXCAVATION, SAMPLING POINTS)	1
тс	CHECK ALL BOXES, LEAVE ertify under penalty of law that tank decommissioning activities	NO BLANKS
	ormed in compliance with N J A C 7 14B-9 2(b)3 and 7 26 et seq I a	m aware
tnat	/ 5 / 5 / 2	te, or
100	omplete information including fines and/or imprisonment	
SIGN	DATE 5/15/97	
\ms\	\ust\renoval\sitessls doc	

APPENDIX C
WASTE MANIFEST

,	<b>OLOR</b>	(CO	i						
gn s	PETROLEUM SI	ERVICES	00067						
NON-HAZARDOUS 1 Generator's U	<u>BOX 5A OLD BI</u> JS EPA ID No	HILTOR, IN	Mani		2 Page	1	<del></del>		
WASTE MANIFEST W5321	0020		O Y	228	of		NHZ	Z 0048	55
	unics Co SELFM-		and	MAIN					
10 5 FALLON BIDS. 173 Att: S	SELFM-	. PW	ĒV	102+					ľ
Generator's Phone (908) (32-6823 - Fo.	rt mann	2 outl	~7.	103					ľ
Transporter 1 Company Name	6 U.	S EPA ID N			A Tran:	sporter's Pi	none		7
LIONETTI OIL RECOVERY CO INC	NJDO	) <u>8 4</u>	0 4 4	0_6_4	<u> </u>	908 7	21- <u>0</u>	900	. 1
Transporter 2 Company Name .	8 US	S EPA ID N	Number		B Tran	sporter's P			
· · · · · · · · · · · · · · · · · · ·		======			7. 7				/
Designated Facility Name and Site Address		S EPA ID N		ļ	C Facu	ky's Phone			ŗ
LIONETTI OIL RECOVERY CO INC DBA LO	JRCO PETRU	)LEUM :	SVCS	1					ļ
RUNYON&CHEESEQUAKE RDS	1		- <b>.</b> .	/		= ==.			•
OLD BRIDGE, NJ 08857	<u> INJDO</u>	084(	<u>044</u>	069	9	08 721			
Waste Shipping Name and Description					1	12 Conta	,	13 Total	14 Unit
						No	Туре	Quantity	WtVot
PETROLEUM OIL (PETROLEUM OIL)					1			1	
COMBUSTIBLEL LIQUID UN1270 PGIII						0.0	ا ۾ ا	X1775	t . 1
COMBOSTIBLE LIGOID DIVISTO FOILI							~ ~	MILIO	
							1 1	1 '	
·					ì	i	1 1	l '	]
			<del></del>				<del> </del>	<del></del>	<del>   </del>
						i i		Ι ,	
					ĺ	; I	1 1	1	1
							┝╼╾┩	<del> </del> -	╀╼┦
					ļ			ι '	
						1	1 1	<i>i</i> '	
Additional Descriptions for Materials Listed Above				<del></del>	F Hand	fine Codes	for Was	stes Listed Above	┸┩
· _ >				!		mig over-	IVI FIGS	ies caled Appro	1
T,L PETROLEUM OIL————————————————————————————————————				İ	70.		~ ~ ~ ~ .	* 44	
WATER_SV %				1	104	4 FILT	RATIC	JN	

15 Special Handling Instructions and Additional Information 24 HR EMERGENCY RESPONSE#(908) 721-0900

3 Generator's Name and Mailing Address
V5 APMY Communications
C/O J Fallow Blds. 173

9 Designated Facility Name and Site Address

RUNYON&CHEESEQUAKE RDS OLD BRIDGE, NJ 08857 A 11 Waste Shipping Name and Description

7 Transporter 2 Company Name

GENERATOR

đ

D. Additional Descriptions for Materials Listed Above T,L PETROLEUM OIL- % WATER 50 %

DECAL#2362 ERG#128 DEXSIL TEST KIT RESULTS PPM MANIFEST USED FOR TRACKING PURPOSES ONLY

16 GENERATOR'S CERTIFICATION I certify the materials described above on th per disposal of Hazardous Waste 17 Transporter 1 Acknowledgement of Receipt of Materials 18 Transporter 2 Acknowledgement of Receipt of Materials

Signature

Month Day

19 Discrepancy Indication Space

Printed/Typed Name

20 Facility Owner or Operator Certification of receipt of waste materials covered by this manifest-except as noted in Item 19

Bell Taheno

# APPENDIX D UST DISPOSAL CERTIFICATE

THIS EMECK IS DELIVERED FOR P. ON THE HOLLOWING ACCOUNT	AV MENT				4400
DATE	AMOUNT	MAZZA & SO	NS, INC.		1196
<b> </b>		, RECYCLING D	IVISION		
		TINTON FALLS N		_	<i>]</i> 55-7233/2212
		1,		c/2	1/22
		_	/	DATE	<u> </u>
TOTAL OF INVOICES	PAY		Vinnell	/	7
LESS % DISCOUNT	TO THE ORDER OF	recom	Minnell		1\$ 2/2·80.
LESS FREIGHT		//	///	2.1	, 0,0,0
LESS	-/1110-	thinked :	Tajelve 7	+80/1W	DOLLARS DEET
TOTAL DEDUCTIONS		<del></del>			DOLLANS CI
AMOUNT OF CHECK	₩So	vereign Bar	ık		^
		rereign Dar	117	/ / / //	<i>]</i>
Į.				1 11/1/1/1	
right state of the				AMO12 6	15
n	-	2723324:000	00.000	3/0/5	
# II U I	0,1484 1551	c r c 3 3 2 4 0 0 0 0	1091099	CIPA P II.	
	بغام والمستحوث والمستحود		نم ساء حسام حيث ما الم	ب کار ماده مستند کیا در این در در در در در	موالك مداه موطوع للكوالة المائية المحاريق أمدا السياب
	~		_ · -	-	~ 2 2 ~ 44 - <del></del>
	<b>\</b> :				
1/8/2	MA77A	& SONS,	INC	NO.	209
19		•	nvc.	NO	<u> </u>
١ او	Me	etal Recyclers			
	32	30 Shafto Rd			
				DATE	5 WM 77
. 100	) 11	nton Falls, NJ		DATE.	
0/14/	(9	08) 922-9292			
X412	-	,			
B.492					
,	Ć.				
		Time	VILIVECC		
Cus	tomer's Name	/ COM	VINDERC	<del>-</del>	
Add	ress				
Weight	Price			,	Weight Price
					veight Trice
Cast Iron				Lt Copper	
			17000 10		
Steel )	<del></del>		13980 LB	Brass	
-M-H 3	28.50				
Lt Iron			40040 LD	Alum Clean	
			12840 LB		
Copper #1		-		Lead	
Copper #1				Leau	
			1100		
Copper #2			• •	Stainless	
	- <del></del>	<u> </u>	<del>=</del> - <del>-</del> -		
	<del></del>			Battery	
			!	•	
	<del></del>	0.0 7.77	1	_	
		30 T	11		
			jł.		
		-A-11-11-11			38.50
	<del></del>	(ABO) / 196	_	TOTAL AM	OUNT:
1		, , ,	-	IUIAL AN	10014 I :
337. 1			<b>C</b>	7. ~	
weigher	<del></del>		_ Customer	· , :	
~					

ā

# APPENDIX E SOIL ANALYTICAL DATA PACKAGE

#### US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEPE # 13461

#### **REPORT OF ANALYSIS**

Client

US Army

DPW, SELFM-PW-EV

Bldg 173

Ft Monmouth, NJ 07703

Project

Total Petroleum Hydrocarbons

96-1262 Bldg 492 UST

> Project # 2548 Date Rec 05/16/97 Date Compl 05/21/97

Released by

Daniel K Wright Laboratory Director

### **Table of Contents**

Section	<u>Pages</u>
Cover Sheet ,*	l
Table of Contents 💢	2
Method Summary'	3
Conformance/Non-Conformance	4
Chain of Custody	5
Results Summary	6
Initial Calibration Summary	7
Continuing Calibration Summary	8
Surrogate Results Summary	9
MS/MSD Results Summary	10
Quality Control Spike Summary	11
Raw Sample Data	12-27
Laboratory Deliverable Checklist	28

#### **Method Summary**

#### NJDEP Method OOA-OAM-025-10/97

#### Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g)(wet weight) of a soil sample is added to a 125 mL acid cleaned, solvent rinsed, capped Erlenmeyer flask 15g anhydrous sodium sulfate is added to dry sample Surrogate standard spiking solution is then added to the flask

Twenty five milliliters(25mL) Methylene Chloride is added to the flask and it is secured on a gyrotory shaker table. The agitation rate is set to 400rpm and the sample is shaken for 30 minutes. The flask is the removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25mL of Methylene Chloride is added to the flask and shaken for an additional 30 minutes. The flask is again removed and allowed to settle. The extracts are combined in the vial then transferred to a 1mL autosampler vial.

The extract is then injected directly into a GC-FID for analysis. The sample is analyzed for petroleum hydrocarbons covering a range of C8-C42 including pristane and phytane. Total Petroleum Hydrocarbon concentration is determined by integrating between 5 minutes and 22 minutes. The baseline is established by starting the integration after the end of the solvent peak and stopping after the last peak.

The final concentration of Total Petroleum Hydrocarbons is calculated using percent solid, sample weight and concentration

#### PHC Conformance/Non-conformance Summary Report

No. Control of the Co	<u>No</u> <u>Yes</u>
1 Method Detection Limits provided	_ <u>~</u>
2 Method Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank	<u> </u>
3 Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range) 2(47.2分 にじん	
4 Duplicate Results Summary Meet Criteria	~
(If not met, list the sample and corresponding recovery which falls outside the acceptable range)	
5 IR Spectra submitted for standards, blanks, & samples	NA
6 Chromatograms submitted for standards, blanks, and samples if GC fingerprinting was conducted	
7 Analysis holding time met	_ <
(If not met, list number of days exceeded for each sample)	
Additional Comments	

#### 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.

Daniel K. Wright Laboratory Manager



## Fort Monmouth Enviramental Testing Laboratory

Bidg 173, SLLEM-PW-CV, Fort Monmouth, NJ 07703

Let (908)532-4359 Fax (908)532-3484 LM at appleby@doim6 monmouth army mil-

Chain of Custody Record

NJDEP Certification #13461

Customer: GENE	LESINSKI-DPW	Project No 96-124	12	_		·	Anal	ysis P	aramete	.15		Comments
Phone #: 20989		Location				3	رہ			4		BELOWY!
()DERA (X)OMA (		B.492	<u></u>		7	17	5E		1	l	. 2>	DELAG /
Samplers Name / Com	IDANY . GART DIKIA	et, uis	Sample	#	1	1/0	ď,	· ·	,	;	147	
Lab Sample I D	Sample Location	Date Time	Lype	boliles	1/2	77	1,,			<u> </u>	10	Remarks / Prescryation N (1) d
2548.0	492-A	5-15-97 1511	Suic		$\times$	$\times$	$\times$				2-	SIDEWALL ( 35'
0)	492-6	1507								Ţ,	NO	
03 04 05	497. C	1507									ND	
ا الآن	4970	1456									80	
25	492-E	1524									RSE	EXCFLOOR (60'
00	497-F	1517	1   1								1	1
U7	471G	1534		1 !				200	TURE	2	110	PIONG RUN("10"
08	492-048							IN	77.1.E	TOFIX	<u></u>	Piping Run ("10"
-	//2// !!	•	'	ľ	- 1				<u> </u>	<u> </u>		, , , , , , , , , , , , , , , , , , , ,
-											<del></del>	
			l 									
1117 11 HA	(ALIBRATED W/8	E 600 14 47A	201	100	, (a)	131	) tie		57/5	7	1/5	SMARTICES
LATER LATER	7/14)	Spire Cigi C		////		700	27/(		-717	7 / 27	2 4.	
	2017		-	:				<del>  </del>			+	
Religible by (mynther	Date/Time	Received by (signature) 5		Rolus		by (sign			Date/Fur	na   Ros	au ad bu i	(signature)
DEZ/NIM	5/16/97 0900	LAA OMMINI	767/		jurancu :	o) (aigi	u (u/C)	}	Date (III		CITCH UT	(ziBuarare)
Relinquished by (signature)		Received by (signature)		Relina	uished	by (sign	ature)		Date/Tin	neRec	cived by	(signature)
Report Type (_)Full,Reduced, (_)Standard, (_)Screen / non-certified Re				Remar	ks D	EDIC	ATEL	5A1	PLIN	6 10	ols used	
umaround time ()Standard 4 wks, (ARush 3 Days, ()ASAP VerbalHrs												

## Report of Analysis U.S. Army, Fort Monmouth Environmental Labora...ry NJDEP Certification # 13461

Client	US Army	Lab ID#	2548
	DPW SELFM PW EV	Date Rec'd	16-May 97
	Bldg 173	Analysis Start	19 May 97
	Ft Monmouth, NJ 07703	Analysis Complete	21 May-97

Analysis	OQA-QAM-025	UST Reg #
Matrix	Soil	Closure #
Analyst	P Skelton	DICAR#

Ext Meth	Shake			B 492			
Sample	Field ID	Dilution Factor	ll " " ll " Sobd		MDL (mg/kg)	TPHC Result (mg/kg)	
2548 01	492 A	1 00	15 26	80 68	191	ND	
2548.02	492-B	1 00	16 22	86 33	168	ND	
2548.03	492-C	1 00	15 09	83 95	186	ND	
2548.04	492 D	1 00	15 88	81 18	182	206 31	
2548 05	492 E	1 00	16 15	82 56	176	ND	
2548.06	492 F	1 00	15 61	84 45	178	ND	
2548 07	492-G	1 00	15 17	79 91	194	ND	
2548.08	492 DUP	1 00	15 95	79 73	185	ND	
METHOD BLANK	19-May-97	1 00	15 00	100 00	157	ND	

ND = Not Detected

MDL = Method Detection Limit

Daniel K Wright
Laboratory Director

#### LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

## THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following Laboratory Deliverables checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package and in the main body of the report

1	Cover page, Title Page listing Lab Certification #, facility name and address, & date of report submitted	
2	Table of Contents submitted	_
3	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted	_
4	Document paginated and legible	<u></u>
5	Chain of Custody submitted	
6	Samples submitted to lab within 48 hours of sample collection	
7	Methodology Summary submitted	
8	Laboratory Chronicle and Holding Time Check submitted	_/
9	Results submitted on a dry weight basis	
10	Method Detection Limits submitted	V
11	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	
	poratory Manager or Environmental Consultant's Signature	

Laboratory Certification #13461

<sup>\*</sup>Refer to NJAC 7 26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP Methods for further guidance

Appendix F

# APPENDIX F GROUNDWATER ANALYTICAL DATA PACKAGE

## FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

#### DIRECTORATE OF PUBLIC WORKS

PHONE: (732) 532-6224 FAX: (732) 532-6263

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: UST Program

Bldg. 492

Field Sample Location	Laboratory Matrix Sample ID#		Date and Time of Collection	Date Received	
492-1 5-9'	4925 01	Aqueous	06-Nov-99 11 25	11/08/99	

ANALYSIS FORT MONMOUTH ENVIRONMENTAL LAB VOA+15, BN+15

ENCLOSURE CHAIN OF CUSTODY RESULTS

14

Daniel Wright/Date Laboratory Director

#### Table of Contents

Section	Pages
Chain of Custody	1-2
Methodology Summary	3-4
Conformance/Non-Conformance Summary	5-7
Laboratory Chronicle	8-9
Volatile Organics	10-11
Analytical Results Summary	12-15
Tune Results Summary	16-17
Method Blank Results Summary	18
Calibration Summary	19
Surrogate Recovery Summary	20
MS/MSD Results Summary	21-22
Internal Standard Area & RT Summary	23
Chromatograms	24-27
Base Neutrals	28
Analytical Results Summary	29-36
Tune Results Summary	37-38
Method Blank Results Summary	39
Calibration Summary	40-43
Surrogate Recovery Summary	44
MS/MSD Results Summary	45-48
Internal Standard Area & RT Summary	49-52
Chromatograms	53-56
•	
Laboratory Deliverables Checklist	57
Laboratory Authentication Statement	58

# CHAIN OF CUSTODY



## Fort Monmouth Environmental Testing Laboratory

Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

Tel (732)532-4359 Fax (732)532-6263 EMail appleby@mail1 monmouth army mil NJDEP Certification #13461

**Chain of Custody Record** 

Customer: D D341		Project No			Analysis Parameters						Comments:				
Phone #: XX /475		Location BLOS, 492			VX		В		$\prod$		,	,			
( )DERA (VOMA ( )Other:			J-00) 77 D			400	Y	BN+			) x *				
Samplers Name / Cor	npany: /	YARK LAKE	4 - TVS- AWS 07 Sample		#	<b>†</b>	X > - J w 2 v	15	, <				,		
Lab Sample I D	Sau	mple Location	Date	Time	Туре	bottles	15	ê	13			r	r	,	Remarks / Preservation Method
4955. 1	492	-15-97-11	11-6-99	1125	AQ.	3	ょ	سر	×						HCL/440C
															, , , , , , , , , , , , , , , , , , ,
							<u> </u>								
		<del></del>			<u> </u>				ļ						
			<u></u>			<u> </u>									
						<u> </u>							<u></u>	<u> </u>	
	<u>,                                      </u>													<b> </b>	
									<u></u>		<u> </u>		<u> </u>	ļ	
	 					<b> </b>									
		<del></del>													
										<u> </u>				<u> </u>	
Relinquished by (somature)  Mayor 11-8-41 730		Received by (sugnature) Relu			Reline	nquished by (signature)				Date	Tune	Received by (signature)			
Relinquished by (signature)  Date/Time					Reline	equished by (signature)			Date	Time	Received by (signature)				
Report Type ()Full, ()Reduced, ()Standard, ()Screen () Standard () Standard () Standard () Rush () Days, ()			n / non-certified				Rema	rks	SHAR	60	TB. 1	F.8	· n/	Bros	277 SAME DAY

# METHOD SUMMARY

### **Methodology Summary**

EPA Method 624
Gas Chromatographic Determination of Volatiles in Water

Surrogates and internal standards are added to a 5 ml aliquot of sample. The sample is then purged and desorbed into a GC/MS system. The organic compounds are separated by the gas chromatograph and detected using the mass spectrometer. Volatiles are identified and quantitated.

EPA Method 3510/8270

Gas Chromatographic Determination of Semi-volatiles in Water

Surrogates are added to a measured volume of sample, usually 1 liter, at a specified pH. The sample is serially extracted with Methylene Chloride using a separatory funnel. The extract concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

# CONFORMANCE/NON-CONFORMANCE SUMMARY

#### GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

			Indicate Yes, No, N/A
l		eled/Compounds identified	
	(Field samples a	and method blanks)	105
2	Retention times for o	chromatograms provided	Yes
3	GC/MS Tune Specif	īcations	
	a	BFB Meet Criteria	yes_
	b	DFTPP Meet Cnteria	Jes
4		uency - Performed every 24 hours for 600	
	series and 12 hours f	for 8000 series	yes
5		- Initial Calibration performed before sample	
		ing calibration performed within 24 hours of	. la C
	sample analysis for	600 series and 12 hours for 8000 series	yes_
6	GC/MS Calibration	requirements	
	8	Calibration Check Compounds Meet Criteria	Ves
	b	System Performance Check Compounds Meet Criteria	yes
7	Blank Contamination	n - If yes, List compounds and concentrations in each blank	<u>_no_</u>
	• a	VOA Fraction	
	ь	B/N Fraction	
	c	Acid Fraction	
8	Surrogate Recovene	s Meet Criteria	yes.
	If not met, list to outside the acce	hose compounds and their recoveries, which fall ptable range	
	a	VOA Fraction	
	ь	B/N Fraction	
	c	Acid Fraction	
	If not met, were as "estimated"?	the calculations checked and the results qualified	
9	Matrix Spike/Matrix	Spike Duplicate Recoveries Meet Criteria	Yes
	(If not met, list those	compounds and their recoveries, which fall	1-
	outside the acceptab	e range)	
	a	VOA Fraction	
	b	B/N Fraction	
	c	Acid Fraction	

#### GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (cont.)

		Indicate Yes, No, N/A
10	Internal Standard Area/Retention Time Shift Meet Criteria (If not met, list those compounds, which fall outside the acceptable rai	nge)
	a VOA Fraction	<del></del>
	b B/N Fraction	
	c Acid Fraction	<del></del>
11	Extraction Holding Time Met	yes
	If not met, list the number of days exceeded for each sample	
12	Analysis Holding Time Met	405
	If not met, list the number of days exceeded for each sample	
Add	ditional Comments	
Lab	poratory Manager	7-08

# LABORATORY CHRONICLE

## **Laboratory Chronicle**

Lab ID 4925

Site Bldg 492

		Date	Hold Time
Da	te Sampled	11/06/99	NA
Receipt/Refrigeration		11/06/99	NA
Ex	tractions		
1	Base Neutral	11/09/99	14 days
An	alyses		
1 2	Volatile Organics Base Neutral	11/10,11/99 11/12,13/99	14 days 40 Day

<sup>\*</sup>Samples collected and refrigerated on 11/06/99, Laboratory received the samples Monday 11/08/99

# VOLATILE ORGANICS

## US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEPE # 13461

## **Definition of Qualifiers**

MDL : Method Detection Limit

J : Compound identified below detection limit
 B : Compound in both sample and blank
 D : Results from dilution of sample

U : Compound searched for but not detectedE : Compound exceeds calibration limit

## Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VC001257 D

Sample Name Field ID Vык37 Vык37

Operator

Date Acquired

Skelton

10 Nov 1999 2 43 pm

Sample Muluplier 1

CAS#	Compound Name	R.T	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1 85 ug/L	
107131	Acrylomitrile			not detected	50	2 78 ug/L	
75650	tert-Butyl alcohol			not detected	ale	8 52 ug/L	
1634044	Methyl-text-Butyl ether			not detected	70	0 16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0 25 ug/L	
	Dichlorodi/Juoromethane			not detected	nle	J 68 ug/L	
74-87-3	Chloromethane			not detected	30	1 16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	106 ug/L	]
74-83-9	Bromomethane			not detected	10	1 10 ug/L	
75-00-3	Chloroethane			not detected	αJe	I Ol ug/L	
75-69-4	Trichlorofluoromethane			not detected	ple	0 50 ug/L	Ţ
75 35-4	1,1-Dichloroethene			not detected	2	0 24 ug/L	
67-64-1	Acetone			not detected	700	1 36 ug/L	<u> </u>
75-15-0	Carbon Disulfide			not detected	nle	0 46 ug/L	<del></del>
75-09-2	Methylene Chloride			not detected	2	0 24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100	0 16 ug/L	
75-35-3	1.1-Dichloroethane			not detected	70	0 12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0 78 ug/L	
78-93-3	2-Butanone			not detected	300	0 62 ug/L	<del>                                     </del>
- <del>10 /2 0</del>	cis-1,2-Dichloroethene			not detected	10	0 17 ug/L	<del>                                     </del>
67-66-3	Chloroform			not detected	6	0 30 ug/L	<b>†</b>
75-55-6	1,1,1-Trichloroethane			not detected	30	0 23 ug/L	<del></del>
56-23-5	Carbon Tetrachlonde			not detected	2	0 47 ug/L	<del>                                     </del>
71-43-2	Benzene	<del></del>	l	not detected	1	0 23 ug/L	<del>                                     </del>
107 06-2	1,2-Dichloroethane			not detected	2	0 18 ug/L	<del>                                     </del>
79-01-6	Trichloroethene	i		not detected	<del> </del>	0 23 ug/L	<del>                                     </del>
78-87-5	1 2-Dichloropropane	<del>                                     </del>		not detected	i	0 40 ug/L	<del>                                     </del>
75-27-4	Bromodichloromethane			not detected	<del>                                     </del>	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	ole	0 65 ug/L	<del>                                     </del>
10061-01-5	cis-1,3-Dichloropropene	<u> </u>		not detected	nk	0 69 ug/L	<del> </del>
108 10-1	4-Methyl-2-Pentanone			not detected	400	0 59 ug/L	<del>                                     </del>
108 88-3	Toluene	Ì		not detected	1000	0 37 ug/L	<del>                                     </del>
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0 87 ug/L	<del>                                     </del>
79-00-5	1,1,2-Trichloroethane		<del></del>	not detected	3	0 48 ug/L	<del>                                     </del>
127-18-4	Tetrachloroethene			not detected	1	0 32 ug/L	<del>                                     </del>
591-78-6	2-Hexanone	<b></b>		not detected	nie	0.71 ug/L	$\vdash$
126-48-1	Dibromochloromethane	<del>                                     </del>		not detected	10	0 86 ug/L	<del>                                     </del>
108-90-7	Chlorobenzene	<u> </u>		not detected	4	0 39 ug/L	<del> </del>
100-41-4	Ethylbenzene			not detected	700	0 65 ug/L	<del> </del>
1330-20-7	m+p-Xylenes			not detected	†		<del>                                     </del>
1330-20-7	o-Xylene		<del></del>	not detected	nle	1 14 ug/L 0 62 ug/L	<del> </del>
100-42.5	Styrene		<del>                                     </del>	<del></del>	nle		1
		<del> </del>	<del> </del>	not detected	100	0.56 ug/L	<del> </del> -
75-25-2	Bromoform		<del>                                     </del>	not detected	4	0 70 ug/L	<del>                                     </del>
79-34-5	1,1,2,2-Tetrachloroethane	<del>                                     </del>		not detected	2	0 47 ug/L	<del></del>
541-73-1	1,3-Dichlorobenzene	<del> </del>	<del> </del>	not_detected	600	0.55 ug/L	<del>                                     </del>
106 45 7	1 4-Dichlorobenzene	<b></b>	<del> </del>	not detected	75	0.57 ug/L	<b>├</b>
95-50-1	1 2-Dichlorobenzene	<u> </u>	L	not detected	600	0 64 ug/L	

<sup>\*</sup>Higher of PQL s and Ground Water Quality Criteria as per N.J.A C 7 9 6 2-Sept 9

#### Qualifiers

B = Compound found in related blank

E = Value above linear range

 $D = Value \ from \ dilution$ 

PQL = Practical Quantitation Limit

MDL = Method Detection Limit NLE = No Limit Established R T = Retention Time

11/15/99 4 26 PM

1E

## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FI	ELD	ID
_		

Lab Name	FMETL				NJDEP#		13461		Vblk3	37
Project	100004	Cas	e No	4925	Locatio	on.	492	_ _ SI	DG No	
Matrix (soil/v	vater)	WATER			La	ab .	Sample	ID	Vblk37	
Sample wt/vo	ol	50	(g/ml)	ML	La	ab	File ID		VC001257 D	
Level (low/n	ned)	LOW			Đ	ate	Receiv	ed	11/8/99	_
% Moisture in	not dec				Da	ate	Analyz	ed	11/10/99	
GC Column	RTX50	2 ID 02	<u>5</u> (r	nm)	D	lut	ion Fact	tor	1 0	
Soil Extract V	olume .		_ (uL)		Sc	oil.	Aliquot '	Volu	me	(uL)
Number TICs	found	0	_		ONCENTRA g/L or ug/Kg		ON UNI UG/			
CAS NO		СОМРОИ	ND NA	ME			RT	ES	T CONC	Q

ò

## Volatile Analysis Report U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VC001280 D

11 Nov 1999 6 24 am

Sample Name

4925 01 492-1

Operator

Date Acquired

Skelton

Field ID

Sample Mulupher 1

CAS#	Compound Name	R.T	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected_	50	1 85 ug/L	
107131	Acrylòminle			not detected	50	2 78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8 52 ug/L	
1634044	Methyl-tert-Butyl ether			not detected	70	0 16 ug/L	_
108203	D1-1sopropyl ether			not detected	nle	0 25 ug/L	
	Dichlorodifluoromethane			not detected	nle	l 68 ug/L	
74-87-3	Chloromethane			not detected	30	I 16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1 06 ug/L	
74-83-9	Bromomethane			not detected	10	1 10 ug/L	
75-00-3	Chloroethane			not detected	nle	1 01 ug/L	
75 69-4	Trichloroffporomethane			not detected	nle	0 50 ug/L	
75-35-4	1 I-Dichloroethene			not detected	2	0 24 ug/L	
67-64-1	Acetone			not detected	700	1 36 ug/L	
75-15-0	Carbon Disulfide	L		not detected	nle	0 46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0 24 ug/L	
156-60-5	trans   2-Dichloroethene			not detected	100	0 16 ug/L	
75-35-3	1.1-Dichloroethane			not detected	70	0 12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0 78 ug/L	
78-93-3	2-Butanone			not detected	300	0 62 ug/L	
	crs-1 2-Dichloroethene			not detected	10	0 17 ug/L	
67-66-3	Chloroform			not detected	6	0 30 ug/L	
75-55-6	1,1 1-Trichloroethane			not detected	30	0 23 ug/L	
56 23-5	Carbon Tetrachlonde			not detected	2	0 47 ug/L	<u> </u>
71-43-2	Benzene			not detected	1	0 23 ug/L	
107-06-2	1,2 Dichloroethane			not detected	2	0 18 ug/L	
79-01-6	Trichloroethene	İ		not detected		0 23 ug/L	
78-87-5	I 2-Dichloropropane	1		not detected		0 40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
<b>0</b> 110-75-8	2-Chloroethyl vinyl ether			not detected	nJe	0 65 ug/L	
10061-01-5	cis-1 3-Dichloropropene	1		not detected	nJe	0 69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0.59 ug/L	
108-88-3	Toluene			not detected	1000	0 37 นะ/โ	
10061-02-6	trans-1,3-Dichloropropene			not detected	nle	0 87 ug/L	_
79 00-5	1,1 2-Trichloroethane			not detected	3	0 48 ug/L	
127-18-4	Tetrachloroethene			not detected		0 32 ug/L	
591-78-6	2 Hexanone		1	not detected	nle	071 ug/L	
126-48 1	Dibromochloromethane			not detected	10	0 86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0 39 ug/L	<del>-</del>
100-41-4	Ethylbenzene	<u> </u>	1	not detected	700	0 65 ug/L	
1330-20-7	m+p-Xvlenes		<u> </u>	not detected	nte	t_14_ug/L_	
1330-20-7	o-Xylene		<del>                                     </del>	not detected	ale	0 62 ug/L	
100-42-5	Styrene		† · · · · · · · · · · · · · · · · · · ·	not detected	100	0.56 ug/L	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34 5	1,1 2 2 Tetrachloroethane		<del> </del> -	not detected	2	0 47 ug/L	
541-73-1	1 3-Dichlorobenzene		<del></del>	not detected	600	0 47 ug/L	
106-46-7	1 4 Dichlorobenzene		<del> </del>	not detected			
95-50-1	1 2-Dichlorobenzene	<del></del> -	<del> </del>		75	0.57 ug/L	
1-04-68	FT 2-DICTIONOCHZENE	l	L.,	not detected	<u> 600 </u> ]	0 64 ug/L	L

<sup>\*</sup>Higher of PQL s and Ground Water Quality Cri ena as per N J A C 7 9-6 2 Sept 9

#### Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit NLE = No Limit Established R T = Retention Time

11/15/99 4 26 PM

1E

## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

492-1 Lab Name NJDEP# 13461 FMETL . Project 100004 Case No 4925 Location 492 SDG No Matnx (soil/water) WATER Lab Sample ID 4925 01 Sample wt/vol 50 (g/ml) ML Lab File ID VC001280 D Level (low/med) LOW Date Received 11/8/99 % Moisture not dec Date Analyzed 11/11/99 GC Column ,RTX502 ID 0 25 (mm) Dilution Factor 10 Soil Extract Volume Soil Aliquot Volume (uL) (uL) **CONCENTRATION UNITS** (ug/L or ug/Kg) UG/L Number TICs found CAS NO **COMPOUND NAME** RT EST CONC Q

FORM I VOA-TIC

# BASE NEUTRALS

#### Semi-Volatile Analysis Report

## U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File Name BNA03358 D

Sample Name

Sblk318

Operator

Bhaskar

Misc Info

Sblk318 A 991109

Date Acquired

12-Nov-99

Sample Multipher

Regulatory

					Level (ug/L)*		
CAS#	Name	R.T_	Response	Result		MDL	Qualifiers T
110-86-1	Pyridine	ļ .		not detected	NLE	l 83 ug	/L
62-75-9	N-nitroso-dimethylamine	1		not detected	20	091 pg	
62-53 3	Aniline	<u> </u>		not detected_	NLE	<del> </del>	<u>/L  </u>
111-44-4	bis(2-Chloroethyl)ether	↓		not detected	10	1 28 ug	几
541-73-1	1,3-Dichlorobenzene	<b>.</b>		not detected	600	1 21 us	<u>/L  </u>
106-46-7	1,4-Dichlorobenzene	-		not detected	75 _	1 19 ug	
100-51-6	Benzył alcohol	ļ		not detected	NLE	1 02 ug	/L
95-50-1	1 2-Dichlorobenzene			not detected	600	1 13 ug	<u>/L [</u>
108-60-1	bis(2-chloroisopropyl)ether			not detected_	300	1 39 ug	/L
621-64-7	n-Nitroso-di-n-propylamine		_	not detected	20	0 80 us	/L
67-72 l	Hexachloroethane			not detected	10	1 50 us	/L
98-95-3	Nitrobenzene	ļ		not detected	10	0 97 us	<u>r                                     </u>
78-59 1	Isophorone			not detected	100	1 01 աչ	/L
111 91 1	bis(2-Chloroethoxy)methane	ļ		not detected	NLE	1 21 սչ	/L
120-82-1	1,2 4-Trichlorobenzene	ļ		not detected	9	1 22 uş	/L
91-20-3	Naphthalene	ļ		not detected	NLE	1 27 us	л <u> </u>
106-47-8	4-Chloroaniline	ļ		not detected	NLE	1 09 uş	/L
87-68-3	Hexachlorobutadiene	<u> </u>		not detected	1	0.71 us	/L
91-57-6	2-Methylnaphthalene			not detected	NLE	1 08 us	<u>/                                    </u>
77-47-4	Hexachlorocyclopentadiene			not detected	50	1 32 ug	/L
91-58 7	2 Chloronaphthalene			not detected	NLE	i 01 us	<u>/L  </u>
88-74-4	2-Nitroamline	<u> </u>		not detected	NLE	0 96 us	/L
131-11-3	Dimethylphthalate			not detected	7000	1 52 us	رار ا
208-96-8	Acenaphthylene	<u> </u>		not detected	NLE	0 96 us	/L
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0 81 us	/L
99-09-2	3-Nitroaniline			not detected	NLE	0 79 սբ	л.
83-32-9	Acenaphthene	<u> </u>		not detected	400	1 10 աչ	/L
132-64-9	Dibenzofuran			not detected	NLE	1 00 աց	/L
121 14 2	2 4-Dinitrotoluene	<u> </u>		not detected	10	0 87 นร	л
84-66-2	Diethylphthalate	<u> </u>		not detected	5000	1 62 ug	/L
86-73-7	Fluorene	<u> </u>		not detected	300	0 99 us	/L
7005-72-3	4-Chlorophenyl phenylether		_	not detected	NLE	1 10 սբ	/L
100-01-6	4-Nitroaniline			not detected	NLE	1 05 ug	л
86-30-6	n-Nitrosodiphenylamine			not detected	20	1 01 ug	Л.
103-33-3	Azobenzene			not detected	NLE	U 67 ug	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0 76 ug	
118-74-1	Hexachlorobenzene			not detected	10	0 94 ug	
85-01-8	Phenanthrene			not detected	NLE	1 23 ug	
120-12-7	Anthracene			not detected	2000	1 12 ug	
84-74-2	Di-n-butylphthalate			not detected	900	1 70 ug	
206-44-0	Fluoranthene			not detected	_300	1 64 ug	

Page 1 of 2

#### Semi-Volatile Analysis Report Page 2

Data File Name

BNA03358 D

Sample Name

Sblk318

Operator

Bhaskar

Misc Info

Sblk318 A 991109

Date Acquired

12-Nov-99

Sample Multiplier

Regulatory

CAS#	Name	R.T	Response	Result	Level (ug/L)*	MDL		Qualifiers
92-87-5	Benzidine			not detected	50		ug/L	
129-00-0	Pyrene			not detected	200	1 25	ug/L	
85-68 7	Butylbenzylphthalate			not detected	100	I 05	ug/L	
56-55- <u>3</u>	Benzo[a]anthracene			not detected	10	l 19	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	I 75	ug/L	
218-01-9	Chrysene			not detected	20	1 38	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1 74	ug/L	<u> </u>
117 84-0	Di-n-octylphthalate			not detected	100	1 44	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1 25	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1 29	ug/L	_
50-32-8	Вепло[а]рутепе			not detected	20	1 05	ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0 83	ug/L	<u> </u>
53-70-3	Dibenz[a,h]anthracene			not_detected	20	0 64	ug/L	
191-24-2	Benzo[g.h 1]perylene			not detected	NLE	0 84	ug/L	

<sup>\*</sup> Higher of PQL s and Ground Water Criteria as per NJAC 7 9-6 2-Sept-97

#### Qualifiers

MDL= Method Detection Limit NLE= No Limit Established

R T =Retention Time

Page 2 of 2

E= Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

PQL= Practical Quantitation Limit

1F

## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Lab Name	FMETL	3		Lab Co	de 1	3461		Sblk	318
Project	UST	Case No	4925	Loca	tion	492	S	G No	
Matrix (soil/v	vater)	WATER			Lab S	Sample	ID .	Sblk318	
Sample wt/vo	ol	1000 (g/ml)	ML	_	Lab I	File ID		BNA03358	<u>D</u>
Level (low/n	ned)	LOW			Date	Receiv	ed _	11/8/99	
% Moisture		decanted (	(/N) <u>N</u>	!	Date	Extrac	ted	11/9/99	
Concentrated	d Extract	Volume 1000	(uL)		Date	Analyz	ed	11/12/99	
Injection Volu	ıme <u>1 (</u>	) (uL)			Diluti	on Fac	tor	1 0	
GPC Cleanup	p (Y/N)	<u>N</u> pH <u>7</u>							
				CONCE	NTR.	ATION	UNIT	s	
Number TICs	found	0		(ug/L or	ug/K	g)	UG/L		
CAS NUMB	IER	COMPOUND NAI	ИΕ			RT	ES	T CONC	Q

#### Semi-Volatile Analysis Report

## U.S. Army, Fort Monmouth Environmental Laboratory N.IDEP Certification #13461

Data File Name BNA03369 D
Operator Bhaskar

Date Acquired

13-Nov-99

Sample Name 4925 01
Misc Info 492-1

Sample Multiplier 1

Regulatory Level (ug/L)\* Response Result MDL Qualifiers CAS# Name R.T NLE 1 83 ue/L Pyridine not detected 110-86 1 20 0 91 ս<u>ջ/</u>Լ. 62-75 9 not detected N-nitroso-dimethylamine Amline NLE 1 63 ug/L 62-53-3 not detected 111-44-4 bis(2-Chloroethyl)ether not detected 10 1 28 ug/L 541-73-1 600 1 21 ug/L 1.3-Dichlorobenzene not detected 75 1 19 ue/L 106-46-7 1,4-Dichlorobenzene not detected NLE 1 02 սջ/Լ 100-51-6 Benzyl alcohol not detected 95-50-1 1 2-Dichlorobenzene not detected 600 1 13 ug/L 300 1 39 ug/L bis(2-chloroisopropyl)ether not detected 108-60-1 20 0 80 ug/L 621-64-7 n-Nitroso-di n-propylamine not detected 10 ug/L 67 72 I Hexachloroethane not detected 1 50 98-95-3 Nitrobenzene not detected 10 0 97 ug/L 100 1 01 78-59-1 not detected ug/L Isophorone bis(2-Chloroethoxy)methane NLE 1 21 ug/L 111-91-1 not detected 1 2 4-Trichlorobenzene 9 120-82-1 1 22 ug/L not detected 91-20-3 Naphthalene NI.E 1.27 ug/L not detected 106-47-8 4-Chloroaniline not detected NLE 1 09 ug/L Hexachlorobutadiene 071 87-68-3 not detected ug/L NLE 91-57-6 2 Methylnaphthalene not detected 1 08 ug/L 77-47-4 50 1 32 Hexachlorocyclopentadiene not detected ug/L 91 58-7 2-Chloronaphthalene NLE 1 01 ug/L not detected 2 Nitroaniline NLE 0 96 ug/L 88-74-4 not detected 131 11-3 Dimethylphthalate not detected 7000 1 52 ug/L Acenaphthylene NLE 208-96 8 not detected 0 96 ug/L ug/L 606-20-2 2 6-Dinitrotoluene not detected NLE 180 0 79 ug/L 99-09-2 3-Nitroaniline not detected NLE 83 32-9 Acenaphthene 400 1 10 ug/L not detected NLE 1 00 ug/L Dibenzofuran 132 64-9 not detected 2,4-Dinitrotoluene 121-14-2 łO 0 87 ug/L not detected 84-66-2 Diethylphthalate 5000 1 62 ag/L not detected 86-73-7 Fluorene 300 0 99 ug/L not detected 7005-72-3 4-Chlorophenyl-phenylether NLE 1 10 ug/L not detected 1 05 ug/L 4-Nitroaniline NLE 100-01-6 not detected սբ/Լ 86 30-6 n-Nitrosodiphenylamine not detected 20 1 01 103-33-3 Azobenzene NLE 0 67 שַטּוּL not detected NLE 101-55-3 4-Bromophenyl phenylether not detected 0 76 ug/L Hexachlorobenzene 0 94 | սջ/Լ 118-74-1 not detected 10 Phenanthrene 85-01-8 NLE not detected 1 23 ug/L 120-12-7 Anthracene 2000 1 12 ug/L not detected 84-74-2 Di-n-butylphthalate not detected 900 170 ug/L 206-44 0 Fluoranthene not detected 300 1 64 ug/L

## Semi-Volatile Analysis Report Page 2

Data File Name

Date Acquired

BNA03369.D

Sample Name

4925 01

Operator Bh

Bhaskar 13-Nov-99 Misc Info

492-1

Sample Mulupher

-

Regulatory Level

_CAS#	Name	RT	Response	Result	(ug/L)*	MDL		Qualifiers
92-87-5	Benzidine			not detected	50	4 18	ug/L	
129-00-0	Pyrene			not detected	200	1 25	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	1 05	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	1 19	ug/L	
91 94-1	3 3'-Dichlorobenzidine			not detected	60	1 75	ug/L	
218-01-9	Chrysene			not detected	20	1 38	ug/L	_
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1 74	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100	1 44	ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	1 25	ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1_29	ug/L	
50-32-8	Benzo[a]pyrene			not detected	20	1 05	ug/L	
193-39 5	Indeno[1 2,3-cd]pyrene	]		not detected	20	0 83	ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0 64	ug/L	
191 24 2	Benzolg halperviene			not detected	NLE	0.84	ue/L	

<sup>\*</sup> Higher of PQL s and Ground Water Criteria as per NJAC 7 9-6 2-Sept-97

#### Qualifiers

E= Value Exceeds Linear Range D= Value from dilution

B= Compound in Related Blank

PQL= Practical Quantitation Limit

MDL= Method Detection Limit NLE= No Limit Established R T = Retention Time

Page 2 of 2

1F

## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET FIELD ID

		400.4					
Lab Name	FMETL		Lab (	Code <u>13461</u>		492-	<u>'</u>
Project	UST	Case No 4	4925Lo	cation 492	_ SD	G No	
Matrix (soil/	water)	WATER		Lab Sample	ID 4	1925 01	
Sample wt/vo	ol	1000 (g/ml)	ML	Lab File ID	E	3NA03369 D	)
Level (low/r	ned)	LOW		Date Receiv	/ed <u>1</u>	1/8/99	
% Moisture		decanted (Y	/N) <u>N</u>	Date Extrac	ted 1	1/9/99	
Concentrated	d Extract	Volume <u>1000</u> (	(uL)	Date Analyz	ed 1	1/13/99	
Injection Volu	ume 1	0 (uL)		Dilution Fac	tor 1	0	
GPC Cleanu	p (Y/N)	N pH 7	<del></del>				
			CONC	ENTRATION	UNIT	S	
Number TICs	s found	1	(ug/L	or ug/Kg)	UG/L		
CAS NUME	BER	COMPOUND NAM	4E	RT	EST	CONC	Q
1		unknown		7 24		6	J_

## SEMIVOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK DECAFLUOROTRIPHENYLPHOSPHINE (DFTPP)

Lab Name	FMETL			Lab Code 13461	
Project	UST	Case No	4925	Location 492 SDG No	
Lab File ID	BNA0332	1 D		DFTPP Injection Date 10/27/99	
Instrument II	D BNA#2			DFTPP Injection Time 9 32	

		% RELATIVE					
m/e	ION ABUNDANCE CRITERIA	ABUNDANCE					
51	30 0 - 80 0% of mass 198	60 0					
68	Less than 2 0% of mass 69	00 ( 00)1					
69	Mass 69 Relative abundance	56 4					
70	Less than 2 0% of mass 69	03 ( 06)1					
127	25 0 - 75 0% of mass 198	53 8					
197	Less than 1 0% of mass 198	0 0					
198	Base Peak, 100% relative abundance	100 0					
199	5 0 to 9 0% of mass 198	7 1					
275	10 0 - 30 0% of mass 198	19 9					
365	Greater than 0 75% of mass 198	20					
441	Present, but less than mass 443	87					
442	40 0 - 110 0% of mass 198	59 1					
443	15 0 - 24 0% of mass 442	12 0 ( 20 4)2					

<sup>1-</sup>Value is % mass 69

#### THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS

ſ		LAB	LAB	DATE	TIME
	FIELD ID	SAMPLE ID	FILE ID	ANALYZED	ANALYZED
01	SSTD120	120 PPM CAL	BNA03323 D	10/27/99	10 55
02	SSTD080	80 PPM CAL	BNA03324 D	10/27/99	11 50
03	SSTD050	50 PPM CAL	BNA03325 D	10/27/99	12 40
04	SSTD010	10 PPM CAL	BNA03326 D	10/27/99	13 31
05	SSTD020	20 PPM CAL	BNA03327 D	10/27/99	14 20
06	4871 04DUP	4871 04DUP	BNA03332 D	10/27/99	18 28
07[	4871 04MS	4871 04MS	BNA03333 D	10/27/99	19 17

<sup>2-</sup>Value is % mass 442

C \HPCHEM\1\DATA\991027\BNA03321 D Data File Acq On

27 Oct 1999

9 32 am DFTPP TUNE

99 Vial Operator Bhaskar GC BNA 2 Inst Multiplr 1 00

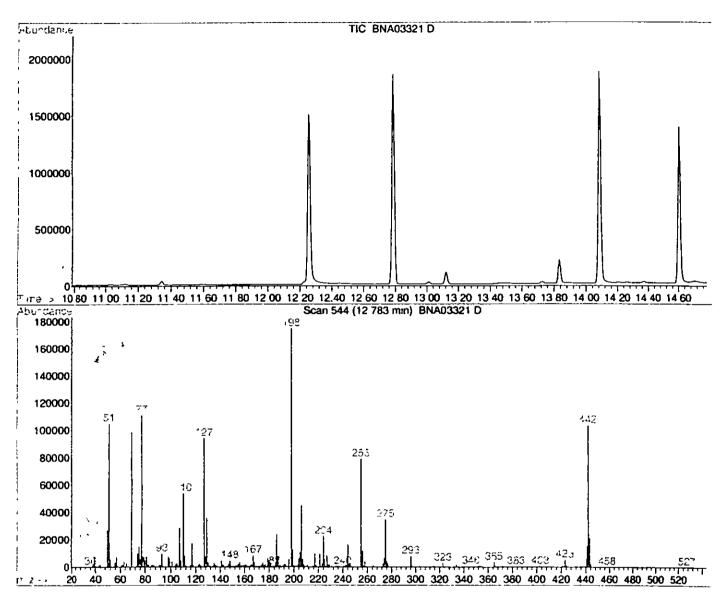
50NG/2UL MS Integration Params RTEINT P

Method . C \HPCHEM\1\METHODS\M262534 M (RTE Integrator)

Title BNA Calibration

Sample

Misc



Spectrum Information - Scan 544

Target	Rel to	Lower	Upper	Rel	Raw	Result
Mass	Mass		Limit%	Abn%	Abn	Pass/Faıl
51 68 69 70 127 197 198 199 275 365 441 442	198 69 198 69 198 198 198 198 198 198	30 0 00 0 00 40 0 00 100 5 10 1	60 2 100 2 60 1 100 9 30 100 99	60 0 0 0 0 56 4 0 6 53 8 0 0 100 0 7 1 19 9 2 0 72 0 59 1	104832 98600 593 94000 0 174720 12479 34848 3527 15134 103184	PASS PASS PASS PASS PASS PASS PASS PASS

#### LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

## THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following Laboratory Deliverables checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets listing all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package and in the main body of the report.

1.	Cover page, Title Page listing Lab Certification #, facility name and address, & date of report submitted	<u>~</u>
2.	Table of Contents submitted	V
3.	Summary Sheets listing analytical results for all targeted and non-targeted compounds submatted	_
4.	Document paginated and legible	<del></del>
5.	Chain of Custody submitted	
6`	Samples submitted to lab within 48 hours of sample collection	<u> </u>
7.	Methodology Summary submitted	
8	Laboratory Chronicle and Holding Time Check submitted	
9	Results submitted on a dry weight basis	
10.	Method Detection Limits submitted	
11.	Lab certified by NIDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	
	oratory Manager or Environmental Consultant's Signature	

"Refer to NJAC 7-26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP

Laboratory Certification #13461

Methods for further guidance.

005057

## **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.

÷.

Daniel K. Wright Laboratory Manager

## FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

### **DIRECTORATE OF PUBLIC WORKS**

PHONE: (732) 532-6224 FAX: (732) 532-6263 WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461, NYSDOH #11699



# ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION Fort Monmouth, New Jersey PROJECT UST Program

**Bldg. 492** 

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
Bldg 492	5043 01	Aqueous	22-Dec-99 10 30	12/22/99

ANALYSIS FORT MONMOUTH ENVIRONMENTAL LAB VOA+15, BN+15

ENCLOSURE CHAIN OF CUSTODY RESULTS

Daniel Wright/Date
Laboratory Director

## Table of Contents

Section	Pages
Chain of Custody	1-2
Methodology Summary	3-4
Conformance/Non-Conformance Summary	5-7
Laboratory Chronicle	8-9
Volatile Organics Analytical Results Summary Tune Results Summary Method Blank Results Summary Calibration Summary Surrogate Recovery Summary MS/MSD Results Summary Internal Standard Area & RT Summary Chromatograms	10-11 12-17 18-19 20 21-21 22 23-24 25 26-31
Base Neutrals Analytical Results Summary Tune Results Summary Method Blank Results Summary Calibration Summary Surrogate Recovery Summary MS/MSD Results Summary Internal Standard Area & RT Summary Chromatograms	32 33-41 42-45 46 47-50 51 52-55 56-59 60-65
Laboratory Deisveraüles Checklist	66
Laboratory Authentication Statement	47

# CHAIN OF CUSTODY

# 000002



## Fort Monmouth Environmental Testing Laboratory

Bidg 173, SELFM-PW-EV, Fort Monmouth, NJ 07703
Tel (732)532-4359 Fax (732)532-6263 EMail appleby@mail1 monmouth army mil
NJDEP Certification #13461

**Chain of Custody Record** 

Customer: De#6 Project No			Analysis Parameters							Comments:				
1'hone #: \21475		Location (	31dy 492	UST		,	,	٠, ١		,	*	′ `	,	
( )DERA ( )OMA ( )Oth			_	and Rd		7	7 47	8N+15	, ,	5,,	٠	, ,		HCL /24°C
Samplers Name / Company:	Coran Ma	Curmuch	TUS	Sample	#	Votes	75	, Z	-	41	,	,	1	
Lab Sample LD S	Sample Location	Date	Time	Туре	bottles	2					*	,	<i>′</i>	Remarks / Preservation Method
50-B .01 B	16, 492	12/22/99	/63D	AQ	3	/	/							
,0)	16, 492 Dupe			L	3	V	1	7						
												•		
			_											
										•				
			,											
Relanguished by (signature)	Date/Time (2/22/99 /100	Received by (	signature)	u	Reling	uished	by (sigi	nature)		Date/	Tune	Recei	ved by (	(signature)
Relinquished by (signature)	Date/Time	Received by (s	-7			equished by (signature)			Date/Time Received by					
Feport Type: ()Full, ()Reduced.	_					Remar	ks 5	hous	Jr.P.	/FB w/	152 752	752 Sm	s ne . dut	det. CP1

## METHODOLOGY SUMMARY

### Method Summary

#### EPA Method 624

Gas Chromatographic Determination of Volatiles in Water

Surrogates and internal standards are added to a 5-ml aliquot of sample. The sample is then purged and desorbed into a GC/MS system. The organic compounds are separated by the gas chromatograph and detected using the mass spectrometer. Volatiles are identified and quantitated.

#### EPA Method 3510/8270

Gas Chromatographic Determination of Semi-volatiles in Water

Surrogates are added to measured volume of sample, usually 1 liter, at a specified pH The sample is serially extracted with Methylene chloride using a separatory funnel. The extract concentrated and internal standards are added. The sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated.

## CONFORMANCE NON-CONFORMANC SUMMARY

## GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

			Indicate Yes, No, N/A
1	Chromatograms labe	eled/Compounds identified	
•		and method blanks)	Ves.
2	Retention times for o	chromatograms provided	yes
3	GC/MS Tune Specif	fications	
	a	BFB Meet Criteria	<u>yes</u>
	ь	DFTPP Meet Criteria	yez_
4		quency - Performed every 24 hours for 600	100
	series and 12 hours i	for 8000 series	462
5	analysis and continu	Initial Calibration performed before sample ing calibration performed within 24 hours of	Mac
	sample analysis for	600 series and 12 hours for 8000 series	40
6	GC/MS Calibration	requirements	
	a	Calibration Check Compounds Meet Criteria	Yes
	b	System Performance Check Compounds Meet Criteria	Yes_
7	Blank Contaminatio	n - If yes, List compounds and concentrations in each blank	
	a	VOA Fraction	
	b	B/N Fraction	
	^ C	Acid FractionNA	
8	Surrogate Recoverie	s Mect Criteria	
	If not met, list the outside the acce	hose compounds and their recoveries, which fall ptable range	
	a	VOA Fraction	
	ь	BIN Fraction Withobermore of Law MS+MD Feedherry dis	60 504302
	С	Acid Fraction NA 1	
	If not met, were as "estimated"?	the calculations checked and the results qualified	
9	Matrix Spike/Matrix	Spike Duplicate Recoveries Meet Criteria	<u>Ves</u>
		compounds and their recoveries, which fall	
	a	VOA Fraction	
	b	B/N Fraction	
	c	Acid Fraction NA	

#### GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT (cont.)

			Indicate Yes, No, N/
10		dard Area/Retention Time Shift Meet Criteria ist those compounds, which fall outside the acceptable ra	nge)
	r• 4	VOA Fraction	<del></del>
		B/N Fraction	
		Acid Fraction	
11	Extraction H	olding Time Met	<u>yes</u>
	If not met, li	st the number of days exceeded for each sample	<del></del>
12	Analysis Hol	ding Time Met	-yes
	If not met, his	t the number of days exceeded for each sample	
Add	hitional Comm	ents	
Lab	oratory Manas	er Date 5-8	 { 00

# LABORATORY CHRONICLE

## **Laboratory Chronicle**

Lab ID 5043

Site Bldg 492

	Date	Hold Time
Date Sampled	12/22/99	NA
Receipt/Refrigeration	12/22/99	NA
Extractions		
1 Base Neutral	12/29/99	14 days
Analyses		
<ul><li>1 Volatile Organics</li><li>2 Base Neutral</li></ul>	01/03/99 01/04/00	14 days 40 days

# VOLATILE ORGANICS

### US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEPE # 13461

#### **Definition of Qualifiers**

MDL : Method Detection Limit

3

J : Compound identified below detection limit
 B : Compound in both sample and blank
 D : Results from dilution of sample

U : Compound searched for but not detected
E : Compound exceeds calibration limit

#### Volatile Analysis Report US Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VB005266 D

Sample Name

Vblk160

Operator

Skelton

Field ID

Vblk160

Date Acquired

3 Jan 2000 6 23 pm

Sample Multiplier 1

Regulatory Level (ug/l)\* MDI

CAS#	Compound Name	RT	Response	Result	Level (ug/l)*	MDL	Qualifle
107028	Acrolein			not detected	50	1 85 ug/L	
107131	Acrylonunie			not detected	50	2 78 ug/L	
75650	tert-Butyl alcohol			not detected	nic	8 52 ug/L	
1634044	Methyl-tert-Butyl ether	l		not detected	70	0 16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0 25 ug/L	
75718	Dichlorodifluoromethane			not detected	nle	1 68 ug/L	1
74-87-3	Chloromethane			not detected	30	1 16 ug/L	1
75-01-4	Vinyl Chlonde		i -	not detected	5	1 06 ug/L	
74-83-9	Bromomethane			not detected	10	1 10 ug/L	
75-00-3	Chloroethane	· · · · · · · · · · · · · · · · · · ·		not detected	nle	101 ug/L	
75-69-4	Trichlorofluoromethane			not detected	nhe	0 50 ug/L	
75-35-4	1,1-Dichloroethene	<u> </u>		not detected	2	0 24 ug/L	
67-64-I	Acetone			not detected	700	1 36 ug/L	
75-15-0	Carbon Disulfide			not detected	nie	0 46 ug/L	
75-09-2	Methylene Chloride	<b>†</b>		not detected	2	0 24 ug/L	
156-60-5	trans-1 2-Dichloroethene			not detected	100	0 16 ug/L	
75-34-3	1,1-Dichloroethane		i	not detected	70	0 12 ug/L	
108-05-4	Vinyl Acetate			not detected	nle	0 78 ug/L	1
78-93-3	2-Butanone			not detected	300	0 62 ug/L	
156-59-4	cis-1,2-Dichloroethene			not detected	10	0 17 ug/L	1
67-66-3	Chloroform			not detected	6	0 30 ug/L	
75-55-6	I.I.I Trichloroethane			not detected	30	0 23 ug/L	1
56-23-5	Carbon Tetrachloride			not detected	2	0 47 ug/L	
71-43-2	Benzene	<u> </u>		not detected	1	0 23 ug/L	
107-06-2	1.2-Dichloroethane			not detected	2	0 18 ug/L	
79-01-6	Trichlorgethene			not detected	1 1	0 23 ug/L	
78-87 5	1,2 Dichloropropane			not detected		0 40 ug/L	
75 27-4	Bromodichloromethane			not detected	† i	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0 65 ug/L	
10061-01-5	cis 1,3 Dichloropropene	i		not detected	nle	0 69 ug/L	
108-10 I	4-Methyl-2 Pentanone	<del> </del>		not detected	400	0 59 ug/L	
108 88 3	Toluene			not detected	1000	0 37 ug/L	
10061-02-6	trans-1 3-Dichloropropene			not detected	nle	0 87 ug/L	· · · · ·
79-00-5	1.1 2-Trichloroethane			not detected	3	0 48 ug/L	
127-18-4	Tetrachloroethene			not detected		0 32 ug/L	
591-78-6	2-Hexanone			not detected	nle	0 71 ug/L	<del>                                     </del>
126-48 1	Dibromochloromethane			not detected	10	0 86 ug/L	<b></b>
108-90-7	Chlorobenzene	İ		not detected	4	0 39 ug/L	†
100-41-4	Ethylbenzene	<u> </u>	[	not detected	700	0 65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	1 14 ug/L	<b></b>
1330-20-7	o-Xvlene	İ		not detected	nle	0 62 ug/L	<del>                                     </del>
100-42 5	Styrene	<del> </del>		not detected	100	0.56 ug/L	† ·
75-25-2	Bromoform		·	not_detected	4	0 70 ug/L	
79-34-5	1,1 2 2-Tetrachloroethane	<u> </u>		not detected	2	0 47 ug/L	<del> </del>
541-73-1	1,3-Dichlorobenzene	<del> </del>		not detected	660	0.55 Lg/L	<u> </u>
106-46-7	1,4-Dichlorobenzene			not detected	75	0 57 ug/L	
100 70 /	11,7-Dictiologisticisc	<del></del>		HOL GELECTED	+ · · · ·	טיקטיניט בי	<del>                                     </del>

<sup>\*</sup>Higher of PQL s and Ground Water Quality Criteria as per N J A C 7 9 6 2-Sept-9

#### Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit NLE = No Limit Established RT = Retention Time

1/14/00 1 10 PM

#### 1E

## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

La	b	ΙD
	_	

		1211111111221101					VERL	en
Lab Name	FMETL			Project	100004		Vblk1	
NJDEP#	13461	Case No 5	043	Location	492	_ SE	OG No	
Matrix (soil/v	vater)	WATER		Lab	Sample	ID	Vblk160	
Sample wt/vo	ol	50 (g/ml) <u>I</u>	ML	Lat	File ID		VB005266 D	
Level (low/n	ned)	LOW		Dat	e Receiv	ed	12/22/99	
% Moisture	not dec			Da	e Analyz	ed	1/3/00	
GC Column	RTX50	02 ID <u>0 25</u> (mn	n)	Dilu	ution Fac	tor	10	
Soil Extract V	/olume	(uL)		Soi	1 Aliquot	Volur	ne	(uL)
			CON	ICENTRAT	ION UNI	TS		
Number TICs	s found	0	(ug/l	or ug/Kg)	<u>UG/</u>	<u>L</u>		
CAS NO		COMPOUND NAM	E		RT	ES	T CONC	Q

## Volatile Analysis Report U.S Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VB005267 D

Sample Name

5043 01

Operator

Skelton

Field ID

Bldg492

Date Acquired

3 Jan 2000 7 04 pm

Sample Multiplier

CAS#	Compound Name	R.T	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1 85 ug/L	
107131	Acrylonitale			not detected	50	2 78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8 52 ug/L	
1634044	Methyl-tert Butyl ether			not detected	70	0 16 ug/L	
108203	Dt-tsopropyl ether			not detected	nle	0 25 ug/L	
75718	Dichlorodifluoromethane			not_detected	nle	1 68 ug/L	<u> </u>
74-87-3	Chloromethane			not detected	30	1 16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1 06 ug/L	
74 83-9	Bromomethane			not detected	10	l 10 ug/L	
75-00-3	Chloroethane			not detected	nle	I01 υg/L	
75-69-4	Trichlorofluoromethane			not detected	nJe	0 50 ug/L	
75-35-4	1,1-Dichloroethene			not detected	2	0 24 ug/L	
67-64-1	Acetone			not detected	700	1 36 ug/L	
75-15-0	Carbon Disulfide			not detected	nte	0 46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0 24 ug/L	
156-60 5	trans-1,2-Dichloroethene			not detected	100	0 16 ug/L	
75-34-3	1,1 Dichloroethane			not detected	70	0 12 ug/L	
108-05-4	Vinyl Acetate			not detected	πle	0 78 ug/L	
78-93-3	2-Butanone			not detected	300	0 62 ug/L	
156-59-4	cis-1,2-Dichloroethene			not detected	10	0 17 ug/L	Ì
67-66-3	Chloroform			not detected	6	0 30 ug/L	
75 55-6	1,1,1-Trichloroethane			not detected	30	0 23 ug/L	
56-23-5	Carbon Tetrachlonde			not_detected	2	0 47 ug/L	
71-43-2	Benzene			not detected	1	0 23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0 18 ug/L	l
79-01-6	Trichloroethene			not detected	1	0 23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	L	0 40 ug/L	
75-27-4	Bromodichloromethane			not detected	L	0 55 ug/L	<u></u>
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0 65 ug/L	
10061-01-5	cis-1,3 Dichloropropene			not detected	nle	0 69 ug/L	
108-10-1	4-Methyl-2-Pentanone			not detected	400	0 59 ug/L	
108-88 3	Toluene			not detected	1000	0 37 ug/L	
10061 02 6	trans 1,3 Dichloropropene			not detected	nle	087 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0 48 ug/L	
127-18-4	Tetrachloroethene			not detected	1_	0 32 ug/L	
591-78-6	2-Hexanone			not detected	nle	071 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0 86 ug/L	
108-90-7	Chlorobenzene			not detected	4	0 39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0 65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nie	1 14 ug/L	
1330-20-7	o-Xylene			not detected	nle	0 62 ug/L	
100-42 5	Styrene			not detected	_100	0 56 ug/L	1
75 25 2	Bromoform			not detected	4	0 70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	2	0 47 ug/L	
541 73-1	1,3-Dichlorobenzene			not detected	600	0 55 uy/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0 57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0 64 ug/L	

<sup>\*</sup>Higher of PQL s and Ground Water Quality Criteria as per N J A C 7 9-6 2 Sept 9

#### Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit NLE = No Limit Established R T = Retention Time

1/14/00 1 10 PM

#### 1E

## VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

TENTATIVELY IDENTIFIED COMPOUNDS								D14::400	
Lab Name	FMETL			- <u>·</u>	Project	100004		Bldg492	
NJDEP#	13461	Cas	se No	5043	Location	492	SD	G No	
Matлх (soil/v	water)	WATER	_		La	b Sample II	D <u>5</u>	043 01	
Sample wt/vo	ol	50	(g/ml)	ML	Lai	b File ID	V	/B005267 D	
Level (low/n	ned)	LOW	_		Da	te Receive	d <u>1</u>	2/22/99	
% Moisture i	not dec				Da	te Analyze	d <u>1</u>	/3/00	
GC Column	RTX50	02 ID 01	25 (m	ım)	Dil	ution Facto	r <u>1</u>	0	
Soil Extract V	/olume		_ (uL)		So	il Aliquot V	olum	ne	(uL)
CONCENTR (ug/L or ug/K							_		
Number TICs	s found	0	_	(ug/	L or ug/kg/	- UG/L			

Lab ID

Number HCs found				
CAS NO	COMPOUND NAME	RT	EST CONC	Q

## Volatile Analysis Report U.S Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File

VB005268 D

Sample Name

5043 02

Operator

Skelton

Field ID

Dupe

Date Acquired 3 Jan 2000 7 45 pm

Sample Multiplier 1

CAS#	Compound Name	R.T	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein '	[	I INCOPOLER	not detected	50	1 85 ug/L	<u> </u>
107131	Acrylonitrile			not detected	50	2 78 ug/L	
75650	tert-Butyl alcohol			not detected	nle	8 52 ug/L	
1634044	Methyl-tert-Butyl ether		ĺ	not detected	70	0 16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0 25 ug/L	
75718	Dichlorodiflyoromethane			not detected	nle	1 68 ug/L	
74-87-3	Chloromethane			not detected	30	1 16 ug/L	
75-01-4	Vinyl Chloride			not detected	5	1 06 ug/L	
74-83-9	Bromomethane			not detected	10	1 10 ug/L	
75-00-3	Chloroethane			not detected	nle	1 01 ug/L	
75-69-4	Trichlorofluoromethane			not detected	ale	0 50 ug/L	
75-35-4	1,1-Dichloroethene		<del></del>	not detected	2	0 24 ug/L	
67-64-1	Acetone			not detected	700	1 36 ug/L	
75-15-0	Carbon Disulfide		Ī	not detected	nle	0 46 ug/L	
75-09-2	Methylene Chlonde		i	not detected	2	0 24 ug/L	
156-60 5	trans-1,2-Dichloroethene			not detected	100	0 16 ug/L	
75-34-3	1,1-Dichloroethane			not detected	70	0 12 ug/L	
108-05-4	Vinyl Acetate		1	not detected	nle	0 78 ug/L	<b>†</b>
78-93-3	2 Butanone			not detected	300	0 62 ug/L	1
156-59-4	cis-1,2 Dichloroethene		1	not detected	10	0 17 ug/L	
67-66-3	Chloroform			not detected	6	0 30 ug/L	Î
75-55-6	1,1,1-Trichloroethane			not detected	30	0 23 ug/L	
56 23-5	Carbon Tetrachloride			not detected	2	0 47 uz/L	
71-43-2	Benzene			not detected	1	0 23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0 18 ug/L	
79-01 6	Trichloroethene			not detected	1	0 23 ug/L	
78-87 5	1,2-Dichloropropane			not detected	1	0 40 ug/L	
75-27-4	Bromodichloromethane		l	not detected	1	0 55 ug/L	
110-75-8	2-Chloroethyl vinyl ether			not detected	nle	0 65 ug/L	
10061-01-5	cis-1,3-Dichloropropene			not detected	nie	0 69 ug/L	
108-10-1	4-Methyl-2 Pentanone			not detected	400	0 59 ug/L	
108-88 3	Toluene			not detected	1000	0 37 ug/L	
10061-02 6	trans-1,3-Dichloropropene			not detected	nle	0 87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0 48 ug/L	
127 18 4	Tetrachloroethene			not detected	1	0 32 ug/L	
591-78-6	2 Hexanone			not detected	nte	071 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0 86 ug/L	igsquare
108-90-7	Chlorobenzene			not detected	4	0 39 ug/L	
100-41-4	Ethylbenzene			not detected	700	0 65 ug/L	
1330-20-7	m+p-Xylenes	ļ		not detected	nle	ll4 ug/L	<u> </u>
1330 20-7	o-Xylene	<u></u> _		not detected	nle	0 62 ug/L	igsquare
100-42-5	Styrene	<u> </u>		not detected	100	0 56 ug/L	<u> </u>
75-25-2	Bromoform			not detected	4	0 70 ug/L	ļ <u>]</u>
79 34-5	1,1,2,2 Tetrachloroethane			not detected	2	0 47 ug/L	
541 73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	<u> </u>
106-46-7	1,4-Dichlorobenzene	<u> </u>		not detected	75	0 57 ug/L	
95-50-1	1,2-Dichlorobenzene		<u> </u>	not detected	600	0 64 ug/L	<u> </u>

<sup>\*</sup>Higher of PQL s and Ground Water Quality Criteria as per N J A C 7 9 6 2 Sept 9

#### Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

MDL = Method Detection Limit NLE = No Limit Established R T = Retention Time

#### 1E

## VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab ID

		TENTATIVELY IDENTIFIED COMPOUNDS								
Lab Name	FMETL				Project	100004	<b>,</b>	Dup	e	
NJDEP#	13461	Ca	se No	5043	Locati	on <u>4</u> 92	s	DG No		
Matrix (soil/w	ater)	WATER	_		Ĺ	ab Sampl	e ID	5043 02		
Sample wt/vol	l	<u>5</u> 0	(g/ml	) <u>ML</u>	ι	ab File ID		VB005268 D	<u> </u>	
Level (low/m	ed) ,	LOW			0	Date Rece	ved	12/22/99	<del></del>	
% Moisture in	ot dec		<del>.</del>		C	Date Analy	zed	1/3/00		
GC Column	RTX50	02 ID 0	25 (	mm)	Ε	Silution Fa	ctor	10		
Soil Extract Vo	olume		_ (uL)		S	oupilA lio	t Volu	me	(uL)	
					ONCENTRATION UNITS  ug/L or ug/Kg) UG/L					
CAS NO		СОМРО	JND NA	ME		RT	ES	ST CONC	Q	

# BASE NEUTRAL

#### Semi-Volatile Analysis Report

### U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File Name BNA03495.D

Sample Name

Sblk331

1

Operator

Bhaskar

Misc Info

Sblk331 A 991229

Date Acquired

4-Jan-00

Sample Multiplier

Regulatory

CAS#	Name	R.T	Response	Result	Regulatory Level (ug/L)*	MDL	Onaldiers
110-86-1	Pyridine	T		not detected	NLE	1 83 ug/	
62.75 9	N-nitroso-dimethylamine		-	not detected	20	091 ug/	L T
62-53-3	Aniline			not detected	NLE	1 63 ug/	
111-44-4	bis(2-Chloroethyl)ether	1		not detected	10	1 28 טפ/	
541-73-1	1 3-Dichlorobenzene	<b>T</b>		not detected	600	1 21 ug/	ւ 1
106-46-7	1 4-Dichlorobenzene			not detected	75	1 19 ue/	L
100-51-6	Benzyl alcohol			not detected	NLE	l 02 ug/	ı. T
95-50-1	1 2-Dichlorobenzene	<del>                                     </del>	-	not detected	600	1 13 ug/	ւ
108-60-1	bis(2-chloroisopropyl)ether	<b>T</b>	-	not detected	300	l 39 ug/	
621-64-7	a Nitroso-di-a-propylamine	1		not detected	20	0 80 ug/	
67-72-1	Hexachloroethane	<del> </del>		not detected	10	1 50 ug/	
98-95-3	Nitrobenzene	1		not detected	10	0 97 ug/	
78-59-1	Isophorone	<del>                                     </del>		not detected	100	l Ol ug/	
111 91-1	bis(2-Chloroethoxy)methane	1	-	not detected	NLE	1 21 ug/	
120-82-1	1 2,4-Tnchlorobenzene			not detected	9	1 22 ug/	
91-20-3	Naphthalene	1		not detected	NLE	1 27 ue/	
106-47-8	4-Chloroaniline	<b>—</b>		not detected	NLE	1 09 ug/	
87-68-3	Hexachlorobutadiene	Τ		not detected	ı	071 ug/	
91-57-6	2-Methylnaphthalene			not detected	NLE	1 08 ug/	
77-47-4	Hexachlorocyclopentadiene		_	not detected	50	1 32 ug/	
91-58-7	2-Chloronaphthalene			not detected	NLE	1 01 ug/	L
88-74-4	2-Nitroaniline			not detected	NLE	0 96 ug/	ւ
131-11-3	Dimethylphthalate			not detected	7000	1 52 ug/	1
208-96-8	Acenaphthylene			not detected	NLE	0 96 ug/	
606-20-2	2 6-Dinitrotoluene			not detected	NLE	0 81 ug/	ı
99-09-2	3-Nitroamline			not detected	NLE	0 79 ug/	ı.
83 32 9	Acenaphthene			not detected	400	1 10 ug/	
132-64-9	Dibenzofuran			not detected	NLE	1 00 ug/	L
121-14-2	2,4-Dinitrotoluene			not detected	10_	0 87 ug/	i.
84-66-2	Diethylphthalate			not detected	5000	1 62 ug/	L [
86-73-7	Fluorene			not detected	30u	0 99 ug/	ι
7005-72-3	4-Chiorophenyl-phenylether			not detected	NLE	_1 10 ug/	ւ
100-01-6	4-Nitroaniline			not detected	NLE	1 05 עפט	
86-30-6	n-Nitrosodiphenylamine			not detected	20	i 01 ug/	
103-33-3	Azobenzene			not detected	NLC	0 67 uz	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0 76 ug/	
118 74-1	Hexachlorobenzene			not detected	10	0 94 ug/	
85-01-8	Phenanthrene			not detected	NLE	l 23 ug/	
120-12 7	Anthracene			not detected	2000	i 12 ug/	
84-74-2	Di n-butylphthalate	1		not detected	900	1 70 ug/	
206-44-0	Fluoranthene	T	_	not detected	300	1 64 ug/	

#### Semi-Volatile Analysis Report Page 2

Data File Name

BNA03495 D

Sample Name

Sblk331

Operator

Bhaskar

Misc Info

Sblk331 A 991229

Date Acquired

4-Jan-00

Sample Multiplier

1

Regulatory	
Level	

CAS#	Name '	R.T Response		Result	(ug/L)*	MDL	Qualiflers
92-87-5	Benzidine			not detected	50	4 18 սչ	<u>/L</u>
129_00-0	Pyrene			not detected	200	I 25 us	л
85-68-7	Butylbenzylphthalate			not detected	100	1 05 us	/L
56 <u>-5</u> 5-3	Benzo[a]anthracene			not detected	10	1 19 այ	/L
91-94-1	3 3'-Dichlorobenzidine			not detected	60	1 75 ա	<u>/L</u>
218-01-9	Chrysene			not detected	20	1 38 ug	/L
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	1 74 us	Λ
117-84-0	Di-n-octylphthalate			not detected	100	1 44 us	/L
<u>205-</u> 99-2	Benzo[b]fluoranthene			not detected	10	1 25 ug	Л.
207-08-9	Benzo[k]fluoranthene			not detected	2	1 29 ը	л
50 <u>-3</u> 2-8	Benzo[a]pyrene			not detected	20	1 Q5 uş	<sub>/</sub> /_
193-39 5	Indeno[1,2,3-cd]pyrene			not detected	20	0 83 uş	л
<u>53-7</u> 0-3	Dibenz[a,h]anthracene			not detected	20	0 64 us	ЛL
191-24-2	Benzo[g h 1]perylene			not detected	NLE	0 84 us	у <u>г</u> [

<sup>•</sup> Higher of PQL's and Ground Water Criteria as per NJAC 7 9-6 2-Sept-97

#### **Qualifiers**

E= Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

PQL≈ Practical Quantitation Limit

MDL= Method Detection Limit NLE= No Limit Established

R T =Retention Time

Page 2 of 2

#### 1F

## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD	ID
-------	----

		TENTATIVELY IDENTIF	TED COMP	COND	5	0.11.004
Lab Name	FMETL		Lab Cod	de <u>13</u> 4	461	Sblk331
Project	100004	Case No <u>5043</u>	Locat	ion <u>B</u>	ld 492 S	DG No
Matnx (soil/	water)	WATER	ı	Lab Sa	mple ID	Sblk331
Sample wt/v	ol	1000 (g/ml) ML	1	Lab File	e ID	BNA03495 D
Level (low/r	med)	LOW	1	Date R	eceived	12/22/99
% Mojsture		decanted (Y/N) _	N_ I	Date E	xtracted	12/29/99
Concentrate	d Extract	Volume <u>1000</u> (uL)	+	Date A	nalyzed	1/4/00
Injection Vol	ume <u>1</u>	0 (uL)	1	Dilution	Factor	10
GPC Cleanu	ıp (Y/N)	N pH 7				
			CONCE	NTRAT	TION UNI	TS
Number TIC:	s found		(ug/L or	ug/Kg)	UG/	L
CACALLAR	DED	COMPOUND NAME			, , ,	ET CONC

unknown

10 15

#### Semi-Volatile Analysis Report

# U.S. Army, Fort Monmouth Environmental Laboratory NJDEP Certification #13461

Data File Name BNA03499 D

Sample Name

5043 01

Operator

Bhaskar

Misc Info

Bldg 492

Date Acquired

4-Jan-00

Sample Mulupher

Regulatory

CAS#	Name	R.T	Response	Result	Regulatory Level (ug/L)*	_ MDL	Qualifiers
110-86-1	Pyridine			not detected	NLE	l 83 ug/L	I
62-75-9	N-nitroso-dimethylamine			not detected	20	091 ug/L	
62 53-3	Aniline			not detected	NLE	1 63 ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	l 28 ug/L	
541-73-1	1 3-Dichlorobenzene			not detected	600	! 21 ug/L	1
106-46-7	1.4-Dichlorobenzene			not detected	75	1 19 ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	1 02 ug/L	1
95-50-1	1 2-Dichlorobenzene			not detected	600	1 13 ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	1 39 ug/L	
621-64-7	n-Nitroso-di-n-propylamine			not detected	20	0 80 ug/L	.[
67-7 <sub>2-1</sub>	Hexachloroethane			not detected	10	l 50 ue/L	
98 95-3	Nitrobenzene			not detected	10	0 97 ug/L	
78-59-1	Isophorone			not detected	100	1 01 ug/L	
111 91-1	bis(2-Chloroethoxy)methane			not detected	NLE_	1 21 ug/L	
120-82-1	1 2.4-Trichlorobenzene			not detected	9	1 22 ug/L	
91-20-3	Naphthalene			not detected	NLE	1 27 ug/L	_[
106-47-8	4-Chloroaniline			not detected	NLE	1 09 ug/L	
87-68-3	Hexachlorobutadiene			not detected	1	071 ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	1 08 ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1 32 ug/L	
9 <u>1-5</u> 8-7	2-Chloronaphthalene			not detected	NLE	l O1 ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0 96 ug/L	
131-11-3	Dimethylphthalate			not detected	7000	1 52 ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0 96 ug/L	<u> </u>
606-20 2	2 6-Dinitrotoluene			not detected	NLE	0 81 ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.79 ug/L	
83 32-9	Acenaphthene		_	not detected	400	1 10 ug/L	
132 64-9	Dibenzofuran			not detected	NLE	1 00 ug/L	
121-14-2	2 4-Dinitrotoluene			not detected	10	0 87 ug/L	1
84-66-2	Diethylphthalate			not detected	5000	1 62 ug/L	
86 <u>-73</u> -7	Fluorene			not detected	300	0 99 ug/L	1
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	1 10 ug/L	1
6-10-201	4-Nitroamiline			not detected	NLE	i 05 ug/L	
86-30-6	n Nitrosodiphenylamine			not detected	20	101 u <u>e/</u> L	
103-55-5	Azobenzene			not detected	NLE	0 67 ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.76 ug/L	
118-74 i	Hexachlorobenzene			not detected	10	0 94 ug/L	
85-01-8	Phenanthrene			not detected	NLE	l 23 ug/L	
120-12-7	Anthracene			not detected	2000	1 12 ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	1 70 ug/L	
206-44-0	Fluoranthene			not detected	300	1 64 ug/L	

#### Semi-Volatile Analysis Report Page 2

Data File Name

Date Acquired

Operator

BNA03499 D

Bhaskar 4-Jan-00 Sample Name

5043 01

ar .

Bldg 492

Sample Multipher

Misc Info

Regulatory

CAS#	Name	R.T	Response	Result	Level (ug/L)*	MDL	Qualiflers
92 87-5	Benzidine	,		not detected	50	4 18 ug/1.	
129-00-0	Pyrene			not detected	200	1 25 ug/L	<u> </u>
85-68-7	Butyibenzylphthalate	$\pm$		not detected	100	1 05 ug/L	<u> </u>
56-55-3	Benzo[a]anthracene			not detected	10	1 19 ug/L	<u> </u>
91-94-1	3,3'-Dichlorobenzidine			not detected	60	175 ug/L	<u> </u>
218-01-9	Спузепе			not detected	20	1 38 ug/L	<u> </u>
117-81 7	bis(2 Ethylhexyl)phthalate			not_detected	30	1 74 ug/L	<u></u>
117 84-0	Di-n-octylphthalate			not detected	100	1 44 ug/L	<u> </u>
205-99-2	Benzo[b]fluoranthene			not detected	10	1 25 ug/L	
207-08-9	Benzo[k]fluoranthene			not detected	2	1 29 ug/L	
50-32-8	Benzolalpyrene			not detected	20	1 05 ug/L	<u> </u>
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0 83 ug/L	
53-70-3	Dibenz[a,h]anthracene			not detected	20	0 64 ug/L	
191-24-2	Benzolg halperylene			not detected	NLE	0_84_ug/L	

<sup>\*</sup> Higher of PQL's and Ground Water Criteria as per NJAC 7 9 6 2 Sept-97

#### Qualifiers

E= Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

PQL= Practical Quantitation Limit

MDL= Method Detection Limit NLE= No Limit Established R T = Retention Time

Page 2 of 2

1F

## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

( ah Mama			Lab Co	do 12461		Bldg.	492
Lab Name	FMETL		Lab Cot	de <u>13461</u>		<sub>-</sub>	
Project	100004	Case No 5043	Locat	tion Bld 4	<u>92</u> S	DG No	
Matnx (soil/	water)	WATER '	I	Lab Sampl	le ID	5043 01	
Sample wt/v	ol	1000 (g/ml) ML		Lab File ID	)	BNA03499 [	<u>)                                    </u>
Level (low/r	med)	LOW	(	Date Rece	ived	12/22/99	
% Moisture		decanted (Y/N) _	<u>N</u> 1	Date Extra	cted	12/29/99	
Concentrate	d Extract	Volume <u>1000</u> (uL)	1	Date Analy	/zed	1/4/00	
Injection Vol	ume <u>1 (</u>	<u>)         (uL)                          </u>	i	Dilution Fa	ctor	10	
GPC Cleanu	p (Y/N)	<u>N</u> pH 7					
			CONCE	NTRATION	N UNI	TS	
Number TIC:	s found		(ug/L or	ug/Kg)	UG/	<u>L</u>	
CAS NUME	BER	COMPOUND NAME		RT	ES	ST CONC	Q

### Semi-Volatile Analysis Report

## U.S. Army, Fort Monmouth Environmental Laboratory ... NJDEP Certification #13461

Data File Name BNA03500.D Sample Name

5043 02

Operator Bhaskar Date Acquired 4-Jan-00 Misc Info Dupe

Sample Multipher

Regulator
Level

	,	^			Regulatory Level (ug/L)*		
CAS#	Name 15	R.T	Response_	Result	<del></del>	MDL	Qualifiers
110-86-1	Pyridine	7		not detected	NLE	1 83 ug	
62 75-9	N nitroso-dimethylamine	- ' ' ( - ' ' '		not detected	20	0 9 i ug	
62-53-3	Aniline	<del>''</del> ''		not detected	NLE	1 63 ug	1
111-44-4	bis(2-Chloroethyl)ether			not detected	10	1 28 ug	<u>L  </u>
541 73-1	1,3 Dichlorobenzene			not detected	600	l 21 ug.	ւ
106-46-7	1 4-Dichlorobenzene			not detected_	75	1 19 ug	<u>ı                                      </u>
100-51-6	Benzyl alcohol			not detected	NLE	1 02 ug	<u>L</u>
95 50-1	1,2-Dichlorobenzene	1		not detected	600	1 13 ug	L
108 60-1	bis(2-chloroisopropyl)ether			not detected	300	1 39 սջ	ւ
621-64-7	ŋ-Nitroso-di-n-propylamine			not detected	20	0 80 ug	L L
67 72-1	Hexachloroethane •			not detected	10	1 50 ug	r.
98 95-3	Nitrobenzene			not detected	10	0 97 112	ւ
78-59-1	Isophorone			not detected	100	1 OL 02	1
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	1 21 ug	ı L
120-82-1	1 2,4-Trichlorobeuzeue			not detected	9	1 22 ug	ւ
91-20-3	Naphthalene			not detected	NLE	1 27 02	ւ
106-47-8	4 Chloroansline			not detected	NLE	1 09 ug	r.
87 68 3	Hexachlorobutadiene			not detected	L	071 ug	ւ
91-57-6	2 Methylnaphthalene			not detected	NLE	1 08 ug	ı
77-47-4	Hexachlorocyclopentadiene			not detected	50	1 32 ug	ı
91-58-7	2 Chloronaphthalene			not detected	NLE	1 01 ug	ı
88 74-4	2-Nitroamline			not detected	NLE	0 96 ug	ւ
131-11-3	Dimethylphthalate			not detected	7000	1 52 ug	r l
208-96-8	Acenaphthylene			not detected	NLE	0.96 ug	<u>ı</u>
606-20-2	2 6-Dinitrotoluene			not detected	NLE	081 ug	r.
99-09-2	3-Nitroamhne			not detected	NLE	0 79 ug	T.
83-32-9	Acenaphthene			not detected	400	l 10 ug	ı
132-64-9	Dibenzofuran			not detected	NLE	1 00 ug	ı
121-14-2	2 4-Dinitrotoluene			not detected	10	0 87 ບຂ	ւ 📗
84-66-2	Diethylphthalate			not detected	5000	1 62 սբ	L_
86-73-1	Fluorene			not detected	300	0 <b>9</b> 9 ug	ı
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	l 10 ug	L _
100-01-6	4-Nitroaniline			not detected	NLE	1 05 ug	r.
86 30-6	h-Nitrosodiphenylamine			not detected	20	1 01 ug	
103-33-3	Azobenzene			not detected	NILE	9 67 ug	
101-55 3	4-Bromophenyl-phenylether			not detected	NLE	0 76 ug	
118-74 1	Hexachlorobenzene			not detected	10_	0 94 ug	
85 01 8	Phenanthrene			not detected	NLE	1 23 ug	
120-12-7	Anthracene			not detected	2000	1 12 ug	
84-74-2	Di-n-butylphthalate			not detected	900	1 70 ug	
206-44-0	Fluoranthene			not detected	300	1 64 ug	

#### Semi-Volatile Analysis Report Page 2

Data File Name

Date Acquired

BNA03500 D

Operator

Bhaskar 4-Jan-00 Sample Name

5043 02

Misc Info

Dupe

Sample Mulupher

	-	Mary's Arright History			Regulatory Level		
CAS#	Name	127 2 ~ R.T	Response	Result	(ug/L)*	MDL	Qualifiers
92 87 5	Benzidine	43		not detected	50	4 18 ug/l	
129-00-0	Pyrene			not detected	200	1 25 vg/l	
8 <u>5-68</u> -7	Butylbenzylphthalate			not detected	100	1 05 ug/l	
56 <u>-55</u> -3	Benzo[a]anthracene			not detected	10	1 19 սբ/	
91-94-I	3 3' Dichlorobenzidine			not detected	60	1 75 ug/l	
218-01-9	Chrysene			not_detected	20	1 38 ug/l	
117-81-7	bis(2-Ethylhexyl)phthalate			not_detected	30	1 74 ug/l	
117-84-0	Di-n-octylphthalate			not detected	100	1 44 ug/l	
205 <u>9</u> 9 2	Benzo[b]fluoranthene			not detected	10	1 25 ug/	
207 <u>-0</u> 8-9	Benzo[k]fluoranthene			not detected	2	1 29 ug/	
50-32-8	Benzo[a]pyrene			not detected	20	1_05 ug/	
193-39 5	Indeno[1 2,3-cd]pyrene			not detected	20	0 83 ид/	
53-70-3	Dibenz[a,h]anthracene			not detected	20_	0 64 ug/l	
191-24-2	Benzo[g,h i]perylene			not detected	NLE	0_84 ug/	

Higher of PQL's and Ground Water Criteria as per NJAC 7 9-6 2 Sept-97

#### **Qualifiers**

E= Value Exceeds Linear Range

D= Value from dilution

B= Compound in Related Blank

PQL= Practical Quantitation Limit

MDL= Method Detection Limit NLE= No Limit Established

R T = Retention Time

Page 2 of 2

1F

## SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID

TENTATIVELY IDENTIFIED COMPOUNDS						l 5.				
Lab Name	FMETL		<del></del> -	(	Lab Cod	e <u>1</u> :	3461			ibe
Project	100004	Case	No <u>5043</u>	3	Locati	on	Bld 49	2 SC	G No	
Matrix (soil/v	vater)	WATER			L	ab S	Sample	ID ;	5043 02	
Sample wt/vo	ol	1000	(g/ml) ML		L	ab F	ile ID	_	BNA03500	D
Level (low/n	ned)	LOW			C	ate	Receiv	ed	12/22/99	
% Moisture		decan	ted (Y/N)	N	c	ate	Extract	ed	12/29/99	
Concentrated	Extract	700 volume <u> </u>	00 (uL)		D	ate	Analyz	ed	1/4/00	
Injection Volu	ıme <u>1 (</u>	) (uL) 💯			D	llutio	on Fact	tor	10	
GPC Cleanu	p (Y/N)	N pl	+ - <u>7</u>	_						
				c	ONCEN	ITR/	ATION	UNIT	S	
Number TICs	found	1	_	(1	ug/L or u	ıg/Kç	g) <u> </u>	UG/L	<u></u>	
CAS NUMB	ER .	COMPOUN	D NAME			F	<b>₹Т</b>	ES	T CONC	Q
1	· ·	unknown					7 18		5	J

#### LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

## THIS FORM MUST BE COMPLETED BY THE LABORATORY OR ENVIRONMENTAL CONSULTANT AND ACCOMPANY ALL DATA SUBMISSIONS

The following Laboratory Deliverables checklist and Non-Conformance Summary shall be included in the data submission. All deviations from the accepted methodology and procedures, of performance values outside acceptable ranges shall be summarized in the Non-Conformance Summary. The Technical Requirements for Site Remediation, effective June 7, 1993, provides further details. The document shall be bound and paginated, contain a table of contents, and all pages shall be legible. Incomplete packages will be returned or held without review until the data package is completed.

It is recommended that the analytical results summary sheets hiting all targeted and non-targeted compounds with the method detection limits, practical quantitation limits, and the laboratory and/or sample numbers be included in one section of the data package and in the main body of the report.

i	Cover page, Title Page listing Lab Certification #, facility name and address, & date of report submitted	
2	Table of Contents submitted	_
3	Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted	_
4	Document paginated and legible	
5	Chain of Custody submitted	_
6	Samples submitted to lab within 48 hours of sample collection	_
7	Methodology Summary submitted	
8	Laboratory Chronicle and Holding Time Check submitted	
9	Results submitted on a dry weight basis	NA
10	Method Detection Limits submitted	
11	Lab certified by NIDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	/
	poratory Manager or Environmental Consultant's Signature	<del></del>

Refer to NJAC 7 26E - Appendix A, Section IV - Reduced Data Deliverables - Non-USEPA/CLP Methods for further guidance

Laboratory Certification #13461

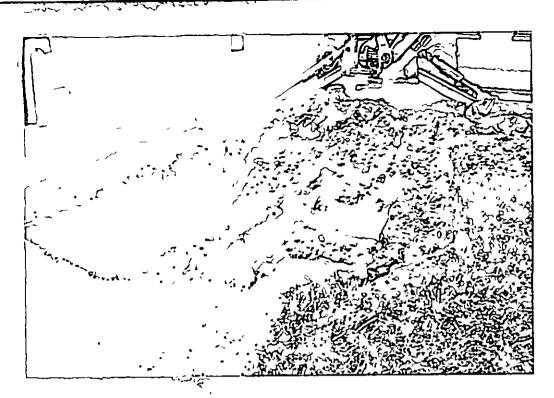
## **Laboratory Authentication Statement**

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

Daniel K Wright Laboratory Manager

1

# APPENDIX G PHOTOGRAPHS





# MAY 15, 1997 PHOTOGRAPHIC LOG

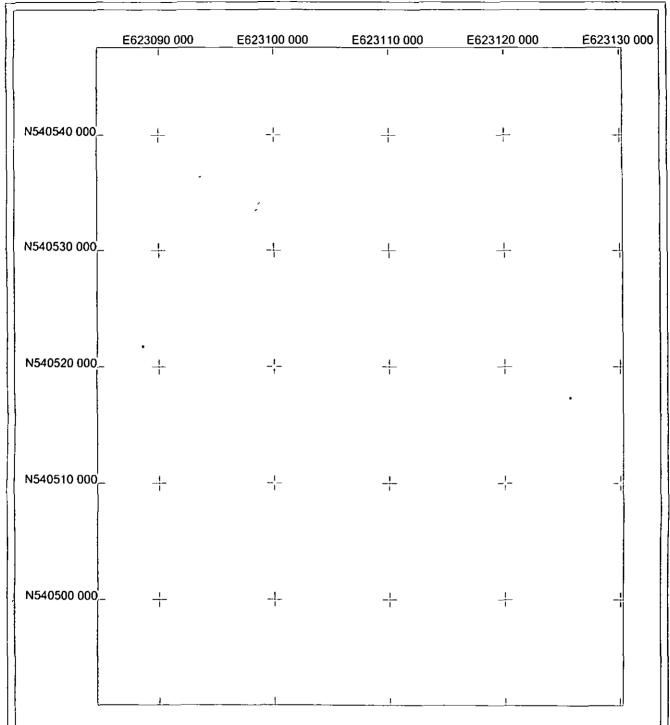
ÚST NO. 90010-59

Building 492 Main Post-East

Fort Monmouth

VERSAR
Engineers, Managers, Scientists & Planners
Bristol, PA

# APPENDIX H ELECTRONIC DATA DELIVERABLES



# Bldg. 492 UST Ground Water Sample GPS Map

US State Plane 1983 New Jersey (NY East) 2900 NAD 1983 (Conus)

Scale 1 100 N 0 12 50 US Survey Feet r070714c cor 7/10/2000 Pathfinder Office

**⚠** Trimble

### **BLDG 492 UST GROUND WATER SAMPLE GPS POSITION & COORDINATES**

US STATE PLANE 1983 NJ ( NY EAST ) 2900 NAD 1983 ( CONUS )

(IN US SURVEY FEET)

#### **SAMPLE POINTS**

 POSITION / DESC
 Y COORD (NORTHING)
 X COORD (EASTING)

 492 GW (A SIDE)
 540521 766
 623088 552

 (GW denotes Ground Water)

#### **REFERENCE POINTS**

POSITION / DESC	Y COORD ( NORTHING )	X COORD (EASTING)
TELE POLE	540517 363	623125 641