United States Army

Fort Monmouth, New Jersey

Site/Remedial Investigation Report

Building 429
Main Post-East Area

May 2000

SITE/REMEDIAL INVESTIGATION REPORT

BUILDING 429

MAIN POST-EAST AREA

MAY 2000

PREPARED FOR:

UNITED STATES ARMY, FORT MONMOUTH, NEW JERSEY

DIRECTORATE OF PUBLIC WORKS
BUILDING 167
FORT MONMOUTH, NJ 07703

PREPARED BY:

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PROJECT NO. 2429-308

429.DOC

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EXECUTIVE SUMMARY

Site/Remedial Investigation and Post-Excavation Soil Sampling

SMC was retained by the U.S. Army DPW to implement a site/remedial investigation adjacent to a former No 2 fuel oil UST. The UST was associated with Building 429 at the Main Post-East area of the U.S. Army Fort Monmouth Base. The objective of the site/remedial investigation activities were to remove from the ground all soil potentially impacted as the result of the past operation of the former UST. The site/remedial investigation was performed by SMC personnel in accordance with the NJDEP Technical Requirements for Site Remediation (N.J.A.C. 7:26E) and the NJDEP Field Sampling Procedures Manual.

Visibly stained soils and soils exhibiting elevated PID levels (greater than 5 ppm) of VOCs were excavated. Excavation activities continued until potentially impacted soil had been removed. To confirm the PID readings and verify the effectiveness of the soil excavation activities, 15 post-excavation soil samples were collected from within the excavation between May 15 and May 19, 1997. All samples were analyzed for TPHC and total solids. One post-excavation soil sample (429-S3) collected from the excavation contained a TPHC concentration above the NJDEP soil cleanup criteria of 10,000 mg/kg. Although the soil in the sidewall beneath the chimney exhibited a TPHC level above the NJDEP soil cleanup criteria, the soil was not removed due to the fact that the excavation activities could have jeopardized the structural integrity of the chimney.

On February 15, 2000, and March 18, 2000, soil sample locations 429-S2 and 429-S3 were resampled. A VOA analysis (EPA Method 8260) was completed on sample 429-S3 and all known compounds searched for in the analysis were not detected.

Management of Excavated Soils

In all, a total of approximately 340 cubic yards of contaminated soil was excavated from around the former UST location and placed on and covered with tarps. All contaminated soil characterization and disposal was handled directly by the U.S. Army Fort Monmouth DPW.

Site Restoration

Upon receiving analytical results and confirming the effectiveness of the excavation activities completed at the site, the excavation was back filled to grade with certified clean crushed stones, sand and clean overburden soil removed from the excavation.

Conclusions and Recommendations

In response to the observation of potentially contaminated soil near the water table, two (2) groundwater samples were collected at Building 429. On December 10, 1998, and

January 12, 1999, Building 429 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 at Building 429.

1.0 BACKGROUND INFORMATION

1.1 OVERVIEW

SMC Environmental Services Group (SMC) was retained by the United States Army Directorate of Public Works (DPW) to implement a site/remedial investigation adjacent to a former No 2 fuel oil underground storage tank (UST). The UST, New Jersey Department of Environmental Protection (NJDEP) Registration No. 90010-43, was associated with Building 429 at the Main Post-East area of the U.S. Army Fort Monmouth Base, Fort Monmouth, New Jersey. Refer to site location map on Figure 1.

This report describes the results of the site/remedial investigation activities completed at the site. The objective of the site/remedial investigation activities were to remove from the ground all soil potentially impacted as the result of the past operation of the former UST.

This report outlines background information, the site/remedial investigation activities, the results of these activities, and conclusions and recommendations drawn from these results.

1.2 SITE DESCRIPTION

Building 429 is located in the Main Post-East area of the Fort Monmouth Army Base. The former UST was located a few feet north of the northeast corner of Building 429 and approximately 50 feet west of Burns Avenue. A site map is provided on Figure 2.

1.3 GEOLOGICAL/HYDROGEOLOGICAL SETTING

The following is a description of the geological/hydrogeological setting of the area surrounding Building 429. 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.

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. Over 20 regional geologic units are present within the sediments of the Coastal Plain. Regressive, upward coarsening deposits are usually aquifers (e.g., Englishtown and Kirkwood Formations, and the Cohansey Sand) while the transgressive deposits act as confining units (e.g., the Merchantville, Marshalltown, and Navesink Formations). The individual thickness for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and 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 429 is located approximately 600 feet south of Parkers Creek, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 429 is anticipated to be to the north.

1.4 HEALTH AND SAFETY

During all site/remedial investigation activities, hazards at the work site, which may have posed a threat to the Health and Safety of personnel, were minimized. All areas, which posed, or may have been suspected to pose a vapor hazard were monitored by a qualified individual utilizing an organic vapor analyzer (OVA). The individual ascertained if the area was safe, as defined by OSHA.

2.0 SITE/REMEDIAL INVESTIGATION ACTIVITIES

2.1 OVERVIEW

The Site/Remedial Investigation was managed and carried out by SMC personnel. All analyses were performed and reported by U.S. Army Fort Monmouth Environmental Laboratory, an 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*. Sampling frequency and parameters analyzed complied with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E).

The following Parties participated in Site/Remedial Investigation Activities:

Subsurface Evaluator: David H. Daniels

Employer: SMC Environmental Services Group

Phone Number: (215) 788-7844 NJDEP Certification No.: 10279

Project Manager: Charles Appleby

Employer: DPW U.S. Army, Fort Monmouth

Phone Number: (732) 532-6224 NJDEP Certification No.: 2056

Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory

Contact Person: Daniel K. Wright Phone Number: (732) 532-4359

NJDEP Company Certification No.: 13461

2.2 FIELD SCREENING/MONITORING

Field screening and visual observations to identify potentially contaminated material was performed by a NJDEP Certified Sub-Surface Evaluator. During the excavation activities, all soil removed was screened with a photoionization detector (PID) to check for the presence of elevated volatile organic concentrations (VOCs).

Soils, which displayed elevated PID readings (i.e., above 5 ppm) were stockpiled, separate of the soils which did not display elevated PID readings (i.e., less than 5 ppm). The ground surface in the areas used to stockpile contaminated soils was covered with tarps. All stockpiled contaminated soil was covered with tarps at the completion of each day of excavation.

2.3 MANAGEMENT OF EXCAVATED SOILS

In all, there was a total of approximately 440 cubic yards of material excavated during the remediation activities. Of this, approximately 100 cubic yards of clean overburden soil (soil displaying PID readings below 5 ppm) was removed and stockpiled separate of the contaminated soil. The clean soil pile was later used as backfill after reviewing the sample results for this stockpile. There was approximately 340 cubic yards of contaminated soil (soil displaying PID readings above 5 ppm) excavated and placed on and covered with tarps.

All contaminated soil characterization and disposal was handled directly by the U.S. Army Fort Monmouth Directorate of Public Works.

2.4 POST-EXCAVATION SOIL SAMPLING AND RESULTS

The excavation of the impacted soil proceeded laterally north, east and west until non-detectable field screening readings (i.e., less than 5 ppm) were obtained with the PID. Along the southern portion of the excavation, the removal of all potentially impacted soil was not feasible due to the presence of the adjacent building 429 and chimney. Further excavation along the southern portion of the excavation could have affected the structure integrity of the building and the chimney. The excavation extended vertically to the ground water which was encountered at a depth of 6 feet bgs.

To confirm the PID readings and verify the effectiveness of the soil excavation activities, 15 post-excavation soil samples were collected from within the excavation between May 15 and May 19, 1997. Of these, 11 soil samples were collected from the excavation sidewalls at a depth of 5.5 feet bgs. The sidewall samples were designated 429-S1 through 429-S12, were as sample 429-S8 was a duplicate. The remaining 4 post-excavation soil samples were collected from the bottom of the excavation at a depth of 6 feet bgs. The bottom samples were designated 429-B1 through 429-B5, were as sample 429-B5 was a duplicate.

On February 15, 2000, and March 18, 2000, soil sample locations 429-S2 and 429-S3 were resampled. Sidewall samples S2 and S3 were collected at a depth of 5.5 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids. Based on preliminary TPHC results, a VOA analysis (EPA Method 8260) was completed on sample S3. The locations of the 17 post-excavation soil samples are shown on Figure 3.

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

All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids. The TPHC 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 TPHC analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2. The analytical data packages are provided in Appendix A.

Two of the post-excavation soil samples (429-S2 and 429-S3) contained concentrations of TPHC above 1,000 mg/kg; however, no analyses for volatile organic compounds were completed. One of these samples (429-S3) revealed a TPHC above the NJDEP soil cleanup criteria 10,000 mg/kg.

Although the soil in the sidewall beneath the chimney exhibited a TPHC level above the NJDEP soil cleanup criteria, the soil was not removed due to the fact that the excavation activities could have jeopardized the structural integrity of the chimney. Therefore, on February 15, 2000, and March 18, 2000, soil sample locations 429-S2 and 429-S3 were resampled for TPHC and VOA analysis.

Upon receiving analytical results and confirming the effectiveness of the excavation activities completed at the site, the excavation was back filled to grade with certified clean crushed stones and sand. One sample was collected from the overburden material and analyzed for TPHC. The clean stockpile soil samples (429-SP1) revealed non-detectable TPHC levels; therefore, the soil was used as backfill material. Appendix B provides photographs of the site/remedial investigations.

2.5 GROUNDWATER SAMPLING

On December 10,1998, and January 12, 1999, Building 429 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 B for the field sampling documentation.

3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 CONCLUSIONS

SMC was retained by the U.S. Army DPW to implement a site/remedial investigation adjacent to a former No 2 fuel oil UST. The UST was associated with Building 429 at the Main Post-East area of the U.S. Army Fort Monmouth Base. The objective of the site/remedial investigation activities were to remove from the ground all soil potentially impacted as the result of the past operation of the former UST.

Visibly stained soils and soils exhibiting elevated PID levels (greater than 5 ppm) of VOCs were excavated. Excavation activities continued until potentially impacted soil had been removed. In all, a total of approximately 340 cubic yards of contaminated soil was excavated from around the former UST location. All contaminated soil characterization and disposal was handled directly by the U.S. Army Fort Monmouth DPW.

To confirm the PID readings and verify the effectiveness of the soil excavation activities, 15 post-excavation soil samples were collected from within the excavation between May 15 and May 19, 1997. All samples were analyzed for TPHC and total solids. Two of the post-excavation samples contained concentrations of TPHC above 1,000 mg/kg; however, no analyses for volatile organic compounds were completed. One of these samples revealed a TPHC level above the NJDEP soil cleanup criteria 10,000 mg/kg. Therefore, on February 15, 2000, and March 18, 2000, soil sample locations 429-S2 and 429-S3 were resampled for TPHC and VOA analysis.

Upon receiving analytical results and confirming the effectiveness of the excavation activities completed at the site, the excavation was back filled to grade with certified clean crushed stones, sand and clean overburden material.

3.2 GROUNDWATER SAMPLING RESULTS

No compounds were detected in the sample collected from Building 429 on December 10, 1998.

The sample collected from Building 429 on January 12, 1999, contained acenaphthene at a concentration of 1.15 ug/L and flourene at 1.84 ug/l. No other compounds were detected.

A summary of the analytical results and comparison to the NJDEP groundwater cleanup criteria is provided in Table 4. The analytical data package is provided in Appendix B. The full data package, including quality control, is on file at U.S. Army Fort Monmouth, Fort Monmouth, New Jersey.

Groundwater samples collected on December 10, 1998, and January 12,1999, were either below the detection limit or in compliance with the New Jersey Ground Water Quality Criteria (GWQC)

3.3 RECOMMENDATIONS

Although the soil in the sidewall beneath the chimney exhibited a TPHC level above the NJDEP soil cleanup criteria, the soil was not removed due to the fact that the excavation activities could have jeopardized the structural integrity of the chimney. Therefore, on February 15, 2000, and March 18, 2000, soil sample locations 429-S2 and 429-S3 were resampled for TPHC and VOA analysis. The samples collected contained concentrations of TPHC and volatile organic compounds below the NJDEP residential soil cleanup criteria

Based on the analytical results of the groundwater samples collected at Building 429 on December 10, 1998, and January 12, 1999, groundwater quality at Building 429 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 at Building 429.

TABLES

TABLES

TABLE 1

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES AREA 429, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 1 of 3

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
S1	5/15/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**S2	5/15/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
**S3	5/15/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B1	5/15/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S4	5/15/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S5	5/15/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B2	5/15/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B3	5/16/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S6	5/16/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S7	5/16/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S8	5/16/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
SP1	5/16/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

TPHC Total Petroleum Hydrocarbons Sample location was resampled

**

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES AREA 429, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 2 of 3

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
S9	5/19/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S10	5/19/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S11	5/19/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
S12	5/19/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
B4	5/19/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025
В5	5/19/97	5/19/97	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

TABLE 1

SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES AREA 429, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 3 of 3

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
S2	2/15/00	2/15/00	Soil	Post-Excavation	TPHC	OQA-QAM-025
S3	2/15/00	2/15/00	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

* TPHC Total Petroleum Hydrocarbons

TABLE 2

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS
AREA 429, MAIN POST-EAST AREA
FORT MONMOUTH, NEW JERSEY

Page 1 of 4

Sample ID	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Method Used	Method Detection Limit (mg/kg)	Compound of Concern	Result (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
S1 =	2551.01	5/15/97	5/19/97	Total Solid			87.84		
				TPHC	172	Yes	983.41	10,000	No
***S2=	2551.02	5/15/97	5/19/97	Total Solid			86.61	14-15, 7-2-	
				TPHC	172	Yes	1251.15	10,000	No
***S3=	2551.03	5/15/97	5/19/97	Total Solid			81.36		765.
				TPHC	191	Yes	15560.17	10,000	YES
B1 =	2551.04	5/15/97	5/19/97	Total Solid			74.77		
				TPHC	194	Yes	ND	10,000	No
S4 =	2551.05	5/15/97	5/19/97	Total Solid			83.78		
				TPHC	175	Yes	ND	10,000	No
S5 =	2551.06	5/15/97	5/19/97	Total Solid			81.87		
				TPHC	177	Yes	ND	10,000	No
B2 =	2551.07	5/15/97	5/19/97	Total Solid			82.35	, 	
				TPHC	183	Yes	ND	10,000	No

Note:

* Total Solid results are expressed as a percentage.

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

** Sample location was resampled

-- Not detected above stated sample quantitation limit

TPHC Total Petroleum Hydrocarbons

TABLE 2 POST-EXCAVATION SOIL SAMPLING RESULTS AREA 429, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 2 of 4

Sample ID	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Method Used	Method Detection Limit (mg/kg)	Compound of Concern	Result (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
B3 =	2551.08	5/16/97	5/19/97	Total Solid			85.57		
				TPHC	175	Yes	ND	10,000	No
S6 =	2551.09	5/16/97	5/19/97	Total Solid			85.26		
				TPHC	180	Yes	ND	10,000	No
S7 =	2551.10	5/16/97	5/19/97	Total Solid			83.15		
				TPHC	185	Yes	476.48	10,000	No
S8 =	2551.11	5/16/97	5/19/97	Total Solid			80.98		
		•		TPHC	192	Yes	225.56	10,000	No
SP1 =	2551.12	5/16/97	5/19/97	Total Solid			85.05		
				TPHC	177	Yes	259.35	10,000	No

Note:

Total Solid results are expressed as a percentage.

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

Not detected above stated sample quantitation limit

TPHC Total Petroleum Hydrocarbons

TABLE 2 POST-EXCAVATION SOIL SAMPLING RESULTS AREA 429, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 3 of 4

Sample ID	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Method Used	Method Detection Limit (mg/kg)	Compound of Concern	Result (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
S9 =	2558.01	5/19/97	5/19/97	Total Solid			78.54		
				TPHC	196	Yes	ND	10,000	No
S10 =	2558.02	5/19/97	5/19/97	Total Solid			85.92		
				TPHC	179	Yes	ND	10,000	No
S11 =	2558.03	5/19/97	5/19/97	Total Solid			87.98		
	•			TPHC	167	Yes	ND	10,000	No
S12 =	2558.04	5/19/97	5/19/97	Total Solid			81.92		
				TPHC	170	Yes	265.04	10,000	No
B4 =	2558.05	5/19/97	5/19/97	Total Solid			87.77		
~ .				TPHC	175	Yes	ND	10,000	No
B5 =	2558.06	5/19/97	5/19/97	Total Solid			89.27		
53	2550.00	5/15/	0, 10, 10, 1	TPHC	176	Yes	ND	10,000	No

Note:

* Total Solid results are expressed as a percentage.

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

Not detected above stated sample quantitation limit

TPHC Total Petroleum Hydrocarbons

TABLE 2

POST-EXCAVATION SOIL SAMPLING RESULTS AREA 429, MAIN POST-EAST AREA FORT MONMOUTH, NEW JERSEY

Page 4 of 4

Sample ID	Sample Laboratory ID	Sample Date	Analysis Date	Analytical Method Used	Method Detection Limit (mg/kg)	Compound of Concern	Result (mg/kg) *	NJDEP Soil Cleanup Criteria ** (mg/kg)	Exceeds Cleanup Criteria
S2 =	5170.01	2/15/00	2/15/00	Total Solid			79.98%		
				TPHC	193	Yes	ND	10,000	No
S3 =	5170.02	2/15/00	2/15/00	Total Solid			82.13%		
				TPHC	188	Yes	1384.08	10,000	No

Note:

Total Solid results are expressed as a percentage.

NJDEP Residential Direct Contact soil cleanup criteria for total organics

Not detected above stated sample quantitation limit **

TPHC Total Petroleum Hydrocarbons

TABLE 3

Table 3 **VOLATILE ORGANICS ANALYSIS DATA SHEET**

Lab Name:

FMETL

NJDEP#

13461

Matrix: (soil/water) SOIL

Date Sampled:

3/18/00

Location:

429

Lab Sample ID: 5260.01(SAMPLE S3)

CONCENTRATION UNITS: (ug/L or ug/Kg)

CAS NO.	PARAMETER	MDL	QUALIFIER	RESIDENTIAL	NON- RESIDENTIAL
107028	Acrolein	2100	U	. NA	NA
107131	Acrylonitrile	2100	U	1000	5000
75650	tert-Butyl alcohol	3900	U	NA	NA
1634044	Methyl-tert-Butyl ether	900	U	NA	NA
108203	Di-isopropyl ether	600	υ	NA	NA
	Dichlorodifluoromethane	1200	υ	NA	NĄ
74-87-3	Chloromethane	300	U	520000	1000000(d)
75-01-4	Vinyl Chloride	900	υ	2000	7000
74-83-9	Bromomethane	600	υ	79000	1000000(d)
75-00-3	Chloroethane	900	υ	NA	NA ·
75-69-4	Trichlorofluoromethane	600	υ	NA	NA
75-35-4	1, 1-Dichloroethene	300	υ	8000	150000
67-64-1	Acetone	600	U	1000000(d)	1000000(d)
75-15-0	Carbon Disulfide	300	υ	NA	NA
75-09-2	Methylene Chloride	600	υ	49000	210000
156-60-5	trans-1,2-Dichloroethene	600	U	1000000(d)	1000000(d)
75-35-3	1,1-Dichloroethane	300	U	570000	1000000(d)
108-05-4	Vinyl Acetate	900	U ·	NA	NA
78-93-3	2-Butanone	900	U	1000000(d)	1000000(d)
156-59-2	cis-1,2-Dichloroethene	300	U	79000	1000000(d)
67-66-3	Chloroform	300	U	19000(k)	28000(k)
75-55-6	1,1,1-Trichloroethane	300	Ŭ	NA	NA
56-23-5	Carbon Tetrachloride	600	U	2000(k)	4000(k)
71-43-2	Benzeze	300	υ	3000	13000
107-06-2	1,2-Dichloroethane	600	Ū	6000	24000

Table 3 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:

 $\underline{\mathsf{FMETL}}$

NJDEP#

<u>13461</u>

Matrix: (soil/water) SOIL

Date Sampled:

3/18/00

Location:

429

Lab Sample ID: 5260.01(SAMPLE S3)

CONCENTRATION UNITS: (ug/L or ug/Kg)

CAS NO.	PARAMETER	MDL	QUALIFIER	RESIDENTIAL	NON- RESIDENTIAL
79-01-6	Trichloroethene	300	υ	23000	54000(k)
78-87-5	1, 2-Dichloropropane	300	U	10000	43000
75-27-4	Bromodichloromethane	300	U	11000(g)	46000(g)
110-75-8	2-Chloroethyl vinyl ether	600	ŭ	NA	NA
10061-01-5	cis-1,3-Dichloropropene	300	U	NA	NA
108-10-1	4-Methyl-2-Pentanone	600	U	1000000(d)	1000000(d)
108-88-3	Toluene	300	ŭ	1000000(d)	1000000(d)
10061-02-6	trans-1,3-Dichloropropene	600	U	NA	NA
79-00-5	1,1,2-Trichloroethane	600	U	22000	420000
127-18-4	Tetrachloroethene	300	U	4000(k)	6000(k)
591-78-6	2-Hexanone	600	U	NA	NA
126-48-1	Dibromochloromethane	600	Ū	NA ,	NA
108-90-7	Chlorobenzene	300	U	37000	680000
100-41-4	Ethylbenzene	600	U	1000000(d)	1000000(d)
1330-20-7	m+p-Xylenes	900	Ū	NA	NA
1330-20-7	o-Xylene	600	U	NA	NA
100-42-5	Styrene	600	· U	23000	97000
75-25-2	Bromoform	600	U	86000	370000
79-34-5	1,1,2,2-Tetrachloroethane	600	Ŭ	34000	70000(k)

SOIL CLEANUP CRITERIA (MG/KG)

(LAST REVISED-7/11/96)

- CRITERIA ARE HEALTH BASED USING AN INCIDENTAL INGESTION EXPOSURE PATHWAY EXCEPT WHERE NOTED BELOW. CRITERIA ARE SUBJECT TO CHANGE BASED ON SITE SPECIFIC FACTORS (E.G., AQUIFER CLASSIFICATION, SOIL TYPE, NATURAL BACKGROUND, ENVIRONMENTAL IMPACTS, ETC.) HEALTH BASED CRITERION EXCEEDS THE 10.000 MG/KG MAXIMUM FOR TOTAL ORGANIC CONTAMINANTS. HEALTH BASED CRITERION EXCEEDS THE 1000 MG/KG MAXIMUM FOR TOTAL VOLATILE ORGANIC **CONTAMINANTS** CLEANUP STANDARD PROPOSAL WAS BASED ON NATURAL BACKGROUND. HEALTH BASED CRITERION IS LOWER THAN ANALYTICAL LIMITS; CLEANUP CRITERION BASED ON PRACTICAL QUANTITATION LEVEL. CRITERION HAS BEEN RECALCULATED BASED ON NEW TOXICOLOGICAL DATA. ^ <u>(</u>(H) THE IMPACT TO GROUND WATER VALUES FOR INORGANIC CONSTITUENTS WILL BE DEVELOPED BASED UPON SITE SPECIFIC CHEMICAL AND PHYSICAL PARAMETERS. ORIGINAL CRITERION WAS INCORRECTLY CALCULATED AND HAS BEEN RECALCULATED. TYPOGRAPHICAL ERROR. (K) CRITERIA BASED ON INHALATION EXPOSURE PATHWAY, WHICH YIELDED A MORE STRINGENT CRITERION THAN THE INCIDENTAL INGESTION EXPOSURE PATHWAY.
- (L) New Criterion derived using methodology in the basis and background document.
 - (M) CRITERION BASED ON ECOLOGICAL (PHYTOTOXICITY) EFFECTS.
- LEVEL OF THE HUMAN HEALTH BASED CRITERION IS SUCH THAT EVALUATION FOR POTENTIAL ENVIRONMENTAL IMPACTS ON A SITE BY SITE BASIS IS RECOMMENDED.

- (O) LEVEL OF THE CRITERION IS SUCH THAT EVALUATION FOR POTENTIAL ACUTE EXPOSURE HAZARD IS RECOMMENDED.
- (P) CRITERION BASED ON THE USEPA INTEGRATED EXPOSURE UPTAKE BIOKINETIC (IEUBK) MODEL UTILIZING THE DEFAULT PARAMETERS. THE CONCENTRATION IS CONSIDERED TO PROTECT 95% OF TARGET POPULATION (CHILDREN) AT A BLOOD LEVEL OF 10 UG/DL.
- Q) CRITERIA WAS DERIVED FROM A MODEL DEVELOPED BY THE SOCIETY FOR ENVIRONMENTAL GEOCHEMISTRY AND HEALTH (SEGH) AND WAS DESIGNED TO BE PROTECTIVE FOR ADULTS IN THE WORKPLACE.
- (R) INSUFFICIENT INFORMATION AVAILABLE TO CALCULATE IMPACT TO GROUND WATER CRITERIA.

TABLE 4

Princepture of

Table 4 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:

FMETL

NJDEP#

13461

Matrix: (soil/water) WATER

Date Sampled:

12/10/98

Location:

<u>429</u>

Lab Sample ID: 4135.01(Bldg 429)

Dute Sump.	<u> 12/10/20</u>	<u>125</u>		200 bumple 1D. 4135.01(Bldg 425)			
CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA	
107028	Acrolein	1.85	Not Detected		50	no	
107131	Acrylonitrile	2.78	Not Detected		50	no	
75650	tert-Butyl alcohol	8.52	Not Detected		nle	no	
1634044	Methyl-tert-Butyl ether	0.16	Not Detected		nle	no	
108203	Di-isopropyl ether	0.25	Not Detected		nle	no	
	Dichlorodifluoromethane	1.68	Not Detected		nle	no	
74-87-3	Chloromethane	1.16	Not Detected		30	no	
75-01-4	Vinyl 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	по	
75-69-4	Trichlorofluoromethane	0.50	Not Detected		nle	no	
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		nle	no	
75-09-2	Methylene Chloride	0.24	Not Detected		2	no	
156-60-5	trans-1,2-Dichloroethene	0.16	Not Detected		100	no	
75-35-3	1,1-Dichloroethane	0.12	Not 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	Not Detected		6	no	
75-55-6	1,1,1-Trichloroethane	0.23	Not Detected		30	no	
56-23-5	Carbon Tetrachloride	0.47	Not Detected		2	no	
71-43-2	Веплеге	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	-	1	no	
110-75-8	2-Chloroethyl vinyl ether	0.65	Not Detected	-	nle	по	
10061-01-5	cis-1,3-Dichloropropene	0.69	Not Detected		nle	no	

Table 4 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:

FMETL

NJDEP#

13461

Matrix: (soil/water) WATER

Date Sampled:

12/10/98

Location:

<u>429</u>

Lab Sample ID: 4135.01(Bldg 429)

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	no-
108-88-3	Toluene	0.37	Not Detected		1000	no
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-Xylenes	1.14	Not Detected		nle	no
1330-20-7	o-Xylene	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	no
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	1,4-Dichlorobenzene	0.57	Not Detected		75	no
95-50-1	1,2-Dichlorobenzene	0.64	Not Detected		600	no

Table 4 SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name:

FMETL

NJDEP#

13461

Matrix: (soil/water) WATER

Date Sampled:

<u>12/</u>10/98

Location:

<u>429</u>

Lab Sample ID: 4135.02(Bldg 429)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	5.00	Not Detected		nle	no
62-75-9	N-nitroso-dimethylamine	0.94	Not Detected		20	no
62-53-3	Aniline	0.15	Not Detected		nle	no
111-44-4	bis(2-Chloroethyl)ether	0.48	Not Detected		10	no
541-73-1	1,3-Dichlorobenzene	0.23	Not Detected		600	no
106-46-7	I,4-Dichlorobenzene	0.23	Not Detected		75	no
100-51-6	Benzyl alcohol	0.18	Not Detected		nle	no
95-50-1	1,2-Dichlorobenzene	0.16	Not Detected		600	no
108-60-1	bis(2-chloroisopropyl)ether	0.61	Not Detected	-	300	по
621-64-7	n-Nitroso-di-n-propylamine	0.33	Not Detected		20	no
67-72-1	Hexachloroethane	0.46	Not Detected		10	no
98-95-3	Nitrobenzene	0.35	Not Detected		10	no
78-59-1	Isophorone	0.46	Not Detected		100	no
111-91-1	bis(2-Chloroethoxy)methane	0.26	Not Detected		nle	no
120-82-1	1,2,4-Trichlorobenzene	0.25	Not Detected	_	9	no
91-20-3	Naphthalene	0.25	Not Detected		nle	no
106-47-8	4-Chloroaniline	0.19	Not Detected		nle	no
87-68-3	Hexachlorobutadiene	0.38	Not Detected		1	no
91-57-6	2-Methylnaphthalene	0.16	Not Detected		nle	по
77-47-4	Hexachlorocyclopentadiene	1.50	Not Detected		50	no
91-58-7	2-Chloronaphthalene	0.32	Not Detected		nle	no
88-74-4	2-Nitroaniline	0.21	Not Detected		nle	no
131-11-3	Dimethylphthalate	0.18	Not Detected	-	7000	no
208-96-8	Acenaphthylene	0.19	Not Detected		nle	по

Table 4 SEMI-VOLATILE ANALYSIS DATA SHEET

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

Date Sampled: 12/10/98 Location: 429 Lab Sample ID: 4135.02(Bldg 429)

- a	<u> </u>			240 5.	pie 12. 1133.0	2(Diag 12)
CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.31	Not Detected		nle	no
99-09-2	3-Nitroaniline	0.26	Not Detected		nle	no
83-32-9	Acenaphthene	0.26	Not Detected		400	no
132-64-9	Dibenzofuran	0.32	Not Detected		nle	no
121-14-2	2,4-Dinitrotoluene	0.36	Not Detected		10	no
84-66-2	Diethylphthalate	0.82	Not Detected		5000	no
86-73-7	Fluorene	0.29	Not Detected		300	no
7005-72-3	4-Chlorophenyl-phenylether	0.31	Not Detected		nle	no
100-01-6	4-Nitroaniline	0.90	Not Detected		nle	no
86-30-6	n-Nitrosodiphenylamine	0.23	Not Detected		20	no
103-33-3	Azobenzene	0.80	Not Detected		nle	· no
101-55-3	4-Bromophenyl-phenylether	0.55	Not Detected		nle	по
118-74-1	Hexachlorobenzene	0.82	Not Detected		10	no
85-01-8	Phenanthrene	0.18	Not Detected		nle	no
120-12-7	Anthracene	0.19	Not Detected		2000	no
84-74-2	Di-n-butylphthalate	0.23	Not Detected		900	no
206-44-0	Fluoranthene	0.41	Not Detected		300	no
92-87-5	Benzidine	1.45	Not Detected		50	no
129-00-0	Pyrene	0.32	Not Detected		200	no
85-68-7	Butylbenzylphthalate	0.47	Not Detected		100	no
56-55-3	Benzo[a]anthracene	0.22	Not Detected		10	no
91-94-1	3,3'-Dichlorobenzidine	0.46	Not Detected		60	по
218-01-9	Chrysene	0.20	Not Detected		20	по
117-81-7	bis(2-Ethylhexyl)phthalate	0.51	Not Detected		30	no
117-84-0	Di-n-octylphthalate	0.82	Not Detected		100	no
205-99-2	Benzo[b]fluoranthene	0.37	Not Detected		10	по
207-08-9	Benzo[k]fluoranthene	0.32	Not Detected		2	no
50-32-8	Benzo[a]pyrene	0.31	Not Detected	-	20	по
193-39-5	Indeno[1,2,3-cd]pyrene	0.79	Not Detected	-	20	no
53-70-3	Dibenz[a,h]anthracene	0.28	Not Detected		20	no
191-24-2	Benzo[g,h,i]perylene	0.40	Not Detected		nle	no

Table 4 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:

FMETL

NJDEP#

13461

Matrix: (soil/water) WATER

Date Sampled:

1/12/99

Location:

<u>429</u>

Lab Sample ID: 4182.01(Bldg 429)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
107028	Acrolein	1.85	Not Detected		50	no
107131	Acrylonitrile	2.78	Not Detected	<u></u>	50	no
75650	tert-Butyl alcohol	8.52	Not Detected		nle	no
1634044	Methyl-tert-Butyl ether	0.16	Not Detected		nle	no
108203	Di-isopropyl ether	0.25	Not Detected		nle	no
	Dichlorodifluoromethane	1.68	Not Detected		nle	no
74-87-3	Chloromethane	1.16	Not Detected		30	по
75-01-4	Vinyl Chloride	1.06	Not Detected		5	no
74-83-9	Bromomethane	1.10	Not Detected		10	по
75-00-3	Chloroethane	1.01	Not Detected		nle	no
75-69-4	Trichlorofluoromethane	0.50	Not Detected		nle	no
75-35-4	1, 1-Dichloroethene	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 Chloride	0.24	Not Detected		2	no
156-60-5	trans-1,2-Dichloroethene	0.16	Not Detected		100	no
75-35-3	1,1-Dichloroethane	0.12	Not Detected		70	no
108-05-4	Vinyl Acetate	0.78	Not Detected	- 4.	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	Not Detected		6	no
75-55-6	1,1,1-Trichloroethane	0.23	Not Detected	-	30	no
56-23-5	Carbon Tetrachloride	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		1	no
78-87-5	1, 2-Dichloropropane	0.40	Not Detected		1	по
75-27-4	Bromodichloromethane	0.55	Not Detected	-	1	по
110-75-8	2-Chloroethyl vinyl ether	0.65	Not Detected		nle	по
10061-01-5	cis-1,3-Dichloropropene	0.69	Not Detected		nle	no

6 of 8

Table 4 VOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name:

FMETL

NJDEP#

13461

Matrix: (soil/water) WATER

Date Sampled:

1/12/99

Location:

<u>429</u>

Lab Sample ID: 4182.01(Bldg 429)

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	no
108-88-3	Toluene	0.37	Not Detected		1000	no
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	no
591-78-6	2-Hexanone	0.71	Not Detected		nle	no
126-48-1	Dibromochloromethane	0.86	Not Detected		10	по
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-Xylenes	1.14	Not Detected		nle	no
1330-20-7	o-Xylene	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	no
79-34-5	1,1,2,2-Tetrachloroethane	0.47	Not Detected		2	по
541-73-1	1,3-Dichlorobenzene	0.55	Not Detected		600	по
106-46-7	1,4-Dichlorobenzene	0.57	Not Detected		75	no .
95-50-1	1,2-Dichlorobenzene	0.64	Not Detected		600	no

7 of 8

Table 4 SEMI-VOLATILE ANALYSIS DATA SHEET

Lab Name:

FMETL

NJDEP#

13461

Matrix: (soil/water) WATER

Date Sampled:

1/12/99

Location:

<u>429</u>

Lab Sample ID: 4182.02(Bldg 429)

CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
110-86-1	Pyridine	5.00	Not Detected		nle	no
62-75-9	N-nitroso-dimethylamine	0.94	Not Detected		20	no
62-53-3	Aniline	0.15	Not Detected		nle	no
111-44-4	bis(2-Chloroethyl)ether	0.48	Not Detected		10	no
541-73-1	1,3-Dichlorobenzene	0.23	Not Detected		600	no
106-46-7	1,4-Dichlorobenzene	0.23	Not Detected		75	no
100-51-6	Benzyl alcohol	0.18	Not Detected		nle	no
95-50-1	1,2-Dichlorobenzene	0.16	Not Detected		600	no
108-60-1	bis(2-chloroisopropyl)ether	0.61	Not Detected		300	no
621-64-7	n-Nitroso-di-n-propylamine	0.33	Not Detected		20	no
67-72-1	Hexachloroethane	0.46	Not Detected		10	no
98-95-3	Nitrobenzene	0.35	Not Detected		10	no
78-59-1	Isophorone	0.46	Not Detected		100	по
111-91-1	bis(2-Chloroethoxy)methane	0.26	Not Detected		nle	no
120-82-1	1,2,4-Trichlorobenzene	0.25	Not Detected		9	по
91-20-3	Naphthalene	0.25	Not Detected		nle	по
106-47-8	4-Chloroaniline	0.19	Not Detected		nle	no
87-68-3	Hexachlorobutadiene	0.38	Not Detected		1	no
91-57-6	2-Methylnaphthalene	0.16	Not Detected		nle	по
77-47-4	Hexachlorocyclopentadiene	1.50	Not Detected		50	no
91-58-7	2-Chloronaphthalene	0.32	Not Detected		nle	по
88-74-4	2-Nitroaniline	0.21	Not Detected	-	nle	по
131-11-3	Dimethylphthalate	0.18	Not Detected		7000	no
208-96-8	Acenaphthylene	0.19	Not Detected		nle	no

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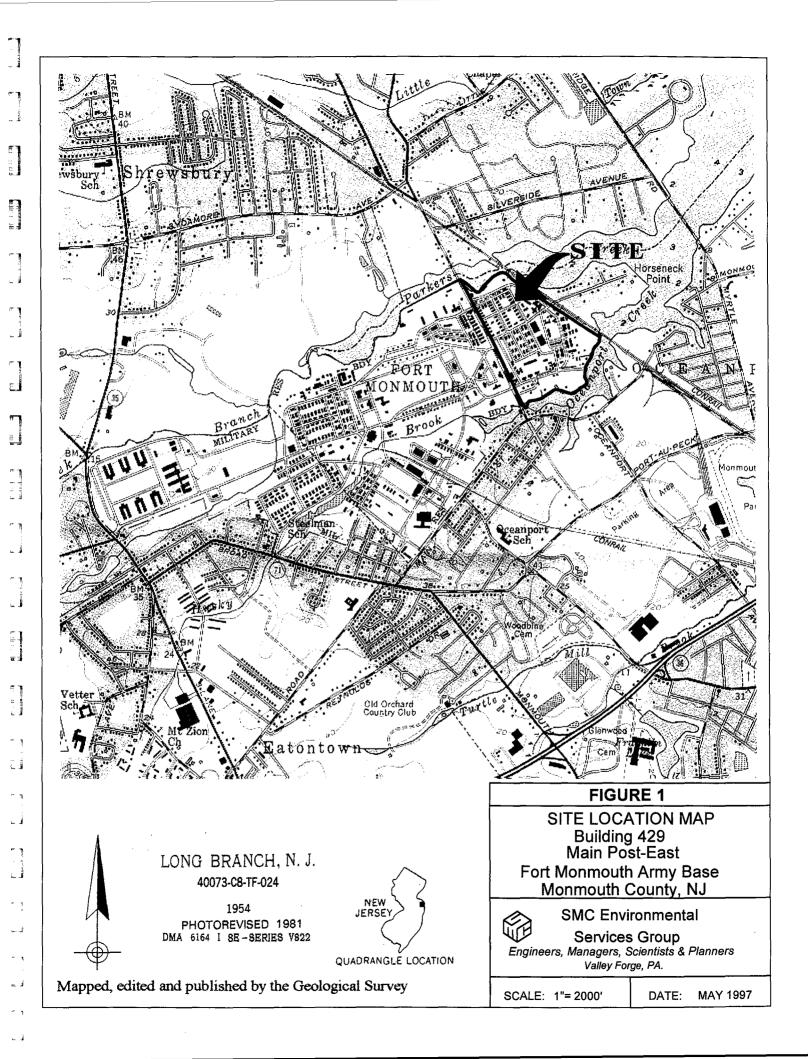
Table 4 SEMI-VOLATILE ANALYSIS DATA SHEET

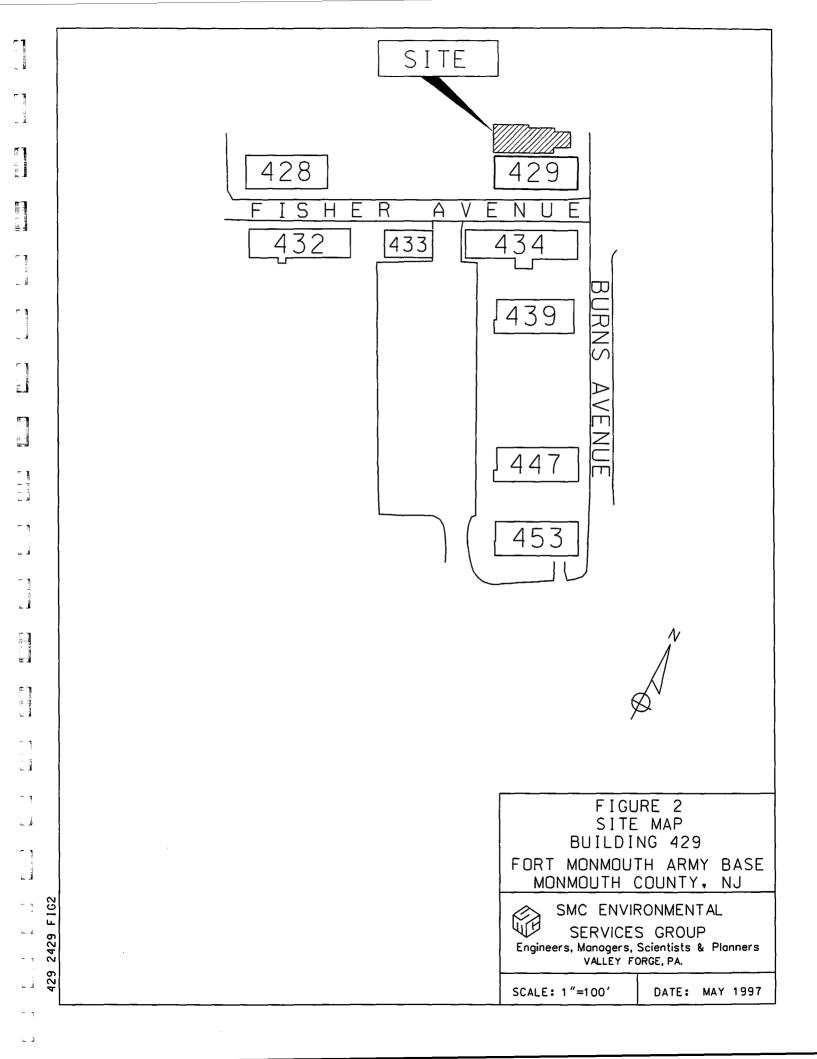
Lab Name: FMETL NJDEP # 13461 Matrix: (soil/water) WATER

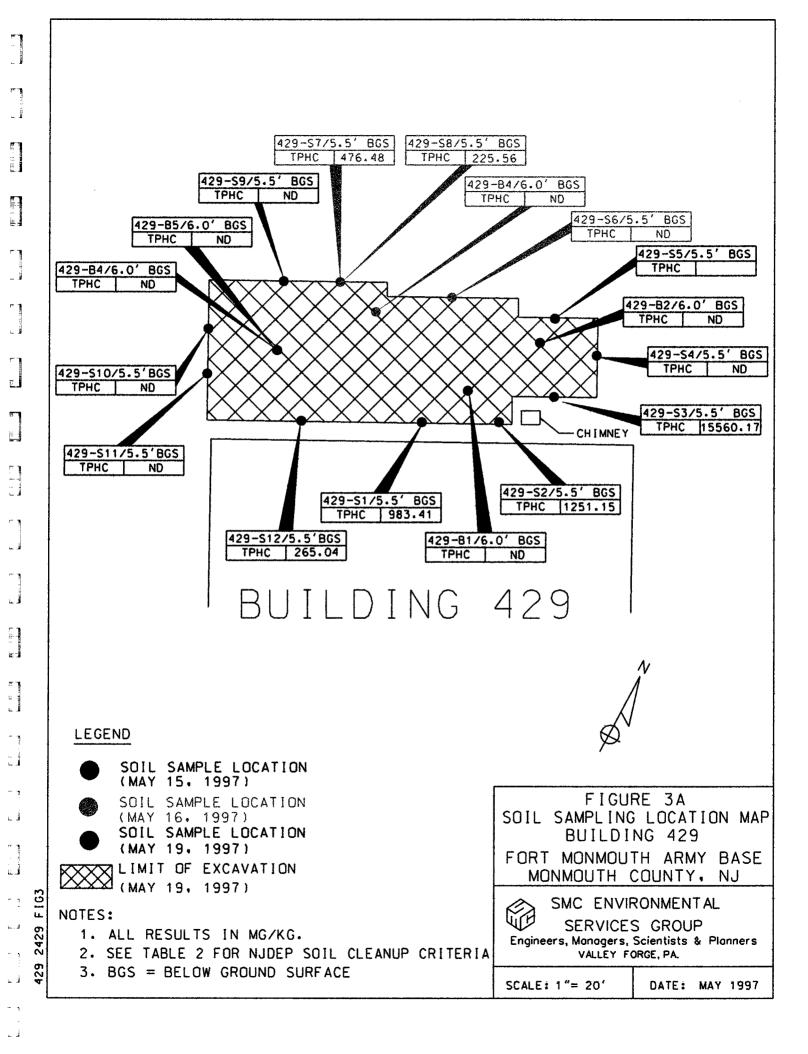
Date Sampled: 1/12/99 Location: 429 Lab Sample ID: 4182.02(Bldg 429)

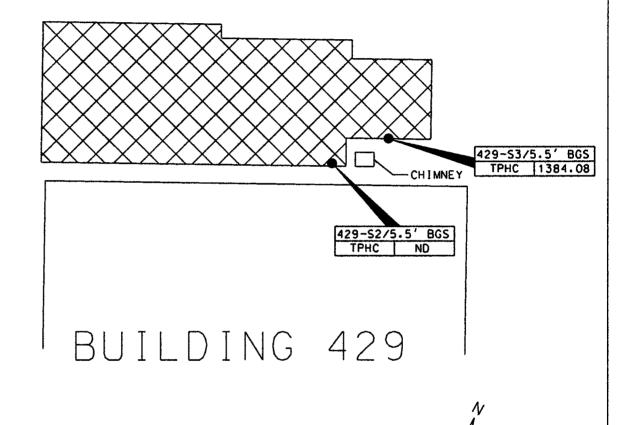
			<u> </u>			2(2108 125)
CAS NO.	COMPOUND NAME	MDL (ug/L)	RESULTS	QUALIFIER	REGULATORY LEVEL(ug/L)	EXCEEDS CRITERIA
606-20-2	2,6-Dinitrotoluene	0.31	Not Detected		nle	по
99-09-2	3-Nitroaniline	0.26	Not Detected		nle	no
83-32-9	Acenaphthene	0.26	1.15 ug/L		400	no
132-64-9	Dibenzofuran	0.32	Not Detected		nle	no
121-14-2	2,4-Dinitrotoluene	0.36	Not Detected		10	no
84-66-2	Diethylphthalate	0.82	Not Detected	~-	5000	по
86-73-7	Fluorene	0.29	1.84 ug/L		300	по
7005-72-3	4-Chlorophenyl-phenylether	0.31	Not Detected		nle	по
100-01-6	4-Nitroaniline	0.90	Not Detected		nle	no
86-30-6	n-Nitrosodiphenylamine	0.23	Not Detected		20	no
103-33-3	Azobenzene	0.80	Not Detected		nle	no
101-55-3	4-Bromophenyl-phenylether	0.55	Not Detected		nle	no
118-74-1	Hexachlorobenzene	0.82	Not Detected		10	no
85-01-8	Phenanthrene	0.18	Not Detected	-	nle	no
120-12-7	Anthracene	0.19	Not Detected		2000	no
84-74-2	Di-n-butylphthalate	0.23	Not Detected		900	no
206-44-0	Fluoranthene	0.41	Not Detected		300	по
92-87-5	Benzidine	1.45	Not Detected		50	no
129-00-0	Pyrene	0.32	Not Detected		200	no
85-68-7	Butylbenzylphthalate	0.47	Not Detected		100	no
56-55-3	Benzo[a]anthracene	0.22	Not Detected		10	no
91-94-1	3,3'-Dichlorobenzidine	0.46	Not Detected		60	no
218-01-9	Chrysene	0.20	Not Detected		20	no
117-81-7	bis(2-Ethylhexyl)phthalate	0.51	Not Detected		30	no
117-84-0	Di-n-octylphthalate	0.82	Not Detected	-	100	no
205-99-2	Benzo[b]fluoranthene	0.37	Not Detected		10	no
207-08-9	Benzo[k]fluoranthene	0.32	Not Detected		2	no
50-32-8	Benzo[a]pyrene	0.31	Not Detected		20	no
193-39-5	Indeno[1,2,3-cd]pyrene	0.79	Not Detected	-	20	no
53-70-3	Dibenz[a,h]anthracene	0.28	Not Detected		20	no
191-24-2	Benzo[g,h,i]perylene	0.40	Not Detected		nle	no
						

FIGURES











SOIL SAMPLE LOCATION
(FEBRUARY 15, 2000, AND MARCH 18, 2000)
LIMIT OF EXCAVATION
(MAY 19, 1997)

NOTES:

- 1. ALL RESULTS IN MG/KG.
- 2. SEE TABLE 2 FOR NJDEP SOIL CLEANUP CRITERIA
- 3. BGS = BELOW GROUND SURFACE

FIGURE 3B
SOIL SAMPLING LOCATION MAP
BUILDING 429
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ



SMC ENVIRONMENTAL SERVICES GROUP

Engineers, Managers, Scientists & Planners VALLEY FORGE, PA.

SCALE: 1"= 20'

DATE: MAY 1997

29 2429 FIG3

APPENDIX A SOIL ANALYTICAL DATA PACKAGE

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEPE # 13461

REPORT OF ANALYSIS

Client:

U.S. Army

DPW, SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Project:

Total Petroleum Hydrocarbons

96-1226 AREA-429

> Project # 2551 Date Rec. 05/16/97 Date Comp. 05/21/97 Released by:

> > Daniel K. Wright Laboratory Director

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Method Summary

NJDEP Method OQA-QAM-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 168
1. Method Detection Limits provided.	
2. Method Blank Contamination - If yes, list the sample and the corresponding concentrations in each blank.	V
3. Matrix Spike Results Summary Meet Criteria. (If not met, list the sample and corresponding recovery which falls outside the acceptable range).	
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 Environmental Testing Laboratory

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

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: SMC/Chude Appleby		Project No: 96-1226			Analysis Parameters						Comments:			
Phone #:(616) 2	<i>r</i>	Location:			4					00 VO+15 on				
()DERA XOMA)Other:	4	rea 4	29		$ \pm\rangle$, <i>[</i> 2]			\ _\S\				any samples that have a TPHC
Samplers Name / Cor	npany: Oacid H. Oan	iels /s	SMC	Sample	#	19	. 2			+				above 1,000 PDM
Lab Sample I.D.	Sample Location	Date	Time	Туре	bottles		.%			120				above 1,000 ppm, Remarks / Preservation Method
2551 01	429-51	5.15.97	16:50	Soil	2	X	X				;			
101	429-52		10:55		2	X	X							
03	429-53		11:00		2	X	X							
04	429-B1		11:05			X	<u>/</u>							
05	429-54		12:50			X	X							
06	429-55		12:55			X	X							
07	429~82	\bigvee	13700			X	X							
08	429 B3	5.16.97	11:35			X	X							
09	429-56		11:40		1	X	X							
/0	429-57		11:45		. 1	乂	X							
11	429-58		11:50	<u>.</u>	1.	X	X							
V 12	429-5P1	V	11:55	V	1	X	X							
													<u> </u>	
			Received by (signature):		Relino	Relinquished by (signature):		, <u> </u>	Date/	ate/Time: Received by (signature):		(signature):		
Relinquished by (signatur	Received by (signature): Relin		Relino	inquished by (signature):		Date/	Date/Time: Received by (signature):		(signature):					
Report Type: ()Full, Reduced, ()Standard, ()Screen / non-certified Turnaround time: ()Standard 4 wks, Rush 2 Days, ()ASAP Verbal Hrs.) Remarks: See Lomments Section														

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

Client:

U.S. Army

Lab. ID#:

2551

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 #:

173--4 B.F.-41

ADEA 400

Ext. Meth:	Shake			Location #:		AREA 429
Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
2551.01	429-S1	1.00	15.59	87.84	172	983.41
2551.02	429-S2	1.00	15.77	86.61	172	1251.15
2551.03	429-S3	1.00	15.09	81.36	191	15560.17
2551.04	429-B1	1.00	16.23	74.77	194	ND
2551.05	429-S4	1.00	16.03	83.78	175	ND
2551.06	429-S5	1.00	16.19	81.87	177	ND
2551.07	429-B2	1.00	15.56	82.35	183	ND
2551.08	429-B3	1.00	15.72	85.57	175	ND
2551.09	429-S6	1.00	15.33	85.26	180	ND
2551.10	429-S7	1.00	15.25	83.15	185	476.48
2551.11	429-S8	1.00	15.11	80.98	192	225.56
2551.12	429-SP1	1.00	15.62	85.05	177	259.35
			·			
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	
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	_/
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	<u></u>
	oratory Manager or Environmental Consultant's Signature	

Laboratory Certification #13461

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

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEPE # 13461

REPORT OF ANALYSIS

Client:

U.S. Army

DPW, SELFM-PW-EV

Bldg. 173

Ft. Monmouth, NJ 07703

Project:

Total Petroleum Hydrocarbons

96-1226

AREA-429

Project # 2558 Date Rec. 05/19/97 Date Comp. 05/21/97 Released by:

> Daniel K. Wright Laboratory Director

> > 1

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MS/MSD Results Summary	11
Quality Control Spike Summary	12
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Method Summary

NJDEP Method OQA-QAM-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

	<u>No Yes</u>
1. Method Detection Limits provided.	
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).	_ <
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

1



Fort Monmouth Environmental Testing Laboratory

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

NJDEP Certification #13461

Tel (908)532-4359 Fax (908)532-3484 EMail:appleby@doim6.monmouth.army.mil

Chain of Custody Record

Project No: 96-1226 Customer: 5 MC / Chuck-Apple by **Analysis Parameters** Comments: Due votis on 245-2700 Phone #: Location: Area 429 any samples that Aque a (MA ()Other:)DERA Daniels Samplers Name / Company: David H. Lab Sample I.D. Sample Location Date Type bottles Remarks / Preservation Method Time 2558.01 5.19.97 13:10 50:1 13:15 13:20 VERWATED OVA'S 429-512 13:25 429-B4 13:30 13:35 Received by (signature): Date/Time: Relinquished by (signature): Date/Time: Received by (signature): Relinquished by (signature): Date/Time: Relinquished by (signature): Received by (signature): Date/Time: Report Type: (_)Full, KReduced, (_)Standard, (_)Screen / non-certified Remarks: Turnaround time: ()Standard 4 wks, ()Rush Hrs.

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

Client:

U.S. Army

Lab. ID#:

2558

DPW. SELFM-PW-EV

Date Rec'd:

Bldg. 173

Analysis Start:

Analysis Complete:

19-May-97 19-May-97

Ft. Monmouth, NJ 07703

21-May-97

Analysis:

OQA-QAM-025

UST Reg. #:

Matrix:

Soil

Closure #:

Analyst:

P. Skelton

DICAR #:

Ext. Meth:	Shake			Location #:		AREA 429
Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg)
2558.01	429-S9	1.00	15.26	78.54	196	ND
2558.02	429-S10	1.00	15.27	85.92	179	ND
2558.03	429-S11	1.00	15.97	87.98	167	ND
2558.04	429-S12	1.00	16.86	81.92	170	265.04
2558.05	429-B4	1.00	15.27	87.77	175	ND
2558.06	429-B5	1.00	14.98	89.27	176	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 <u>and</u> 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	_/
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	
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	

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

Laboratory Certification #13461

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: IJO# 100004

Bldg. 429

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received		
429-S2 5.5'	5170.01	Soil	15-Feb-00 10:50	02/15/00		
429-S3 5.5'	5170.02	Soil	15-Feb-00 11:00	02/15/00		

ANALYSIS: FORT MONMOUTH ENVIRONMENTAL LAB TPHC, %SOLIDS

ENCLOSURE: CHAIN OF CUSTODY RESULTS

Daniel Wright/Date
Laboratory Director

7-79-00

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Blank Spike Summary	12
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Method Summary

NJDEP Method OQA-QAM-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 orbital 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.

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

TPHC Conformance/Non-conformance Summary Report

1.	Method Detection Limits provided.		Indicate Yes, No, N/A
2.	Method Blank Contamination – If yes, list corresponding concentrations in each bla		_024_
3.	Matrix Spike Results Summary Meet Cri (If not met, list the sample and correspondable outside the acceptable range).		yes
4.	Duplicate Results Summary Meet Criteri (If not met, list the sample and correspondable outside the acceptable range).		Yes.
′ 5	IR Spectra submitted for standards, blank	ks and samples.	NA
6.	Chromatograms submitted for standards, if GC fingerprinting was conducted.	, blanks and samples	Ves.
7 .	Analysis holding time met. (If not met, list number of days exceeded	d for each sample).	Yes
Add	itional comments:		
		2-29-00	
Labo	oratory Manager	Date	



Fort Monmouth Environmental Testing Laboratory

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

Tel (732)532-4359 Fax (732)532-6263 EMail:wrightd@mail1.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: D. Desti	Project No: 18 -0004					Ana	lysis l	Comments:				
Phone #: 2 /4/5	Location: BUG. 4	174		7 %								
()DERA ()OMA ()Other:	,				10 5							
Samplers Name / Company: MANK LA	WA TUS	Sample	#	HC	WOUHD							
Lab Sample I.D. Sample Location	Date Time	Туре	oottles	J	Ď							Remarks / Preservation Method
5170, 1429-52 5.5'	2-15-00 4780	SOIL	/	X	X							2400
2 429-53 5.5'	1. 1100	"	1	×	X							/1
							<u> </u>					
· · · · · · · · · · · · · · · · · · ·												
							<u> </u>	ļ				
								<u> </u>				
			_									
								ļ				
Relinquished by (signature): Date/Time: Received by (signature): Relinquished by (signature): Date/Time: Received by (signature): Date/Time: Received by (signature):							signature):					
Relinquished by (signature): Date/Time:	Received by (signature):		Relinquished by (signature): Date/Time: Received by			ed by (signature):					
Report Type: ()Full, ()Reduced, ()Standard, ()Screen / non-certified, ()EDD Remarks: SHANGS 7.B.+ F.B W/ BLSG. 2043 Furnaround time: ()Standard 3 wks, ()Rush Days, ()ASAP Verbal Hrs.												

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

Client:

U.S. Army

Project #:

5170

DPW. SELFM-PW-EV

Ft. Monmouth, NJ 07703

Location:

Bldg.429

Bldg. 173

UST Reg. #:

Analysis:

OQA-QAM-025

Date Received:

15-Feb-00

Matrix:

Soil

Date Extracted:

15-Feb-00

Inst. ID. :

GC TPHC INST. #1

Extraction Method:

Shake

Column Type:

RTX-5, 0.32mm ID, 30M

Analysis Complete:

22-Feb-00

Injection Volume:

1uL

Analyst:

D. Costagliola

Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Result (mg/kg) ND	
5170.01	429-52	1.00	15.20	79.98	193		
5170.02	429-53	1.00	15.20	82.13	188	1384.08	
					· · · · · · · · · · · · · · · · · · ·		
METHOD BLANK	TBLK328	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 <u>and</u> 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	~
5.	Chain of Custody submitted	<u>/</u>
6.	Samples submitted to lab within 48 hours of sample collection	
7.	Methodology Summary submitted	<u> </u>
8.	Laboratory Chronicle and Holding Time Check submitted	
9 .	Results submitted on a dry weight basis	
	Method Detection Limits submitted Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	
Date	Laboratory Manager or Environmental Consultant's Signature	2

Laboratory Certification #13461

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

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. 429

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
429-S3 5.5'	5260.01	Soil	18-Mar-00 10:20	03/20/00

ANALYSIS: FORT MONMOUTH ENVIRONMENTAL LAB VOA+15, %SOLIDS

ENCLOSURE: CHAIN OF CUSTODY RESULTS

> Daniel Wright/Date Laboratory Director

4-25-02

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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:wrightd@mail1.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer:	DESA!		Project No:				Analysis Parameters						Comments:		
Phone #: \Q 475)		Location: 7	3206,4	29 ¥	-	V	v g							
()DERA ()OMA (()Other:						>04+	<i>10</i>							
Samplers Name / Cor	npany: MAN	Llaura	-TVS-F	WS 07	Sample	#	+	OHLOS							
Lab Sample I.D.	Sample I	Location	Date	Time	Туре	bottles	15	D							Remarks / Preservation Method
5500. 1	429-53	5.51	3.18-00	1020	Soic	2	×	X							VADIDA 24°C
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Relinquished by (signatur	re): I	Date/Time:	Received by (signature): LUHU	is	Relinquished by (signature): Date/Time: Received b						ved by (signature):		
Relinquished by (signatur		Date/Time:	Received by (Relinquished by (signature): Date/Time: Reco					Receiv	ved by (signature):		
Report Type: ()Full, ()Reduced, ()Standard, ()Screen / non-certified, ()EDD Remarks: * SAM FLED ON 2-15-00 Commaround time: ()Standard 3 wks, ()Rush Days, ()ASAP VerbalHrs.									10 Fill	2 TPH	C - RESAMRING				

METHODOLOGY SUMMARY

Method Summary

NJDEP Method 8260

Gas Chromatographic Determination of Volatiles in Soil

A 50uL volume of Methanol Samples soil is added to 5mL aliquot of water. Surrogates and internal standards are added and the sample is placed on a purge and trap concentrator. The sample as purged and desorbed into a GC/MS system.

Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent solid, methanol volume and concentration.

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 5260

Site: Bldg. 429

Date

Hold Time

Date Sampled

03/18/00

NA

Receipt/Refrigeration

03/18/00*

NA

Analyses

1. Volatile Organics

03/23/00

14 days

• Samples collected and refrigerated on 03/18/00, Laboratory received the sample on Monday 03/20/00.

CONFORMANCE NON-CONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

		Indicate Yes, No, N/
l.	Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)	4
2.	Retention times for chromatograms provided	4
3.	GC/MS Tune Specifications	
	a. BFB Meet Criteriab. DFTPP Meet Criteria	<u> </u>
١.	GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series	1
5.	GC/MS Calibration - Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series	4
5;	GC/MS Calibration Requirements	
	a. Calibration Check Compounds Meet Criteriab. System Performance Check Compounds Meet Criteria	4
7.	Blank Contamination - If yes, List compounds and concentrations in each blank:	N
	a. VOA Fraction	
	b. B/N Fraction	
	c. Acid Fraction	
3.	Surrogate Recoveries Meet Criteria	4
	If not met, list those compounds and their recoveries, which fall outside the acceptable range:	
	a. VOA Fraction	
	b. B/N Fraction	
	c. Acid Fraction	
	If not met, were the calculations checked and the results qualified as "estimated"?	
) .	Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range)	¥
	a. VOA Fraction	
	b. B/N Fraction	
	c. Acid Fraction	

GC/MS Analysis Conformance/Non-Conformance Summary (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 range) a. VOA Fraction b. B/N Fraction c. Acid Fraction	4
11. Extraction Holding Time Met	4
If not met, list number of days exceeded for each sample:	
12. Analysis Holding Time Met If not met, list number of days exceeded for each sample:	<u> </u>
Additional Comments:	
	······································
Laboratory Manager: Date: 4-25-00	

VOLATILES ORGANICS

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US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY NJDEP CERTIFICATION # 13461

Definition of Qualifiers

MDL: Method Detection Limit

e Î

J : Compound Identified Below Detection Limit
 B : Compound is in Both Sample and Blank
 D : Results are from a Dilution of the Sample
 U : Compound Searched for but not Detected
 E : Compound Exceeds Calibration Limit

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

Vblk238 Lab Name: **FMETL** NJDEP#: 13461 Project: UST Case No.: 5260 Location: 429 SDG No.: SOIL Matrix: (soil/water) Lab Sample ID: Vblk238 Sample wt/vol: 10.0 Lab File ID: (g/ml) G VA007565.D Level: (low/med) **MED** Date Received: 3/20/00 % Moisture: not dec. 0 Date Analyzed: 3/23/00 GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0 Soil Aliquot Volume: 50 Soil Extract Volume: 25000 (uL) (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/KG	Q
107028	Acrolein	1800	U
107131	Acrylonitrile	1800	U
75650	tert-Butyl alcohol	3200	U
1634044	Methyl-tert-Butyl ether	750	U
108203	Di-isopropyl ether	500	U
	Dichlorodifluoromethane	1000	U
74-87-3	Chloromethane	250	U
75-01-4	Vinyl Chloride	750	U
74-83-9	Bromomethane	500	U
75-00-3	Chloroethane	750	U
75-69-4	Trichlorofluoromethane	500	U
75-35-4	1,1-Dichloroethene	250	U
67-64-1	Acetone	500	U
75-15-0	Carbon Disulfide	250	U
75-09-2	Methylene Chloride	500	U
156-60-5	trans-1,2-Dichloroethene	500	U
75-35-3	1,1-Dichloroethane	250	U
108-05-4	Vinyl Acetate	750	U
78-93-3	2-Butanone	750	U
	cis-1,2-Dichloroethene	250	U
67-66-3	Chloroform	250	U
75-55-6	1,1,1-Trichloroethane	250	U
56-23-5	Carbon Tetrachloride	500	<u> </u>
71-43-2	Benzene	250	U
107-06-2	1,2-Dichloroethane	500	U
79-01-6	Trichloroethene	250	U
78-87-5	1,2-Dichloropropane	250	U
75-27-4	Bromodichloromethane	250	U
110-75-8	2-Chloroethyl vinyl ether	500	U
10061-01-5	cis-1,3-Dichloropropene	250	U
108-10-1	4-Methyl-2-Pentanone	500	U
108-88-3	Toluene	250	U
10061-02-6	trans-1,3-Dichloropropene	500	U
79-00-5	1,1,2-Trichloroethane	500	U
127-18-4	Tetrachloroethene	250	U
591-78-6	2-Hexanone	500	U
126-48-1	Dibromochloromethane	500	U
108-90-7	Chlorobenzene	250	U
100-41-4	Ethylbenzene	500	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FI	ΕL	.D	ID
----	----	----	----

				•	l Vblk238	- 1
Lab Name:	FMETL			NJDEP#: 13461	VBIRZOO	
Project:	UST	Ca	se No.: <u>5260</u>	Location: 429 S	SDG No.:	
Matrix: (soil/v	vater)	SOIL		Lab Sample ID:	Vblk238	
Sample wt/vo	ol:	10.0	(g/ml) G	_ Lab File ID:	VA007565.D	
Level: (low/med)		MED	_	Date Received:	3/20/00	
% Moisture: r	not dec.	0		Date Analyzed:	3/23/00	
GC Column:	RTX50	02. ID: 0.	25 (mm)	Dilution Factor:	1.0	
Soil Extract V	olume:	25000	(uL)	Soil Aliquot Volu	ume: 50	(uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND	(ug/L or ug/Kg)	UG/KG		Q
1330-20-7	m+p-Xylenes			750	U
1330-20-7	o-Xylene			500	U
100-42-5	Styrene			500	U
75-25-2	Bromoform			500	U
79-34-5	1,1,2,2-Tetrachloro	ethane		500	U

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

	FIELD ID:
	Vblk238
SDO	3 No ·

Lab Name: **FMETL** NJDEP#: 13461 Project: **UST** Case No.: 5260 Location: 429 Matrix: (soil/water) SOIL Lab Sample ID: Vblk238 Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA007565.D MED Level: (low/med) Date Received: 3/20/00 % Moisture: not dec. 0 Date Analyzed: 3/23/00 GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0 Soil Extract Volume: 25000 Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG Number TICs found:

CAS NO. **COMPOUND NAME** RT EST. CONC. Q

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

429-S3

Lab Name: NJDEP#: 13461 **FMETL** SDG No.: Project: UST Case No.: 5260 Location: 429 Matrix: (soil/water) SOIL Lab Sample ID: 5260.01 Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA007573.D Level: (low/med) MED Date Received: 3/20/00 Date Analyzed: 3/23/00 % Moisture: not dec. 17.3 Dilution Factor: 1.0 GC Column: RTX502. ID: 0.25 (mm) Soil Aliquot Volume: 50 Soil Extract Volume: 25000 (uL) (uL)

CONCENTRATION UNITS:

CAS NO.	COMPOUND (ug/L or ug/Kg)	UG/KG	Q
107028	Acrolein	2100	U
107131	Acrylonitrile	2100	U
75650	tert-Butyl alcohol	3900	U
1634044	Methyl-tert-Butyl ether	900	U
108203	Di-isopropyl ether	600	U
	Dichlorodifluoromethane	1200	U
74-87-3	Chloromethane	300	J
75-01-4	Vinyl Chloride	900	C
74-83-9	Bromomethane	600	U
75-00-3	Chloroethane	900	U
75-69-4	Trichlorofluoromethane	600	U
75-35-4	1,1-Dichloroethene	300	U
67-64-1	Acetone	600	U
75-15-0	Carbon Disulfide	300	U
75-09-2	Methylene Chloride	600	U
156-60-5	trans-1,2-Dichloroethene	600	U
75-35-3	1,1-Dichloroethane	300	U
108-05-4	Vinyl Acetate	900	U
78-93-3	2-Butanone	900	U
	cis-1,2-Dichloroethene	300	U
67-66-3	Chloroform	300	U
75-55-6	1,1,1-Trichloroethane	300	U
56-23-5	Carbon Tetrachloride	600	U
71-43-2	Benzene	300	U
107-06-2	1,2-Dichloroethane	600	U
79-01-6	Trichloroethene	300	U
78-87-5	1,2-Dichloropropane	300	U_
75-27-4	Bromodichloromethane	300	U
110-75-8	2-Chloroethyl vinyl ether	600	U
10061-01-5	cis-1,3-Dichloropropene	300	U
108-10-1	4-Methyl-2-Pentanone	600	U
108-88-3	Toluene	300	U
10061-02-6	trans-1,3-Dichloropropene	600	U
79-00-5	1,1,2-Trichloroethane	600	U
127-18-4	Tetrachloroethene	300	U
591-78-6	2-Hexanone	600	U
126-48-1	Dibromochloromethane	600	U
108-90-7	Chlorobenzene	300	U
100-41-4	Ethylbenzene	600	U

1A

VOLATILE ORGANICS ANALYSIS DATA SHEET

FIELD ID:

Q

429-S3 Lab Name: NJDEP#: 13461 **FMETL UST** Case No.: 5260 SDG No.: Project: Location: 429 SOIL Lab Sample ID: 5260.01 Matrix: (soil/water) 10.0 Lab File ID: Sample wt/vol: (g/ml) G VA007573.D Level: (low/med) **MED** Date Received: 3/20/00 % Moisture: not dec. 17.3 Date Analyzed: 3/23/00 GC Column: RTX502. ID: 0.25 (mm) Dilution Factor: 1.0 Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 50 (uL)

CONCENTRATION UNITS:

UG/KG

1330-20-7	m+p-Xylenes	900	U
1330-20-7	o-Xylene	600	U
100-42-5	Styrene	600	U
75-25-2	Bromoform	600	U
79-34-5	1,1,2,2-Tetrachloroethane	600	U

(ug/L or ug/Kg)

COMPOUND

CAS NO.

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

|--|

1 . 1 . 8.1	CART			NUDED	U. 40404		429-5	33
Lab Name:	FMETL			NJDEP	#: 13461		L	
Project:	UST		Case No.: 5260	Locat	tion: <u>429</u>	_ SE	OG No.:	
Matrix: (soil/	water)	SOIL		I	Lab Sample	D:	5260.01	
Sample wt/ve	ol:	10.0	(g/ml) G		Lab File ID:		VA007573.D	
Level: (low/r	ned)	MED	·	1	Date Receiv	ved:	3/20/00	
% Moisture:	not dec.	17.3		I	Date Analyz	zed:	3/23/00	<u></u>
GC Column:	RTX5	02. ID:	0.25 (mm)	ı	Dilution Fac	tor:	1.0	
Soil Extract \	Volume:	25000	(uL)	;	Soil Aliquot	Volur	ne: <u>50</u>	(uL
Number TICs	s found:	0		CONCENTR (ug/L or ug/k		ITS: /KG		
CAS NO.		COMF	POUND NAME		RT	ES	T. CONC.	Q

LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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9.	Results submitted on a dry weight basis	
	Method Detection Limits submitted Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	
Dat	Laboratory Manager or Environmental Consultant's Signature	

*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 APPENDIX B
GROUNDWATER ANALYTICAL DATA PACKAGE

FORT MONMOUTH ENVIRONMENTAL

TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

PHONE: (732)532-6224 FAX: (732)532-3484

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING **NJDEP LABORATORY CERTIFICATION # 13461**



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

Bldg, 429

Field Location No. &	Laboratory	Matrix	Date and Time	Date Received
Location	Sample ID#		Of Collection	
Trip Blank	4136.01	Aqueous	10-Dec-98	12/10/98
Field Blank	4136.02	Aqueous	10-Dec-98 10:20	12/10/98
Bldg. 429 6-10'	4135.01	Aqueous	10-Dec-98 13:20	12/10/98
Bldg. 429 6-10'	4135.02	Aqueous	10-Dec-98 13:43	12/10/98
Field Dup.	4135.03	Aqueous	10-Dec-98	12/10/98

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

Daniel Wright/Date Laboratory Director

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CHAIN OF CUSTODY



Fort Monmouth Environmental Testing Laboratory

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

Chain of Custody Record

Samplers Name / Company: Mark Laure 7 Lab Sample I.D. Sample Location	ocation: 8	RLDG, 4.	29										
Samplers Name / Company: Mark Laure The Lab Sample I.D. Sample Location		,,,,,,,	27		,, ,,								
Lab Sample I.D. Sample Location					YO A	B							
Lab Sample I.D. Sample Location	7. V.J. P	WS 07	Sample	#	A +	+							
4,25	Date	Time	Туре	bottles	15	15							Remarks / Preservation Method
4/35.01 BLOG, 429-6-101 12	2-10-98	1320	AQ	2	×								HEC
2 11 - 1.	11	1343	11	1		X	•						2400
3 Fiers Dup.	il	×	Ŋ	3	×	×							HOL/240C
		.,											
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			<u> </u>										
	<u>i</u>												
Relinquished by (signature): Date/Time: Relinquished by (signature): 12-10-98 1540	Received by (s	signature): UIM		Reling	uished	by (sig	nature)	:	Date/	Time:	Receiv	ed by ((signature):
			quished by (signature): Date/Time:				Time:	Received by (signature):					
Report Type: (_)Full, (_/Reduced, (_)Standard, (_)Screen / Turnaround time: (_/)Standard 4 wks, (_)Rush Days, (_)	/ non-certifie				Remar	ks:							



Fort Monmouth Environmental Testing Laboratory

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

Chain of Custody Record

Customer: CHAS. A	Project No:			Analysis Parameters							Comments:			
Phone #: A	Location: BUDG, 447			(<i>j</i> r										
()DERA (VOMA	Other:			,		>0A+	B							
Samplers Name / Co	mpany: Mann Laura	T-1.5. P	vs 07	Sample	#	A +	+							
Lab Sample I.D.	Sample Location	Date	Time	Туре	bottles	15	15							Remarks / Preservation Method
4136.1	TRIP BLANK	12-10-48		AQ.	2	×								HOL
2	FIELD BLANK	И	1020	н	3	×	×							406/2406
3	BLDG. 447 -6.5.10.5	i,	1050	a .	2	×								
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Relinquished by (signati	Received by (Relin	aquished by (signature):):	Date/Time: Received by			ved by	(signature):	
Relinquished by (signatt	Received by (signature): Relind		quished by (signature):):	Date/Time: Received by			ved by	(signature):			
Report Type: (_)Full, (_	Reduced, (_)Standard, (_)Scre	en / non-certifi	ed	, 7		Rema	rks:							
Jurnaround time: (✓Stan	dard 4 wks, (_)Rush Days	s, (_)ASAP Ve	rbal Hr	S.										

FIELD DOCUMENTATION

Post Remedial Groundwater Sampling at Former Underground Storage Tank Site [# 2 fuel oil]

FOR BLDG. # 429

Ground Water Sampling with the use of a Passively Placed Narrow Diameter Point (PPNDP)

Objective:

To collect a representative groundwater sample utilizing a narrow diameter point [PPNDP] This is a small diameter [1-inch OD] screened casing passively placed in a borehole. The casing is of p.v.c. construction.

1. Methods

A. A solid push - rod (bull point) is used to create a narrow diameter hole to a depth below the water table. A piece of schedule 40 PVC screen with 0.010-inch slots and an end cap is placed to the bottom of the hole. Glues or adhesives are not used for joining the casing. Threaded PVC casing is used. No filter or gravel pack is used.

2. Installation

- A. Using a Geoprobe, a borehole was advanced with a pre-probe with a diameter slightly larger than the casing. The hole was made to a depth of 12 feet. The water table was at 6 feet below ground surface.
- B. The screened section of PVC was placed into the borehole so the screened section was across the ground water table from 5 10 feet. Riser casing from 5 0 feet.

3. Purging

A. Three volumes of the standing water in the point were purged. The amount of water extracted was app. 0.123 gal. Three to five volumes are purged due to the potential for cross contamination of the screen from upper soil horizons. This was accomplished utilizing a peristaltic pump, and utilizing food grade tubing.

4. Sampling

A. Sampling methods, sample preservation requirements, sample handling times, decontamination procedure for field equipment, and frequency for field blanks, field duplicates and trip blanks conform to applicable industry methods such as those specified in the NJDEP "Field Sampling Procedures Manual" in effect as of the date on which sampling is performed. Any deviations from the methods in the "Field Sampling Procedures Manual" pursuant to N.J.A.C. 7:26E-1.6(c) has been approved by the person responsible for conducting the remediation.

All samples were preserved in the field immediately after collection and submitted to the laboratory as soon as possible and no later than 48 hours after sample collection.

The acquisition of samples and water level measurements were performed as recommended and described in the May 1992 edition of NJDEP Field Sampling Procedures Manual.

5. Quality Assurance/Quality Control

A. Decontamination

The associated equipment (bull point, riser pipe, etc.) was decontaminated between borings using the following procedure:

- 1. Remove all adherent soil material.
- 2. Wash with a laboratory grade glassware detergent.
- 3. Rinsed with potable water.
- 4. Rinse with distilled and deionized ASTM Type II water.

B. Field Blanks

- 1 Field blank was shared with bldg. 447, taken same day.
- C. Sample bottles: Supplied by Environmental Sampling Supply, Oakland, Calif.

 The sample bottles are certified clean and are sealed upon delivery.
- D. P.V.C. Screens: Supplied by Bedrock Enterprises, Forked River N.J.

Geoprobe Operator: Mark Laura Employer: U.S. Army, Fort Monmouth

Phone Number: [732] 532-8990

NJDEP License #: J-1486

Malle-fam 12-10 - 78 Mark Laura / Date

METHODOLOGY 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
1.	Chromatograms Labeled/Compounds Identified (Field Samples and Method Blanks)	yes
2.	Retention times for chromatograms provided	yes
3.	GC/MS Tune Specifications	'
	a. BFB Meet Criteriab. DFTPP Meet Criteria	yes yes
4.	GC/MS Tuning Frequency - Performed every 24 hours for 600 series and 12 hours for 8000 series	yes
5.	GC/MS Calibration - Initial Calibration performed before sample analysis and continuing calibration performed within 24 hours of sample analysis for 600 series and 12 hours for 8000 series	yes
6.	GC/MS Calibration Requirements	•
	a. Calibration Check Compounds Meet Criteriab. System Performance Check Compounds Meet Criteria	yes yes
7.	Blank Contamination - If yes, List compounds and concentrations in each blank:	<u>100</u>
	a. VOA Fraction b. B/N Fraction c. Acid Fraction	
8.	Surrogate Recoveries Meet Criteria	$\overline{\mathcal{W}}$
	If not met, list those compounds and their recoveries which fall outside the acceptable range:	
	a. VOA Fraction 12 Dichlorese than 2-24 122 % b. B/N Fraction c. Acid Fraction	
	If not met, were the calculations checked and the results qualified as "estimated"?	
9.	Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries which fall outside the acceptable range)	YES
	a. VOA Fraction b. B/N Fraction c. Acid Fraction へつ	

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 ran	nge) Yes
	a. VOA Fraction	
	b. B/N Fraction	
	c. Acid Fraction	
11.	Extraction Holding Time Met	Yes
	If not met, list the number of days exceeded for each sample:	
12.	Analysis Holding Time Met	465
	If not met, list the number of days exceeded for each sample:	· · · · · · · · · · · · · · · · · · ·
Add ——	litional Comments:	,
		
Labo	oratory Manager:Date:Date:Date:	7-99

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 4136

Site: Bldg. 429

		Date	Hold Time
Da	ite Sampled	12/10/98	NA
Re	eceipt/Refrigeration	12/10/98	NA
Ex	tractions		
1.	Base Neutrals	12/14/98	14 days
An	nalyses		
1. 2.	Volatile Organics Base Neutrals	12/15/98 12/21,22/98	14 days 40 days

VOLATILE ORGANICS

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

Definition of Qualifiers

MDL: Method Detection Limit

: Compound identified below detection limit В : Compound in both sample and blank : Results from dilution of sample D U : Compound searched for but not detected

015

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

Data File Nam vb02376.d

Sample Name Field ID

Vblk74 Vblk74

Skelton Operator Date Acquired 15 Dec 98 11:53 am

Sample Multiplier

1

CAS#	Compound Name	R.T.	Response	Result		Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein			not	detected	50	1.85 ug/L	
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			not	detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not	detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			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	nle	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	nle	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	
75-35-3	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	
	cis-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 Tetrachloride			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	
79-01-6	Trichloroethene			not	detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not	detected	ı	0.40 ug/L	
75-27-4	Bromodichloromethane			not	detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			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	
	trans-1,3-Dichloroprope			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				detected	1	0.32 ug/L	
591-78-6	2-Hexanone			not	detected	nle	0.71 ug/L	
	Dibromochloromethane			not	detected	10	0.86 ug/L	
108-90-7	Chlorobenzene				detected	4	0.39 ug/L	
100-41-4	Ethylbenzene				detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes				detected	nle	1.14 ug/L	
1330-20-7	o-Xylene		<u></u>	· · · · · · · · · · · · · · · · · · ·	detected	nle	0.62 ug/L	
100-42-5	Styrene			·	detected	100	0.56 ug/L	
75-25-2	Bromoform				detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan				detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene				detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene				detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene				detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD	ID
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Lab Name:	FMETL		Project	980211		Vblk7	4
NJDEP#	13461	Case No.: 413	5 SDG	No	Location	n UST	
Matrix: (soil/v	vater)	WATER		Lab Sample	D: Vblk7	<u>'</u> 4	·
Sample wt/vo	ol:	5.0 (g/ml) ML	·	Lab File ID:	VB02	376.D	
Level: (low/r	ned)	LOW		Date Recei	ved: 12/10	/98	
% Moisture: ı	not dec.			Date Analyz	zed: <u>12/15</u>	/98	
GC Column:	HP5M	S ID: 0.25 (mm)	I	Dilution Fac	tor: 1.0		
Soil Extract \	/olume:	(uL)	٠.	Soil Aliquot	Volume:		(uL)
			CONCENTR				
Number TICs	s found:	<u> </u>	(ug/L or ug/r	.g) <u>00</u>			
CAS NO.		COMPOUND NAME		RT	EST. CC	NC.	Q

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

Data File Nam vb02381.d

Sample Name

4136.01 Trip Blank

Operator Skelton

Field ID

lr

Date Acquired 15 Dec 98 4:07 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	Acrylonitrile			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	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			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	nle	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	nle	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	
75-35-3	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	
	cis-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 Tetrachloride			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	
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			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			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-Dichloroprope		_	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	nle	0.71 ug/L	
	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	
	m+p-Xylenes			not detected	nle	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	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/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	
75-30-1		* TT: 1	CDOI Is	and Ground Water Quality Criteri			

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Lab Name:	FMETL			Project	980211		Tr	ip Blan	k
NJDEP#	13461	Cas	se No.: 4136	SDG I	No	Loc	cation	UST	
Matrix (soil/wa	ater)	WATER	_	L	ab Sample	ID: 4	1136.01		
Sample wt/vol	:	5.0	(g/ml) ML		ab File ID:	_	√B0238	1.D	_
Level: (low/m	ed)	LOW	-	5	Date Receiv	/ed : _1	12/10/9	8	_
% Moisture: no	ot dec.			0	Date Analyz	ed: 1	12/15/9	8	_
GC Column:	HP5MS	<u> ID: 0.2</u>	25 (mm)	Ε	Dilution Fac	tor: 1	1.0		_
Soil Extract Vo	olume:		_ (uL)	S	Soil Aliquot Volume:				
				CONCENTRA	ATION UNI	TS:			
Number TICs	found:	0		(ug/L or ug/K	g) <u>UG</u>	/L		·	
CAS NO.		COMPOU	ND NAME		RT	EST	T. CON	c.	Q

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

Data File Nam vb02382.d

Sample Name

4136.02 Field Blank

Operator Skelton
Date Acquired 15 Dec 98 4:52 pm

Field ID Sample Multiplier

1

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifier
107028	Acrolein	10.11	Response	not detected	50	1.85 ug/L	Quantici
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	-	 	not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.10 ug/L 0.25 ug/L	
108203	Dichlorodifluoromethan	-		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	1.16 ug/L 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	nle	0.50 ug/L	-
75-35-4	1,1-Dichloroethene			not detected	2	0.30 ug/L 0.24 ug/L	
67-64-1	Acetone			not detected	700	1.36 ug/L	-
75-15-0	Carbon Disulfide			not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride		 	not detected	2	0.46 ug/L 0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene			not detected	100		
75-35-3	1,1-Dichloroethane			not detected	70	0.16 ug/L	
	Vinyl Acetate			not detected		0.12 ug/L	
108-05-4				not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
(7.66.2	cis-1,2-Dichloroethene	-			10	0.17 ug/L	
67-66-3	Chloroform		- -	not detected not detected	6	0.30 ug/L	
75-55-6	1,1,1-Trichloroethane				30	0.23 ug/L	<u> </u>
56-23-5	Carbon Tetrachloride	_		not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	1 1	0.23 ug/L	
107-06-2	1,2-Dichloroethane			not detected	2	0.18 ug/L	
79-01-6	Trichloroethene			not detected not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane				1	0.40 ug/L	·
75-27-4	Bromodichloromethane		<u> </u>	not detected not detected	1	0.55 ug/L	<u> </u>
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
	cis-1,3-Dichloropropene				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	
	trans-1,3-Dichloroprope			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 1	0.32 ug/L	<u> </u>
591-78-6	2-Hexanone		 	not detected	nle	0.71 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	nle	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	L
75-25-2	Bromoform			not detected	4	0.70 ug/L	<u> </u>
79-34-5	1,1,2,2-Tetrachloroethan			not_detected	2	0.47 ug/L	<u> </u>
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene		1	not detected	600	0.64 ug/L	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Lab Name:	FMETL			Project	980211		Field E	Blank
NJDEP#	13461	Cas	se No.: 4136	SDG	No	Loc	cation US	ST
Matrix (soil/v	vater)	WATER	_		Lab Sample	D: 4	1136.02	
Sample wt/vo	ol:	5.0	(g/ml) ML		Lab File ID:	7	/B02382.D	
Level: (low/r	ned)	LOW	_	I	Date Receiv	ved: 1	12/10/98	
% Moisture:	not dec.	·		I	Date Analyz	zed: 1	12/15/98	
GC Column:	HP5M	S ID: 0.2	25 (mm)	ļ	Dilution Fac	tor: 1	1.0	
Soil Extract \	/olume:		_ (uL)	;	(uL			
				CONCENTR	ATION UNI	TS:		
Number TIC:	s found:	0		(ug/L or ug/K	(g) UG	/L		
CAS NO.		COMPOU	ND NAME		RT	EST	r. CONC.	Q

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

Data File Nam vb02379.d

Sample Name Field ID 4135.01 Bldg429

Operator Skelton
Date Acquired 15 Dec 98 2:38 pm

Sample Multiplier

1

			_		Regulatory Level		
CAS#_	Compound Name	R.T.	Response	Result	(ug/l)*	MDL	Qualifier
107028	Acrolein	 		not detected	50	1.85 ug/L	
107131	Acrylonitrile			not detected	50	2.78 ug/L	
75650	tert-Butyl alcohol	<u> </u>		not detected	nle	8.52 ug/L	<u> </u>
1634044	Methyl-tert-Butyl ether			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether	 		not detected	nle	0.25 ug/L	
5105.2	Dichlorodifluoromethan			not detected	nle	1.68 ug/L	
74-87-3	Chloromethane	 		not detected	30	1.16 ug/L	
75-01-4	Vinyl Chloride		<u> </u>	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		ļļ.	not detected	nle	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		<u> </u>	not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	_2	0.24 ug/L	
156-60-5	trans-1,2-Dichloroethene		<u> </u>	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	
	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform			not detected	6	0.30 ug/L	<u> </u>
75-55 - 6	1,1,1-Trichloroethane			not detected	30	0.23 ug/L	
56-23-5	Carbon Tetrachloride		<u> </u>	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	
79-01-6	Trichloroethene			not detected	1 1	0.23 ug/L	
78-87-5	1,2-Dichloropropane			not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane			not detected	1	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
10061-01-5				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	
	trans-1,3-Dichloroprope			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	nle	0.71 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	nle	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	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/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	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Lab Name:	FMETL	•	Project	980211		ВІ	dg. 42	9
NJDEP#	13461	Case No.: 413	5 SDG	No	Loc	ation	UST	
Matrix (soil/w	vater)	WATER	L	.ab Sample	D: 4	135.01		
Sample wt/vo	ol:	5.0 (g/ml) ML	L	.ab File ID:	7	/B0237	9.D	
Level: (low/r	ned)	LOW	Г	Date Receiv	/ed: <u>1</u>	2/10/98	3	_
% Moisture: I	not dec.	· .		Date Analyz	ed: 1	2/15/98	3	
GC Column:	HP5M	S ID: 0.25 (mm)		Dilution Fac	tor: <u>1</u>	.0		
Soil Extract V	/olume:	(uL)	8	Soil Aliquot	Volum	e:		(uL)
			CONCENTRA	ATION UNI	TS:			
Number TICs	s found:	0	(ug/L or ug/K	g) UG	<u>/L</u>			
CAS NO.		COMPOUND NAME		RT	EST	. CONC	5 .	Q

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

Data File Nam vb02380.d

Sample Name

4135.03

Skelton Operator Date Acquired 15 Dec 98 3:23 pm Field ID S

Field Dup

amp	le M	lultip	lier	
_		_		

					Regulatory Level		
CAS#	Compound Name	R.T.	Response	Result	(ug/l)*	MDL	Qualifier
107028	Acrolein			not detected	50	1.85 ug/L	
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			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethan			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	nle	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	nle	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	
75-35-3	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	
	cis-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 Tetrachloride			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	
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			not detected	11	0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ethe			not detected	nle	0.65 ug/L	
	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-Dichloroprope			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	nle	0.71 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	nle	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	
75-25-2	Bromoform			not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethan			not detected	2	0.47 ug/L	i
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/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	

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD	ID
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Lab Name: F	METL			Project	980211		Fi	eld Du	р
NJDEP# 1	3461	Case No.: 4	135	SDG N	0	Lo	cation	UST	
Matrix (soil/wat	er)	WATER		La	b Sample	ID:	4135.03	,	
Sample wt/vol:		5.0 (g/ml) <u>N</u>	/IL	La	b File ID:	•	VB0238	0.D	
Level: (low/me	d)	LOW		Da	ite Receiv	ed:	12/10/9	8	_
% Moisture: not	dec.			Da	ite Analyz	ed:	12/15/9	В	<u> </u>
GC Column:	HP5MS	B ID: 0.25 (mm	1)	Dil	ution Fac	tor:	1.0		_
Soil Extract Vol	ume:	(uL)		So	il Aliquot	Volun	ne:		(uL)
Number TICs fo	ound:	0		ICENTRA or ug/Kg)					
CAS NO.		COMPOUND NAME			RT	EST	T. CON	5 .	Q

BASE NEUTRAL

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name BN02453.D

Sample Name

Sblk180

Operator Date Acquired Skelton 21-Dec-98 Misc Info

Sblk180 A 981214

Sample Multiplier

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	5.00	ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20	0.94	ug/L	
62-53-3	Aniline			not detected	NLE	0.15	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0.48	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.23	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.18	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.16	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300	0.61	ug/L	
67-72-1	Hexachloroethane			not detected	10	0.33	ug/L	
98-95-3	Nitrobenzene			not detected	10	0.46	ug/L	
78-59-1	Isophorone			not detected	100	0.35	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0,46	ug/L	
65-85-0	Benzoic Acid			not detected	NLE	0.26	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.25	ug/L	<u> </u>
91-20-3	Naphthalene			not detected	NLE	0.25	ug/L	
106-47-8	4-Chloroaniline		·	not detected	NLE	0.19	ug/L	
87-68-3	Hexachlorobutadiene			not detected	11	0.38	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0.16	ug/L	L
77-47-4	Hexachlorocyclopentadiene		<u> </u>	not detected	50	1.50	ug/L	L
91-58-7	2-Chloronaphthalene			not detected	NLE	0.32	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.21	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	0.18	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.19	ug/L	<u>.</u>
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.31	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.26	ug/L	
83-32-9	Acenaphthene			not detected	400	0.26	ug/L	
132-64-9	Dibenzofuran			not detected	NLE_	0.32	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.36	ug/L	
84-66-2	Diethylphthalate	1 1		not detected	5000	0.82	ug/L	
86-73-7	Fluorene			not detected	300	0.29	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.31	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	0.90	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	0.23	ug/L	
103-33-3	Azobenzene			not detected	NLE	0.80	ug/L	
101-55-3	4-Bromophenyl-phenylether			лоt detected	NLE	0.55	ug/L	
118-74-1	Hexachlorobenzene	\perp		not detected	10	0.82	ug/L	
85-01-8	Phenanthrene			not detected	NLE	0.18	ug/L	
120-12-7	Anthracene	1 1		not detected	2000	0,19	ug/L	
84-74-2	Di-n-butylphthalate	_		not detected	900	0.23	ug/L	
206-44-0	Fluoranthene			not detected	300	0.41	ug/L	
92-87-5	Benzidine	4		not detected	50	1.45	ug/L	
129-00-0	Ругепе	 		not detected	200	0.32		
85-68-7	Butylbenzylphthalate			not detected	100	0.47		
56-55-3	Benzo[a]anthracene	+		not detected	10	0.22		
91-94-1	3,3'-Dichlorobenzidine	4		not detected	60	0.46	ug/L	
218-01-9	Chrysene	4		not detected	20	0.20	ug/L	
17-81-7	bis(2-Ethylhexyl)phthalate	4		not detected	30	0.51	ug/L	
17-84-0	Di-n-octylphthalate			not detected	100	<u>. 0</u> 82	ug/]	
205-99-2	Benzo[b]fluoranthene	\perp		not detected	10	0.37	ug/L	
207-08-9	Benzo[k]fluoranthene	\bot		not detected	2	0.32	ug/L	
0-32-8	Benzo[a]pyrene			not detected	20	0.31	ug/L	
93-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.79	ug/L	
3-70-3	Dibenz[a,h]anthracene			not detected	20	0.28	ug/L	
91-24-2	Benzo[g,h,i]perylene	1 1		not detected	NLE	0.40	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6

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 1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Field ID:
Chll490

Lab Name: FMETL		Lab Cod	13461	_	Sblk1	80 ———
Project: 98-0932	Case No.: 4135	_ Locati	on: Bldg.	4 SD	G No:	
Matrix: (soil/water) W	VATER	L	ab Sample	ID: §	Sblk180	
Sample wt/vol: 10	000 (g/ml) ML	_ L	.ab File ID:	E	3N02453.D	
Level: (low/med) Low	OW	E	ate Receiv	red: 1	12/10/98	
% Moisture:	decanted: (Y/N)	N C	oate Extrac	ted: 1	12/14/98	
Concentrated Extract Vo	olume: 1000 (uL)	E	ate Analyz	ed: 1	12/21/98	
Injection Volume: 1.0	(uL)	E	Dilution Fac	tor: _1	1.0	
GPC Cleanup: (Y/N)	N pH:					
Number TICs found:	0	CONCEN	ITRATION ig/Kg)	UNIT: UG/L		
CAS NUMBER C	COMPOUND NAME		RT	EST	CONC.	Q

Semi-Volatile Analysis Report

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

Data File Name

BN02467.D

Sample Name

4136.02

Operator Date Acquired

Skelton 22-Dec-98 Misc Info Sample Multiplier

Field Blank

CAS#	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	5.00 1		Quantity.
62-75-9	N-nitroso-dimethylamine			not detected	20	0.94		
62-53-3	Aniline			not detected	NLE	0,15		
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0.48		
106-46-7	1,4-Dichlorobenzene			not detected	75		ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.18		
95-50-1	1,2-Dichlorobenzene			not detected	600	0.16		
108-60-1	bis(2-chloroisopropyl)ether		· · · · · · · · · · · · · · · · · · ·	not detected	300		ug/L	
67-72-1	Hexachloroethane			not detected	10	0.33		
98-95-3	Nitrobenzene			not detected	10	0.46		
78-59-1	Isophorone			not detected	100	0.35		
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.46		
65-85-0	Benzoic Acid			not detected	NLE	0.26		
120-82-1	1,2,4-Trichlorobenzene			not detected	9		ug/L	
91-20-3	Naphthalene			not detected	NLE		ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	0.19		
87-68-3	Hexachlorobutadiene	1 1		not detected	1	0.38 1		
91-57-6	2-Methylnaphthalene	\top		not detected	NLE	0.16		
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.50 1		
91-58-7	2-Chloronaphthalene			not detected	NLE		ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.21		
131-11-3	Dimethylphthalate	\Box		not detected	7000	0,18 1		
208-96-8	Acenaphthylene	\top		not detected	NLE	0.19		
606-20-2	2,6-Dinitrotoluene	\Box		not detected	NLE		ug/L	
99-09-2	3-Nitroaniline			not detected	NLE		ug/L	
83-32-9	Acenaphthene			not detected	400	0.26 t		
132-64-9	Dibenzofuran			not detected	NLE	0.32 τ		
121-14-2	2,4-Dinitrotoluene			not detected	10		ug/L	
84-66-2	Diethylphthalate	T		not detected	5000		ug/L	
86-73-7	Fluorene		-	not detected	300	0.29		
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE		ug/L	
100-01-6	4-Nitroaniline			not detected	NLE		ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	0.23 1		
103-33-3	Azobenzene	T		not detected	NLE	0.80 t	ag/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0,55 v		
118-74-1	Hexachlorobenzene			not detected	10	0,82 1		
85-01-8	Phenanthrene			not detected	NLE	0.18 1	ug/L	
120-12-7	Anthracene			not detected	2000	0.19 1		
84-74-2	Di-n-butylphthalate			not detected	900	0.23 L	ug/L	-
206-44-0	Fluoranthene			not detected	300	0.41 t	ug/L	
92-87-5	Benzidine	T		not detected	50		ug/L	
129-00-0	Pyrene			not detected	200	0.32 1		
35-68-7	Butylbenzylphthalate			not detected	100	0.47 \		
6-55-3	Benzo[a]anthracene	\Box		not detected	10	0.22 1		
91-94-1	3,3'-Dichlorobenzidine	1		not detected	60	0.46 1		
218-01-9	Chrysene	\vdash	-	not detected	20	0.20 1		
17-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	0.51 1		
17-84-0	Di-n-octylphthalate	1	• • • • • • • • • • • • • • • • • • • •	not detected	100	0.82 1		
205-99-2	Benzo[b]fluoranthene	\Box		not detected	10	0.37 u		
207-08-9	Benzo[k]fluoranthene	1		not detected	2	0.32 1	T I	
50-32-8	Benzo[a]pyrene	1		not detected	20	0.31		,
193-39-5	Indeno[1,2,3-cd]pyrene	1		not detected	20	0.79		
	I miricitol 1'T'n-rathMiche			not detected	, 40	<u> </u>	44 L	
3-70-3	Dibenz[a,h]anthracene			not detected	20	0.28 1	10/1	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6

Qualifiers

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

B= Compound in Related Blank

PQL= Practical Quantitation Limit

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name:	FMETL		Lab Cod	13461		Field Bi	ank
Project:	98-0932	Case No.: 4	136 Locat	on: UST	SD	G No:	
Matrix: (soil/v	vater)	WATER	L	ab Sample	ID: 4	4136.02	
Sample wt/vo	ol:	1000 (g/ml) I	MLL	.ab File ID:	Ī	BN02467.D	
Level: (low/n	ned)	LOW		Date Receiv	/ed: _	12/10/98	
% Moisture:		decanted: (Y/	N) <u>N</u> [Date Extrac	ted:	12/14/98	
Concentrated	Extract	Volume: 1000 (เ	ıL) [Date Analyz	ed:	12/22/98	
Injection Volu	ıme: <u>1.0</u>) (uL)		Dilution Fac	tor.	1.0	
GPC Cleanup	p: (Y/N)	pH:					
			CONCE	ITRATION	UNIT	S:	
Number TICs	found:	0	(ug/L or t	ıg/Kg)	UG/L		
CAS NUMB	BER	COMPOUND NAM	E	RT	EST	T. CONC.	Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name BN02465.D

Sample Name

4135.02

Operator Date Acquired

Skelton 22-Dec-98 Misc Info

Bldg429

Sample Multiplier

CAS#_	Name	R.T.	Response	Result	Regulatory Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE		ug/L	
62-75 <u>-</u> 9	N-nitroso-dimethylamine			not detected	20	0.94		
62-53-3	Aniline			not detected	NLE	0.15	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10	0,48	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0,23	ug/L	
100-51-6	Benzyl alcohol			not detected	NLE	0.18	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0,16	ug/L	
108-60-1	bis(2-chloroisopropyl)ether	<u> </u>	·	not detected	300	0.61	ug/L	
67-72-1	Hexachloroethane			not detected	10	0.33	ug/L	
98-95-3	Nitrobenzene	<u> </u>	·	not detected	10	0.46	ug/L	
78-59-1	Isophorone			not detected	100	0.35	ug/L	
111-91-1	bis(2-Chloroethoxy)methane	4		not detected	NLE	0.46	ug/L	<u> </u>
65-85-0	Benzoic Acid	<u> </u>		not detected	NLE	0.26	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	. 9	0.25	ug/L	
91-20-3	Naphthalene			not detected	NLE	0.25	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	0,19	ug/L	
87-68-3	Hexachlorobutadiene	-		not detected	1	0.38	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0.16	ug/L	ļ
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.50	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	0,32	ug/L	
88-74-4	2-Nitroaniline		<u> </u>	not detected	NLE	0.21	ug/L	
131-11-3	Dimethylphthalate	-		not detected	7000	0.18	ug/L	
208-96-8	Acenaphthylene	1		not detected	NLE	0.19	ug/L	
606-20-2	2,6-Dinitrotoluene	-		not detected	NLE	0,31	ug/L	
99-09-2	3-Nitroaniline	+		not detected	NLE	0.26	ug/L	
83-32-9	Acenaphthene	-		not detected	400	0,26	ug/L	
132-64-9	Dibenzofuran	\perp		not detected	NLE	0.32	ug/L	
121-14-2	2,4-Dinitrotoluene	1		not detected	10	0,36	ug/L	
84-66-2	Diethylphthalate	-		not_detected	5000	0.82	ug/L	<u> </u>
86-73-7	Fluorene	1	:	not detected	300	0.29	ug/L	
7005-72-3	4-Chlorophenyl-phenylether	\perp		not detected	NLE		ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	0,90	ug/L	
86-30-6	n-Nitrosodiphenylamine	1		not detected	20		ug/L	<u> </u>
103-33-3	Azobenzene	-		not detected	NLE		ug/L	 -
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.55		
118-74-1	Hexachlorobenzene			not detected	10	0.82		ļ
85-01- <u>8</u>	Phenanthrene	1		not detected	NLE	0.18		
120-12-7	Anthracene			not_detected	2000	0.19		·
84-74-2	Di-n-butylphthalate			not detected	900		ug/L	ļ
206-44-0	Fluoranthene	+		not detected	300	0.41	ug/L	
<u>92-87-5</u>	Benzidine	1		not detected	50	1.45	ug/L	
129-00-0	Pyrene	+ -		not detected	200		ug/L	
85-68-7	Butylbenzylphthalate	+	···········	not detected	100	0.47		
<u>56-55-3</u>	Benzo[a]anthracene	+		not detected	10		ug/L	
91-94-1	3,3'-Dichlorobenzidine	}		not detected	60		ug/L	<u> </u>
218-01-9	Chrysene	1 1		not detected	20		ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate	╅┈┩		not detected	30		ug/L	
117-84-0	Di-n-octylphthalate	4		not detected	100	0.82		
205-99-2	Benzo[b]fluoranthene	╁╾┈┤		not detected	10	0,37		
207-08-9	Benzo[k]fluoranthene	1		not detected	2		ug/L	
50-32-8	Benzo[a]pyrene	├─ ─┤		not detected	20	0.31		
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20	0.79		
<u>53-70-3</u>	Dibenz[a,h]anthracene	<u> </u>		not detected	20		ug/L	
191-24-2	Benzo[g,h,i]perylene	لــــــــــــــــــــــــــــــــــــــ		not detected	NLE	0.40	ug/L	

not detected NLE * Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Fi	eld	ļ	D	
		_	_	

Lab Name: FMETL	•	Lab Cod 13461	Bldg. 429
Project: 98-093	2 Case No.: 4135	Location: Bldg. 4 SD	G No:
Matrix: (soil/water)	WATER	Lab Sample ID:	4135.02
Sample wt/vol:	1000 (g/ml) ML	Lab File ID:	BN02465.D
Level: (low/med)	LOW	Date Received:	12/10/98
% Moisture:	decanted: (Y/N)	N Date Extracted:	12/14/98
Concentrated Extract	Volume: 1000 (uL)	Date Analyzed:	12/22/98
Injection Volume: 1	.0 (uL)	Dilution Factor:	1.0
GPC Cleanup: (Y/N)	N pH:		
Number TICs found:	0	CONCENTRATION UNIT	
CAS NUMBER	COMPOUND NAME	RT EST	Г. CONC. Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name

BN02466.D

Sample Name

4135.03

Operator

Skelton

Misc Info

Field Dup

Date Acquired

22-Dec-98

Sample Multiplier

ultiplier 1

					Regulatory			
CAS#	Name	R.T.	Response	Result	Level (ug/L)*	MDI		0 ""
110-86-I	Pyridine	K.1.	Response	not detected	NLE	MDL 5.00		Qualifiers
62-75-9	N-nitroso-dimethylamine	 		not detected	20	0.94		
62-53-3	Aniline	_		not detected	NLE	0.15		
111-44-4	bis(2-Chloroethyl)ether	+		not detected	10	0.48		
106-46-7	1,4-Dichlorobenzene	1		not detected	75	0.48		
100-51-6	Benzyl alcohol .	 		not detected	NLE	0.23		
95-50-1	1,2-Dichlorobenzene	1		not detected	600	0.16		
108-60-1	bis(2-chloroisopropyl)ether	 		not detected	300	0.61		
67-72-1	Hexachloroethane	+ -		not detected	10		ug/L	
98-95-3	Nitrobenzene	-		not detected	10	0.46		
78-59-1	Isophorone	 		not detected	100	0.35		
111-91-1	bis(2-Chloroethoxy)methane	+		not detected	NLE		ug/L	
65-85-0	Benzoic Acid	1		not detected	NLE	0.46		
120-82-1	1,2,4-Trichlorobenzene	+		not detected	9	0.25		
91-20-3	Naphthalene			not detected	NLE		ug/L	
106-47-8	4-Chloroaniline	 		not detected	NLE	0.19		
87-68-3	Hexachlorobutadiene	1		not detected	I I	0.19		
91-57-6	2-Methylnaphthalene	1		not detected	NLE	0.38		
77-47-4	Hexachlorocyclopentadiene	+		not detected	50	1.50		
91-58-7	2-Chloronaphthalene	1		not detected	NLE	0.32		·
88-74-4	2-Nitroaniline			not detected	NLE		ug/L	
131-11-3	Dimethylphthalate	1		not detected	7000	0.18		
208-96-8	Acenaphthylene			not detected	NLE	0.19		
606-20-2	2.6-Dinitrotoluene	1		not detected	NLE	0.31		
99-09-2	3-Nitroaniline			not detected	NLE	0.26		
83-32-9	Acenaphthene			not detected	400	0.26		
132-64-9	Dibenzofuran			not detected	NLE	0.32		
121-14-2	2,4-Dinitrotoluene			not detected	10	0.36		
84-66-2	Diethylphthalate			not detected	5000	0.82		
86-73-7	Fluorene			not detected	300	0.29		
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.31		
100-01-6	4-Nitroaniline			not detected	NLE	0.90		
86-30-6	n-Nitrosodiphenylamine			not detected	20	0.23		
103-33-3	Azobenzene	<u> </u>		not detected	NLE	0,80		
101-55-3	4-Bromophenyl-phenylether	T i		not detected	NLE	0.55		
118-74-1	Hexachlorobenzene	1 1		not detected	10	0.82		
85-01-8	Phenanthrene			not detected	NLE	0.18		
120-12-7	Anthracene	T		not detected	2000	0.19		
84-74-2	Di-n-butylphthalate	\top		not detected	900		ug/L	
206-44-0	Fluoranthene	1		not detected	300	0.41		
92-87-5	Benzidine	1 1		not detected	50	1,45		
129-00-0	Pyrene	1 1		not detected	200	0.32 1		
85-68-7	Butylbenzylphthalate	\top		not detected	100	0.47		
56-55-3	Benzo[a]anthracene	1		not detected	10	0.22	j	
91-94-1	3,3'-Dichlorobenzidine	1		not detected	60	0.46		
218-01-9	Chrysene Chrysene	1		not detected	20	0.20		
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	0.51		
117-81-7	Di-n-octylphthalate	1		not detected	100	0.82		
205-99-2	Benzo[b]fluoranthene			not detected	10	0.37		· _ · · _ · · <u>· · · · · · · · · · · · ·</u>
207-08-9	Benzo[k]fluoranthene			not detected	2	0.32		
	Benzo[a]pyrene	1		not detected	20	0.31		
50-32-8	Indeno[1,2,3-cd]pyrene	† †		not detected	20	0.79		
193-39-5	Dibenz[a,h]anthracene	 		not detected	20	0.28		
53-70-3		 	···		NLE	0.40		
91-24-2	Benzo[g,h,i]perylene			not detected	NLE	0.40	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6

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 1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

F	iek	۱t	D:

Lab Name:	FMETL			Lab Co	d <u>13461</u>		Field D	oup. 		
Project:	98-0932	2	Case No.: 4135	Loca	tion: Bldg.	<u>4</u> S	DG No:			
Matrix: (soil/w	vater)	WATE	3		Lab Samp	le ID:	4135.03			
Sample wt/vo	ol:	1000	(g/ml) <u>ML</u>		Lab File ID):	BN02466.D			
Level: (low/m	ned)	LOW	· · · · ·		Date Rece	ived:	12/10/98			
% Moisture:			decanted: (Y/N)	N	Date Extra	cted:	12/14/98			
Concentrated	I Extract	Volume:	<u>1000</u> (uL)		Date Analy	/zed:	12/22/98			
Injection Volu	ıme: <u>1.</u>	0(uL)		Dilution Fa	ctor:	1.0			
GPC Cleanur	o: (Y/N)	N	pH:							
	CONCENTRATION UNITS:									
Number TICs	found:	0		(ug/L or	ug/Kg)	UG/	<u>L</u>			
CAS NUMB	ER	COMP	OUND NAME		RT	ES	ST. CONC.	Q		

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 <u>and</u> 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	
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	
11.	Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP	
	oratory Manager or Environmental Consultant's Signature	5

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

Laboratory Certification #13461

Methods for further guidance.

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

NJDEP LABORATORY CERTIFICATION # 13461



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

Bldg. 429

Field Location No. &	Laboratory	Matrix	Date and Time	Date Received
Location	Sample ID#	[Of Collection	
Trip Blank	4181.01	Aqueous	12-Jan-99	01/12/99
Field Blank	4181.02	Aqueous	12-Jan-99 11:50	01/12/99
Bldg. 429	4182.01	Aqueous	12-Jan-99 10:40	01/12/99
Bldg. 429	4182.02	Aqueous	12-Jan-99 10:45	01/12/99

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

> Daniel Wright/Date Laboratory Director

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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@doim6.monmouth.army.mil
NJDEP Certification #13461

Chain of Custody Record

Customer: Charles Andeby		Project No:				Analysis Parameters						Comments:		
Phone #:		Location: 4	Location: 429 UST			10								
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Samplers Name / Cor	npany: Core Mc	Lormack,	ormack, TVS		e #	51+01	% %						Hinu	HCL/LY°C Remarks / Preservation Method
Lab Sample I.D.	Sample Location	Date	Time	Туре	bottles	1/2	7						-4-	Remarks / Preservation Method
418201	B/d. 429	1/12/99	1640	AO	ス	~							/	0.0 ggm
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Fort Monmouth Environmental Testing Laboratory Bldg. 173, SELFM-PW-EV, Fort Monmouth, NJ 07703

	Tel (732)532-4359 NJDEP Certifica		2-6263 EMa	il:appleb	y@doii	м б. то	ltuomn (e ?	h.army.ı	mil		Chain	of Custody Record
Phone #:	Apple by	Project No: Location:	B14 290	UST		12	/x+ /s	Anal	ysis P	'arameters		Comments:
()DERA ()OMA (Samplers Name / Coi		rmack,	TVS	Sample	#	51+ N/8	10 415					HC1/49C
Lab Sample I.D.	Sample Location	Date	Time	Туре		8	د					Remarks / Preservation Method
4181. ,01	Trip	1/12/99	0815	AG	2		~				./	0.0 ppm
.02	Field Black Bly 280		1150		3	/	/					
. 03	* Bld 280		1351		2							wtr depth: 6.21 f+
,04	ĺi.	il.	1359	1	1	V						6.21 f+
.05	Dope			1	2		/					
. 06	11			1	1							
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Relinquished by (signatu	re): Date/Time:	Received by ((signature):		Reling	luished	by (sig	nature):		Date/Time:	Received t	y (signature):
Report Type: (_)Full, (_y) Turnaround time: (_y)Stan	Reduced, (_)Standard, (_)Scre	en / non-certifi		·9		Remai	ks:	Shues	D	pe/Bluh/	rip w/	+29,447
		, <u></u>										

FIELD DOCUMENTATION

Post Remedial Groundwater Sampling at Former Underground Storage Tank Site [# 2 fuel oil]

FOR BLDG. # 429

Ground Water Sampling with the use of a Passively Placed Narrow Diameter Point (PPNDP)

Objective:

To collect a representative groundwater sample utilizing a narrow diameter point [PPNDP] This is a small diameter [1-inch OD] screened casing passively placed in a borehole. The casing is of p.v.c. construction.

1. Methods

A. A solid push - rod (bull point) is used to create a narrow diameter hole to a depth below the water table. A piece of schedule 40 PVC screen with 0.010-inch slots and an end cap is placed to the bottom of the hole. Glues or adhesives are not used for joining the casing. Threaded PVC casing is used. No filter or gravel pack is used.

2. Installation

- A. Using a Geoprobe, a borehole was advanced with a pre-probe with a diameter slightly larger than the casing. The hole was made to a depth of 12 feet. The water table was at 6 feet below ground surface.
- B. The screened section of PVC was placed into the borehole so the screened section was across the ground water table from 5 10 feet. Riser casing from 5 0 feet.

3. Purging

A. Three volumes of the standing water in the point were purged. The amount of water extracted was app. 0.123 gal. Three to five volumes are purged due to the potential for cross contamination of the screen from upper soil horizons. This was accomplished utilizing a peristaltic pump, and utilizing food grade tubing.

4. Sampling

A. Sampling methods, sample preservation requirements, sample handling times, decontamination procedure for field equipment, and frequency for field blanks, field duplicates and trip blanks conform to applicable industry methods such as those specified in the NJDEP "Field Sampling Procedures Manual" in effect as of the date on which sampling is performed. Any deviations from the methods in the "Field Sampling Procedures Manual" pursuant to N.J.A.C. 7:26E-1.6(c) has been approved by the person responsible for conducting the remediation.

All samples were preserved in the field immediately after collection and submitted to the laboratory as soon as possible and no later than 48 hours after sample collection.

The acquisition of samples and water level measurements were performed as recommended and described in the May 1992 edition of NJDEP Field Sampling Procedures Manual.

5. Quality Assurance/Quality Control

A. Decontamination

The associated equipment (bull point, riser pipe, etc.) was decontaminated between borings using the following procedure:

- 1. Remove all adherent soil material.
- 2. Wash with a laboratory grade glassware detergent.
- 3. Rinsed with potable water.
- 4. Rinse with distilled and deionized ASTM Type II water.

B. Field Blanks

- 1 Field blank was shared with bldg. 447, taken same day.
- C. Sample bottles: Supplied by Environmental Sampling Supply, Oakland, Calif. The sample bottles are certified clean and are sealed upon delivery.
- D. P.V.C. Screens: Supplied by Bedrock Enterprises, Forked River N.J.

Geoprobe Operator: Mark Laura Employer: U.S. Army, Fort Monmouth Phone Number: [732] 532-8990 NJDEP License #: J-1486

Mark Laura / Date

METHODOLOGY SUMMARY

Methodology Summary

EPA Method 624 Gas Chromatographic Determination of Volatiles in Water

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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
1.		eled/Compounds identified and method blanks)	yes
2.	Retention times for	chromatograms provided	<u>yes</u>
3.	GC/MS Tune Specif	ications	•
	a. b.	BFB Meet Criteria DFTPP Meet Criteria	yes yes
4.	GC/MS Tuning Free series and 12 hours	quency – Performed every 24 hours for 600 for 8000 series	yes
5.	analysis and continu	 Initial Calibration performed before sample ing calibration performed within 24 hours of 500 series and 12 hours for 8000 series 	<u>yes</u>
6.	GC/MS Calibration	requirements	
	a. b.	Calibration Check Compounds Meet Criteria System Performance Check Compounds Meet Criteria	yes yes
7.	Blank Contamination	n – If yes, List compounds and concentrations in each blank:	<u>_No</u>
	a. b. c.	VOA Fraction B/N FractionAcid FractionA	
8.	Surrogate Recoverie	s Meet Criteria	NO
	If not met, list the outside the acce	nose compounds and their recoveries, which fall ptable range:	
	a.	VOA Fraction	h. 1 11/1 /
	b. с.	B/N Fraction 4/82.02 NHeobenzene 05 & Tel Acid Fraction NA	there.
	If not met, were as "estimated"?	the calculations checked and the results qualified	phenyl-dl4 (ow in the true). yes yes
9.			yes
	a.	VOA Fraction	
	b.	B/N Fraction	
	c.	Acid Fraction_ NA	

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

		Yes, No, N/A
10.	Internal Standard Area/Retention Time Shift Meet Criteria (If not met, list those compounds, which fall outside the acceptable range)	yes
	a. VOA Fraction	
	b. B/N Fraction	
	c. Acid Fraction NA	
11.	Extraction Holding Time Met	yes
	If not met, list the number of days exceeded for each sample:	
12.	Analysis Holding Time Met	yes
	If not met, list the number of days exceeded for each sample:	
Add	itional Comments:	
Labo	oratory Manager: Date: Z-15-44	

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 4182

Site: Bldg. 429

	Date	Hold Time
Date Sampled	01/12/99	NA
Receipt/Refrigeration	01/12/99	NA
Extractions 1. Base Neutrals	01/14/99	7 Days
Analyses		
 Volatile Organics Base Neutrals 	01/22/99 01/26/99	14 Days 40 Days

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 detected

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

Operator

Data File Name v05520.d Skelton

Sample Name Field ID

Vblk146 Vbik146

1

Date Acquired

22 Jan 1999 9:08

Sample Multiplier

Regulatory Level (ug/l)* CAS# Compound Name R.T. Response Result MDL Qualifiers 107028 Acrolein not detected 50 1.85 ug/L 107131 Acrylonitrile not detected 50 2.78 ug/L 75650 tert-Butyl alcohol not detected 8.52 ug/L nle 1634044 Methyl-tert-Butyl ether not detected nle 0.16 ug/L 108203 Di-isopropyl ether not detected nle 0.25 ug/L Dichlorodifluoromethane 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 Bromomethane 74-83-9 not detected 10 1.10 ug/L Chloroethane not detected 75-00-3 nle 1.01 ug/L Trichlorofluoromethane 75-69-4 not detected nle 0.50 ug/L 1.1-Dichloroethene 75-35-4 not detected 2 0.24 ug/L 67-64-1 Acetone not detected 700 1.36 ug/L Carbon Disulfide 75-15-0 not detected nle 0.46 ug/L 75-09-2 Methylene Chloride not detected 0.24 ug/L trans-1,2-Dichloroethene 156-60-5 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 cis-1,2-Dichloroethene not detected 10 0.17 ug/L 67-66-3 Chloroform not detected 0.30 ug/L 6 1,1,1-Trichloroethane 75-55-6 not detected 30 0.23 ug/L Carbon Tetrachloride 56-23-5 not detected 2 0.47 ug/L 71-43-2 Benzene not detected 0.23 ug/L 107-06-2 1,2-Dichloroethane not detected 0.18 ug/L 2 Trichloroethene 79-01-6 not detected 0.23 ug/L 78-87-5 1,2-Dichloropropane not detected 0.40 ug/L 75-27-4 Bromodichloromethane not detected 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 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 not detected trans-1,3-Dichloropropene 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 0.71 ug/L nle 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 m+p-Xylenes 1330-20-7 not detected nle 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 0.70 ug/L 75-25-2 Bromoform not detected 4 0.47 ug/L 1.1.2.2-Tetrachloroethane not detected 79-34-5 2 541-73-1 1,3-Dichlorobenzene not detected 600 0.55 ug/L 106-46-7 not detected 1,4-Dichlorobenzene 75 0.57 ug/L

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

not detected

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

1,2-Dichlorobenzene

95-50-1

PQL = Practical Quantitation Limit

MDL = Method Detection Limit NLE = No Limit Established

600

R.T. = Retention Time

0.64 ug/L

1E VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Lab Name:	FMETL		Project	980	0932	Vblk146	
NJDEP#	13461	Case No.: 4182	Location	ı <u>U</u>	IST SI	DG No.:	
Matrix: (soil/	water)	WATER	Lat	Sa	mple ID:	Vblk146	
Sample wt/vo	ol:	5.0 (g/ml) ML	Lab	Fil	e ID:	V05520.D	_
Level: (low/r	med)	LOW	Dat	te R	eceived:	01/12/99	_
% Moisture:	not dec.		Dat	te A	nalyzed:	01/22/99	_
GC Column:	RTX-5	502 ID: <u>0.25</u> (mm)	Dilu	utior	n Factor:	1.0	_
Soil Extract \	/olume:	(uL)	Soi	il Ali	quot Volu	me:	_ (uL)
			CONCENTRAT	101	UNITS:		
Number TIC	s found:	0	(ug/L or ug/Kg)		UG/L		
CAS NO.		COMPOUND NAME		R	T ES	ST. CONC.	Q

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

Data File Name v05532.d

Sample Name

4181.01

Operator

Skelton

Field ID

Trip Blank

Date Acquired 22 Jan 1999 18:01

Sample Multiplier

1

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifiers
107028	Acrolein			not detected	50	1.85 ug/L	
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			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			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	nle	0.50 ug/L	1
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	nle	0.46 ug/L	
75-09-2	Methylene Chloride			not detected	2	0.48 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	<u> </u>
78-93-3	2-Butanone			not detected	300	0.62 ug/L	<u> </u>
70 70 5	cis-1,2-Dichloroethene			not detected	10	0.17 ug/L	
67-66-3	Chloroform	<u> </u>		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 Tetrachloride		·	not detected	2	0.47 ug/L	
71-43-2	Benzene			not detected	ī	0.23 ug/L	t
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			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	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	0.87 ug/L	
79-00-5	1,1,2-Trichloroethane			not detected	3	0.48 ug/L	1
127-18-4	Tetrachloroethene			not detected	1	0.32 ug/L	
591-78-6	2-Hexanone		 	not detected	nle	0.71 ug/L	
126-48-1	Dibromochloromethane	1	 	not detected	10	0.86 ug/L	t
108-90-7	Chlorobenzene	1		not detected	4	0.39 ug/L	1
100-41-4	Ethylbenzene	1		not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes	1 —	 	not detected	nle	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	_
75-25-2	Bromoform	t^{-}	 	not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane	 	 	not detected	2		
541-73-1	1,3-Dichlorobenzene	 	 	not detected	600	0.47 ug/L	
	1,4-Dichlorobenzene	 	 	not detected		0.55 ug/L	_
106-46-7		+-	 		75	0.57 ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	<u> </u>

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Lab Name:	FMETL		Project 980932	Trip Blank
NJDEP#	13461	Case No.: 4181	Location UST St	DG No.:
Matrix: (soil/	water)	WATER	Lab Sample ID:	4181.01
Sample wt/ve	ol:	5.0 (g/ml) ML	Lab File ID:	V05532.D
Level: (low/r	med)	LOW	Date Received:	01/12/99
% Moisture:	not dec.		Date Analyzed:	01/22/99
GC Column:	RTX-5	02 ID: 0.25 (mm)	Dilution Factor:	1.0
Soil Extract \	Volume:	(uL)	Soil Aliquot Volu	me: (uL)
			CONCENTRATION UNITS:	
Number TIC:	s found:	0	(ug/L or ug/Kg) UG/L	
CAS NO.		COMPOUND NAME	RT ES	ST. CONC. Q

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

Data File Name v05533.d Operator

Skelton

Sample Name Field ID

4181.02 Field Blank

22 Jan 1999 18:45 Date Acquired

Sample Multiplier

CAS#_	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifiers
107028	Acrolein			not detected	50	1.85 ug/L	
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			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			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	1 1		not detected	nle	0.50 ug/L	
75-35-4	1.1-Dichloroethene	1 1		not detected	2	0.24 ug/L	
67-64-1	Acetone	 		not detected	700	1.36 ug/L	
75-15-0	Carbon Disulfide	1		not detected	nle	0.46 ug/L	
75-09-2	Methylene Chloride	+		not detected	2	0.40 ug/L	
156-60-5	trans-1,2-Dichloroethene	1 -		not detected	100	0.16 ug/L	
75-35-3	1,1-Dichloroethane	1		not detected	70	0.10 ug/L	1
108-05-4	Vinvl Acetate	1		not detected	nle	0.78 ug/L	
78-93-3	2-Butanone	1 1		not detected	300	0.62 ug/L	
10-23-3	cis-1,2-Dichloroethene	1 1		not detected	10	0.02 ug/L	+
67-66-3	Chloroform	 		not detected	6	0.17 ug/L 0.30 ug/L	
75-55 - 6	1,1,1-Trichloroethane	 	-	not detected	30	0.30 ug/L 0.23 ug/L	
56-23-5	Carbon Tetrachloride	 		not detected	2	0.23 ug/L 0.47 ug/L	
71-43-2	Benzene			not detected	1 1	0.47 ug/L 0.23 ug/L	
107-06-2	1,2-Dichloroethane	 		not detected	2	0.23 ug/L 0.18 ug/L	
79-01-6	Trichloroethene	 		not detected	1	0.18 ug/L 0.23 ug/L	
78-87-5	1,2-Dichloropropane	╁		not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane	+		not detected	1	0.40 ug/L 0.55 ug/L	
110-75-8	2-Chloroethyl vinyl ether	1		not detected	nle	0.65 ug/L	
10061-01-5	cis-1,3-Dichloropropene	+ +		not detected	nle	0.63 ug/L 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	0.39 ug/L 0.37 ug/L	
10061-02-6	trans-1,3-Dichloropropene	 		not detected	nle	0.37 ug/L 0.87 ug/L	
79-00-5	1,1,2-Trichloroethane	+		not detected	3		
127-18-4	Tetrachloroethene			not detected	-	0.48 ug/L	
591-78-6	2-Hexanone	+		not detected	1	0.32 ug/L	
		- 			nle	0.71 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	nle	1.14 ug/L	_
1330-20-7	o-Xylene	1		not detected	nle	0.62 ug/L	
100-42-5	Styrene			not detected	100	0.56 ug/L	
75-25-2	Bromoform	ļ		not detected	4	0.70 ug/L	
79-34-5	1,1,2,2-Tetrachloroethane	ļl		not detected	2	0.47 ug/L	<u>. </u>
541-73-1	1,3-Dichlorobenzene			not detected	600	0.55 ug/I	_
106-46-7	1,4-Dichlorobenzene			not detected	75	0.57·ug/I	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.64 ug/L	.

* Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

Lab Name:	FMETL			Project	9	80932	Field Bla	ink
NJDEP#	13461	Cas	e No.: 4181	Locat	ion	USTS	BDG No.:	
Matrix: (soil/	water)	WATER	<i>,</i>	ŧ	.ab S	Sample ID:	4181.02	
Sample wt/vo	ol:	5.0	(g/ml) ML	L	.ab F	ile ID:	V05533.D	
Level: (low/r	ned)	LOW	-		Date	Received:	01/12/99	
% Moisture:	not dec.				Date	Analyzed:	01/22/99	
GC Column:	RTX-5	02 ID: 0.2	25 (mm)		Dilutio	on Factor:	1.0	
Soil Extract \	/olume:		_ (uL)	5	Soil <i>F</i>	Aliquot Volu	ume:	(uL)
Number TICs	s found:	0		CONCENTR (ug/L or ug/K		ON UNITS: UG/L		
CAS NO.		COMPOU	ND NAME			RT E	ST. CONC.	Q

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

Data File Name

Date Acquired

Operator

v05536.d

Skelton

22 Jan 1999 20:54

Sample Name

4182.01

Field ID Sample Multiplier Bldg429

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (ug/l)*	MDL	Qualifiers
107028	Acrolein			not detected	50	1.85 ug/L	
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			not detected	nle	0.16 ug/L	
108203	Di-isopropyl ether			not detected	nle	0.25 ug/L	
	Dichlorodifluoromethane			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	nle	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	nle	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	
75-35-3	1,1-Dichloroethane			not detected	70	0.12 ug/L	
108-05-4	Vinyl Acetate	1		not detected	nle	0.78 ug/L	
78-93-3	2-Butanone			not detected	300	0.62 ug/L	
	cis-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	Ţ		not detected	30	0.23 ug/L	
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	Trichloroethene			not detected	1	0.23 ug/L	
78-87-5	1,2-Dichloropropane	1		not detected	1	0.40 ug/L	
75-27-4	Bromodichloromethane	1		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	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	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	nle	0.71 ug/L	
126-48-1	Dibromochloromethane			not detected	10	0.86 ug/L	
108-90-7	Chlorobenzene	1.		not detected	4	0.39 ug/L	
100-41-4	Ethylbenzene	T		not detected	700	0.65 ug/L	
1330-20-7	m+p-Xylenes			not detected	nle	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	
75-25-2	Bromoform	1		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		1	not detected	600	0.55 ug/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	

^{*} Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9-6

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 TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

						Bldg42	9
Lab Name:	FMETL		Project	980932		L	
NJDEP#	13461	Case No.: 4182	Location	UST	SD	G No.:	
Matrix: (soil/	water)	WATER	Lab	Sample	D: 4	182.01	
Sample wt/vo	ol:	5.0 (g/ml) ML	Lab	File ID:	Ž	/05536.D	
Level: (low/r	med)	LOW	Dat	e Receive	ed: <u>C</u>	1/12/99	
% Moisture:	not dec.		Dat	e Analyze	ed: C	1/22/99	
GC Column:	RTX-5	602 ID: <u>0.25</u> (mm)	Dilu	ution Facto	or: <u>1</u>	.0	
Soil Extract \	Volume:	(uL)	Soi	I Aliquot √	olum/	ie:	(uL)
			CONCENTRAT				
Number TIC	s found:	0	(ug/L or ug/Kg)	UG/L	<u>-</u>		
CAS NO.	W 4	COMPOUND NAME		RT	EST	CONC.	Q

BASE NEUTRAL

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name

BN02687.D

Sample Name

Sblk192

Operator Date Acquired Bhaskar 26-Jan-99 Misc Info

Sblk192 A 990114

Sample Multiplier

Re	eu:	laí	oı	_

					Regulato: Level	y		
CAS#	Name	R.T.	Response	Result	(ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not dete	ected NLE		ug/L	
62-75-9	N-nitroso-dimethylamine			not dete	ected 20	1	ug/L	
62-53-3	Aniline			not dete	ected NLE		ug/L	
111-44-4	bis(2-Chloroethyl)ether			not dete	ected 10		ug/L	
106-46-7	1,4-Dichlorobenzene			not dete	ected 75		ug/L	
100-51-6	Benzyl alcohol			not dete	ected NLE	0.18	ug/L	
95-50-1	1,2-Dichlorobenzene			not dete	ected 600	0.16	ug/L	
108-60-1	bis(2-chloroisopropyl)ether			not dete	ected 300		ug/L	
67-72-1	Hexachloroethane			not dete	ected 10	0,33	ug/L	
98-95-3	Nitrobenzene			not dete	ected 10	0.46	ug/L	
78-59-1	Isophorone			not dete	ected 100	0.35	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not dete	ected NLE	0.46	ug/L	
65-85-0	Benzoic Acid			not dete	ected NLE	0.26	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not dete	ected 9	0.25	ug/L	
91-20-3	Naphthalene			not dete	ected NLE	0.25	ug/L	
106-47-8	4-Chloroaniline			not dete			ug/L	
87-68-3	Hexachlorobutadiene			not dete			ug/L	
91-57-6	2-Methylnaphthalene			not dete			ug/L	I
77-47-4	Hexachlorocyclopentadiene			not dete			ug/L	
91-58-7	2-Chloronaphthalene			not dete			ug/L	
38-74-4	2-Nitroaniline			not dete	ected NLE	0.21	ug/L	
131-11-3	Dimethylphthalate			not dete			ug/L	
208-96-8	Acenaphthylene			not dete	ected NLE	_	ug/L	
06-20-2	2,6-Dinitrotoluene			not dete	ected NLE	0,31	ug/L	
9-09-2	3-Nitroaniline			not dete	ected NLE	0.26	ug/L	
3-32-9	Acenaphthene			not dete	ected 400	0.26	ug/L	
32-64-9	Dibenzofuran			not dete	ected NLE	0.32	ug/L	
21-14-2	2,4-Dinitrotoluene			not dete			ug/L	
34-66-2	Diethylphthalate			not dete			ug/L	· ·
6-73-7	Fluorene			not dete	ected 300	0.29	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not dete		0.31	ug/L	
100-01-6	4-Nitroaniline			not dete		0.90	ug/L	
36-30-6	n-Nitrosodiphenylamine			not dete	ected 20	0.23	ug/L	
03-33-3	Azobenzene			not dete	ected NLE	0,80	ug/L	
01-55-3	4-Bromophenyl-phenylether			not dete			ug/L	
18-74-1	Hexachlorobenzene			not dete		0.82	ug/L	
5-01-8	Phenanthrene	1		not dete	ected NLE		ug/L	
20-12-7	Anthracene			not dete	ected 2000		ug/L	
4-74-2	Di-n-butylphthalate			not dete	ected 900	0.23	ug/L	
06-44-0	Fluoranthene		, , ,	not dete		0.41	ug/L	
2-87-5	Benzidine	1 1		not dete			ug/L	
29-00-0	Pyrene	1		not dete			ug/L	
5-68-7	Butylbenzylphthalate	\top		not dete			ug/L	
6-55-3	Benzo[a]anthracene	1		not dete			ug/L	
1-94-1	3.3'-Dichlorobenzidine	 		not dete			ug/L	
18-01-9	Chrysene	 		not dete			ug/L	
17-81-7	bis(2-Ethylhexyl)phthalate	1		not dete			ug/L	
17-81-7	Di-n-octylphthalate	1 1		not dete			ug/L	
05-99-2	Benzo[b]fluoranthene	+		not dete			ug/L	
07-08-9	Benzo[k]fluoranthene	 		not dete			ug/L	
		 					ug/L ug/L	-
0-32-8	Benzo[a]pyrene Indeno[1,2,3-cd]pyrene	1 1		not dete			ug/L	
93-39-5 2 70 3		 						
3-70-3	Dibenz[a,h]anthracene	1 1		not dete			ug/L	
91-24-2	Benzo[g,h,i]perylene			not dete	cted NLE	0.40	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6

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 1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Field ID:

Lab Name:	FMETL		Lab Cod 13461	Sblk192
Project:	UST	Case No.: 418	2 Location: 429	SDG No:
Matrix: (soil/	water)	WATER	Lab Sample ID): Sblk192
Sample wt/ve	ol:	1000 (g/ml) ML	Lab File ID:	BN02687.D
Level: (low/r	med)	LOW	Date Received	I: <u>1/12/99</u>
% Moisture:		decanted: (Y/N)	N Date Extracted	d: 1/14/99
Concentrate	d Extract	Volume: 1000 (uL)	Date Analyzed	1/26/99
Injection Vol	ume: <u>1.</u>	0 (uL)	Dilution Factor	: 1.0
GPC Cleanu	p: (Y/N)	N pH:		
			CONCENTRATION UI	NITS:
Number TIC:	s found:	0	(ug/L or ug/Kg) U(G/L
CAS NUME	BER	COMPOUND NAME	RT E	EST. CONC. Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name

BN02688.D

Sample Name

4181.02 Field Blank

Operator

Date Acquired

Bhaskar 26-Jan-99 Misc Info

Sample Multiplier

CAS#	Name	R.T.	Response	Result	Level (ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE		ug/L	
62-75-9	N-nitroso-dimethylamine			not detected	20		ug/L	
62-53-3	Aniline			not detected	NLE		ug/L	
111-44-4	bis(2-Chloroethyl)ether			not detected	10		ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75		ug/L	
100-51-6	Benzyi alcohol			not detected	NLE		ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600		up/L	
108-60-1	bis(2-chloroisopropyl)ether			not detected	300		ug/L	
67-72-1	Hexachloroethane			not detected	10		ug/L	
98-95-3	Nitrobenzene			not detected	10	0,46	ug/L	
78-59-1	Isophorone			not detected	100	0.35	ue/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.46	ug/L	
65-85-0	Benzoic Acid			not detected	NLE	0.26	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.25	ug/L	
91-20-3	Naphthalene			not detected	NLE	0.25	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	0.19	ug/L	
87-68-3	Hexachlorobutadiene			not detected	_ 1	0.38	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0.16	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.50	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	0.32	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.21	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	0.18	ug/L	
208-96-8	Acenaphthylene			not detected	NLE	0.19	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.31	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.26	ug/L	
83-32-9	Acenaphthene			not detected	400	0,26	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0,32	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.36	ug/L	
84-66-2	Diethylphthalate			not detected	5000	0.82	ug/L	
86-73-7	Fluorene			not detected	300	0.29	ug/L	
7005-72-3	4-Chlorophenyl-phenylether			not detected	NLE	0.31	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	0.90	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	0.23	ug/L	
103-33-3	Azobenzene			not detected	NLE	0.80	ug/L	
101-55-3	4-Bromophenyi-phenylether			not detected	NLE	0.55	ug/L	
118-74-1	Hexachlorobenzene			not detected	10	0.82	սջ/Լ	
85-01-8	Phenanthrene			not detected	NLE	0.18	ug/L	
120-12-7	Anthracene	igsquare		not detected	2000	0.19	ug/L	
84-74-2	Di-n-butylphthalate	Li		not detected	900	0.23	ug/L	
206-44-0	Fluoranthene			not detected	300	0.41	ug/L	
92-87-5	Benzidine	L		not detected	50	1.45	սջ/Լ	
129-00-0	Pyrene	igsquare		not detected	200	0.32	ug/L	
85-68-7	Butylbenzylphthalate			not detected	100	0.47	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	0.22	ug/L	<u> </u>
91-94-1	3,3'-Dichlorobenzidine	$oxed{\Box}$		not detected	60	0.46	ug/L	
218-01-9	Chrysene			not detected	20	0.20	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	0.51	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100		ug/L	
205-99-2	Benzo[b]fluoranthene			not detected	10	0.37	ug/L	
207-08-9	Benzo[k]fluoranthene	i i		not detected	2		ug/L	
50-32-8	Benzofalpyrene			not detected	20		ug/L	
193-39-5	Indeno[1,2,3-cd]pyrene			not detected	20		ug/L	Ī
		 		I				T
53-70-3	Dibenz[a,h]anthracene	{ I		not detected	20	1 U2X	we/L	

* Higher of PQL's and Ground Water Criteria as per NIAC 7:9-6

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

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

TENTATIVELY IDENTIFIED COMPOUNDS

Field ID:

Lab Name:	FMETL			Lab Cod	1346	1	Field B	lank
Project:	UST	Cas	se No.:	Locati	on: 280) s	DG No:	
Matrix: (soil/	water)	WATER	_	L	ab Sam	ple ID:	4181.02	
Sample wt/vo	ol:	1000	(g/ml) ML	L	ab File I	D:	BN02688.D	
Level: (low/r	med)	LOW	-		ate Rec	eived:	1/12/99	
% Moisture:		deca	anted: (Y/N)	N D	ate Ext	racted:	1/14/99	
Concentrated	d Extract	Volume: 1	000 (uL)		ate Ana	ilyzed:	1/26/99	
Injection Volu	ume: 1.0) (uL)		D	ilution F	actor:	1.0	
GPC Cleanu	p: (Y/N)	<u>N</u>	pH:					
				CONCEN	TRATIO	ואט אכ	TS:	
Number TICs	s found:	0	_	(ug/L or u	g/Kg)	UG/	L	
CAS NUME	BER	COMPOU	ND NAME		RT	ES	ST. CONC.	Q

Semi-Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File Name

BN02691.D

Sample Name

4182.02

Operator Date Acquired Bhaskar 26-Jan-99 Misc Info

Bldg429

Sample Multiplier

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Kegui	atory

					Level			
CAS#	Name	R.T.	Response	Result	(ug/L)*	MDL		Qualifiers
110-86-1	Pyridine			not detected	NLE	5.00	ug/L	ļ
62-75-9	N-nitroso-dimethylamine			not detected	20	0.94	ug/L	
62-53-3	Aniline			not detected	NLE	0.15	ug/L	
111-44-4	bis(2-Chloroethyl)ether			not_detected	10	0.48	ug/L	
106-46-7	1,4-Dichlorobenzene			not detected	75	0.23	ug/L	
100-51-6	Benzył alcohol			not detected	NLE	0.18	ug/L	
95-50-1	1,2-Dichlorobenzene			not detected	600	0.16	ug/L	
108-60-1	bis(2-chloroisopropyl)ether	1		not detected	300	0.61	ug/L	
67-72-1	Hexachloroethane			_not_detected	10	0.33	ug/L	
98-95-3	Nitrobenzene			not_detected	10	0.46	ug/L	
78-59-1	Isophorone			_not detected	100	0.35	ug/L	
111-91-1	bis(2-Chloroethoxy)methane			not detected	NLE	0.46	ug/L	
65-85-0	Benzoic Acid			not detected	NLE	0.26	ug/L	
120-82-1	1,2,4-Trichlorobenzene			not detected	9	0.25	ug/L	
91-20-3	Naphthalene			not detected	NLE	0.25	ug/L	
106-47-8	4-Chloroaniline			not detected	NLE	0.19	ug/L	
87-68-3	Hexachlorobutadiene	4		not detected	111	0.38	ug/L	
91-57-6	2-Methylnaphthalene			not detected	NLE	0,16	ug/L	
77-47-4	Hexachlorocyclopentadiene			not detected	50	1.50	ug/L	
91-58-7	2-Chloronaphthalene			not detected	NLE	0.32	ug/L	
88-74-4	2-Nitroaniline			not detected	NLE	0.21	ug/L	
131-11-3	Dimethylphthalate			not detected	7000	0.18	ug/L	
208-96-8	Acenaphthylene		· · · · · · · · · · · · · · · · · · ·	not detected	NLE	0.19	ug/L	
606-20-2	2,6-Dinitrotoluene			not detected	NLE	0.31	ug/L	
99-09-2	3-Nitroaniline			not detected	NLE	0.26	ug/L	
83-32-9	Acenaphthene	14.46	38248	1.15 ug/L	400	0.26	ug/L	
132-64-9	Dibenzofuran			not detected	NLE	0.32	ug/L	
121-14-2	2,4-Dinitrotoluene			not detected	10	0.36	ug/L	
84-66-2	Diethylphthalate			not detected	5000	0.82	ug/L	
86-73-7	Fluorene	15.63	65680	1.84 ug/L	300	0.29	ug/L	
7005-72-3	4-Chlorophenyl-phenylether	\perp		not detected	NLE	0.31	ug/L	
100-01-6	4-Nitroaniline			not detected	NLE	0.90	ug/L	
86-30-6	n-Nitrosodiphenylamine			not detected	20	0.23	ug/L	
103-33-3	Azobenzene	$oldsymbol{ol}}}}}}}}}}}}}}}}}$		not detected	NLE	0.80	ug/L	
101-55-3	4-Bromophenyl-phenylether			not detected	NLE	0.55	ug/L	
118-74-1	Hexachlorobenzene	11		not detected	10	0.82	ug/L	
85-01-8	Phenanthrene			not detected	NLE	0.18	ug/L	
120-12-7	Anthracene			not detected	2000	0.19	ug/L	
84-74-2	Di-n-butylphthalate			not detected	900	0.23	ug/L	
206-44-0	Fluoranthene	آــــــــــــــــــــــــــــــــــــــ		not detected	300	0.41	ug/L	<u> </u>
92-87-5	Benzidine	آسل		not detected	50	1.45	ug/L	
129-00-0	Рутепе			not detected	200	0.32	ug/L	
85-68-7	Butylbenzylphthalate	1		not detected	001	0,47	ug/L	
56-55-3	Benzo[a]anthracene			not detected	10	0.22	ug/L	
91-94-1	3,3'-Dichlorobenzidine			not detected	60	0.46	ug/L	
218-01-9	Chrysene			not detected	20	0.20	ug/L	
117-81-7	bis(2-Ethylhexyl)phthalate			not detected	30	0.51	ug/L	
117-84-0	Di-n-octylphthalate			not detected	100		ug/L	
				not detected	10		ug/L	
205-99-2	Benzo[b]fluoranthene	\perp			10			L
				not detected	2		ug/L	
207-08-9	Benzo[b]fluoranthene Benzo[k]fluoranthene				2	0.32		
207-08-9 50-32-8	Benzo[b]fluoranthene			not detected	2 20	0.32 0.31	ug/L ug/L	
207-08-9	Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[a]pyrene			not detected not detected	2	0.32 0.31 0.79	ug/L	

* Higher of PQL's and Ground Water Criteria as per NJAC 7:9-6

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

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Field ID:

Lab Name:	FMETL			Lab Cod	13461		Bidg.429
Project:	UST	C	ase No.: 4182	_	ion: <u>429</u>	SD	G No:
Matrix: (soil/v	vater)	WATER	_	ı	_ab Sample	ID: 4	1182.02
Sample wt/vo	ol:	1000	(g/ml) ML		_ab File ID:	<u> </u>	3N02691.D
Level: (low/n	ned)	LOW		Į	Date Receiv	/ed: 1	1/12/99
% Moisture:		de	canted: (Y/N)	N I	Date Extrac	ted: 1	1/14/99
Concentrated	Extract	Volume:	1000 (uL)	[Date Analyz	ed: 1	1/26/99
Injection Volu	ıme: <u>1.0</u>	(uL)		[Dilution Fac	tor: 1	1.0
GPC Cleanur	o: (Y/N)	N	pH:				
				CONCE	NTRATION	UNIT	S:
Number TICs	found:	4		(ug/L or i	ug/Kg)	UG/L	

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	unknown	26.25	53	J
2.	unknown	27.61	16	J
3. 006971-40-0	17-Pentatriacontene	28.87	11	JN
4.	unknown	30.21	10	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 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 <u>and</u> in the main body of the report.

 Table of Contents submitted Summary Sheets listing analytical results for all targeted and non-targeted compounds submitted Document paginated and legible Chain of Custody submitted Samples submitted to lab within 48 hours of sample collection Methodology Summary submitted Laboratory Chronicle and Holding Time Check submitted Results submitted on a dry weight basis Method Detection Limits submitted Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date Z //15 / 44 	1.	Cover page, Title Page listing Lab Certification #, facility name and address, & date of report submitted	/
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 10. Method Detection Limits submitted 11. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date \(\frac{Z}{1/5} / \frac{4c_1}{4c_1} \)	2.	Table of Contents submitted	/
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 11. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15 /44	3.		/
 Samples submitted to lab within 48 hours of sample collection Methodology Summary submitted Laboratory Chronicle and Holding Time Check submitted Results submitted on a dry weight basis Method Detection Limits submitted Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15/44 	4.	Document paginated and legible	
 Methodology Summary submitted Laboratory Chronicle and Holding Time Check submitted Results submitted on a dry weight basis Method Detection Limits submitted Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15 /44 	5.	Chain of Custody 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 NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15 /44 	6.	Samples submitted to lab within 48 hours of sample collection	
 9. Results submitted on a dry weight basis 10. Method Detection Limits submitted 11. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15 /44 	7.	Methodology Summary submitted	
 10. Method Detection Limits submitted 11. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15 /44 	8.	Laboratory Chronicle and Holding Time Check submitted	
11. Lab certified by NJDEP for parameters of appropriate category of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15 /44	9.	Results submitted on a dry weight basis	
of parameters or a member of the USEPA CLP Laboratory Manager or Environmental Consultant's Signature Date 2 /15 /44	10.	Method Detection Limits submitted	
Date 2 /15 /49	11.		
Laboratory Certification #13461	Date	e Z /15 /49	and the second s

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

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

7.15.44

APPENDIX C PHOTOGRAPHS



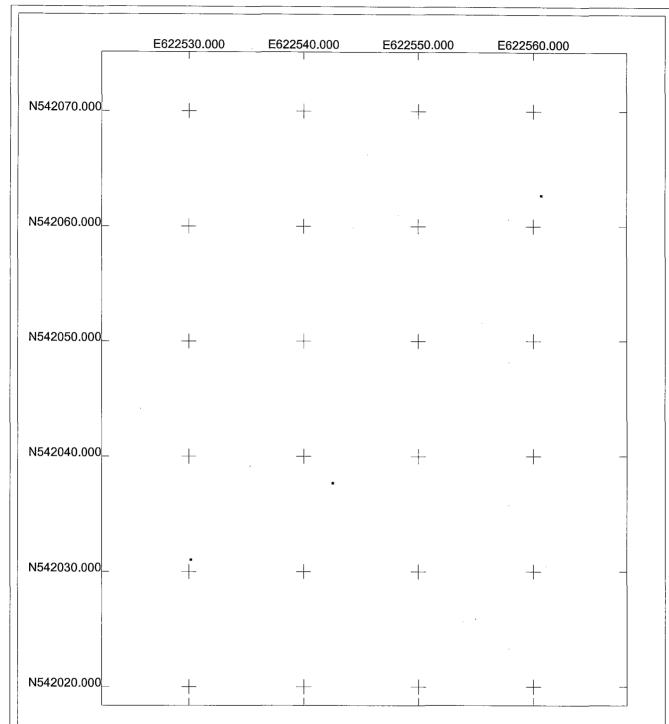
REMEDIATION ALONG BUILDING 429



REMEDIATION AWAY FROM BUILDING 429



APPENDIX D
ELECTRONIC DATA DELIVERABLES



Bldg. 429 UST Soil Sample GPS Map

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

Ν

Scale 1:100 12.50 **US Survey Feet**

r070713g.cor 7/7/2000 Pathfinder Office



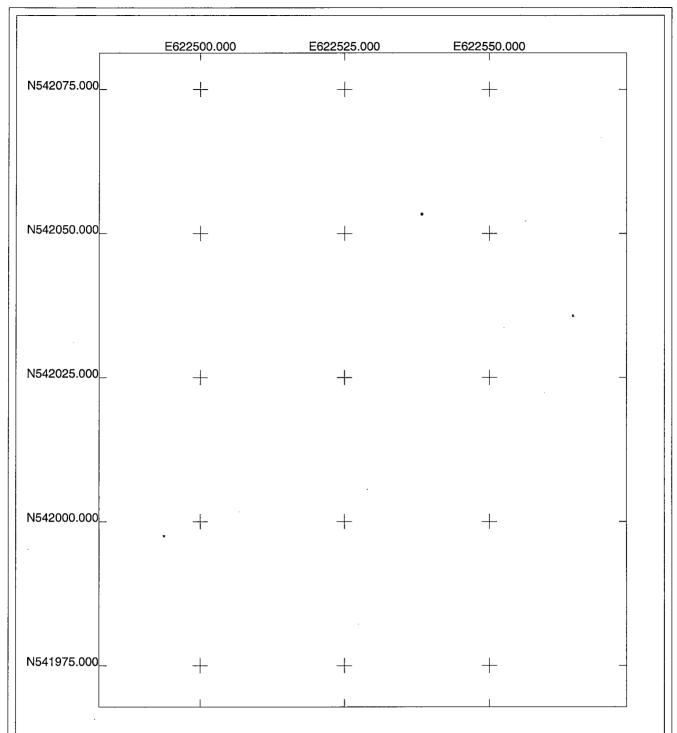
BLDG. 429 UST SOIL SAMPLE GPS POSITIONS & COORDINATES

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

(IN US SURVEY FEET)

SAMPLE POINTS

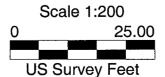
POSITION / DESC.	Y COORD. (NORTHING)	X COORD. (EASTING)
429 Soil s2	542037.712	622542.513
429 Soil s3	542031.091	622530.145
	REFERENCE POINTS	
	REFERENCE POINTS	
POSITION / DESC.	Y COORD. (NORTHING)	X COORD. (EASTING)
TELE POLE	542062.742	622560 645



Bldg. 429 UST Ground Water Sample GPS Location Map

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





r011319agw429.cor 2/10/2000 Pathfinder Office Trimble

BLDG. 429 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)
429 GW	542053.453	622538.314

REFERENCE POINTS

POSITION / DESC.	Y COORD. (NORTHING)	X COORD. (EASTING)
429 BLDG CRNR	541997.593	622493.685
429 BLDG CRNR	542035.755	622564.281