United States Army

COPY

Fort Monmouth, New Jersey

Underground Storage Tank Closure and Site Investigation Report

Building 1150 Main Post-West Area

NJDEP UST Registration No. 0081533-207

September 1998

.

UNDERGROUND STORAGE TANK CLOSURE AND SITE INVESTIGATION REPORT

BUILDING 1150

MAIN POST-WEST AREA NJDEP UST REGISTRATION NO. 0081533-207

SEPTEMBER 1998

PREPARED FOR:

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

PREPARED BY:

SMC ENVIRONMENTAL SERVICES GROUP 501 ALLENDALE ROAD KING OF PRUSSIA, PA 19406

PROJECT NO. 2491-308

THE R. P. LEWIS CO., LANSING MICH.

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EXECUTIVE SUMMARY

UST Closure

On June 20, 1998, a steel underground storage tank (UST) was closed by removal in accordance with the New Jersey Department of Environmental Protection (NJDEP) underground storage tank procedures at the Main Post-West area of the U.S. Army Fort Monmouth, Fort Monmouth, New Jersey. The UST, NJDEP Registration No. 0081533-207 (Fort Monmouth ID No. 1150), was located southwest of Building 1150. UST No. 0081533-207 was a 300-gallon No. 2 fuel oil UST.

Site Assessment

The site assessment was performed by U.S. Army personnel in accordance with the NJDEP *Technical Requirements for Site Remediation* (N.J.A.C. 7:26E) and the NJDEP *Field Sampling Procedures Manual*. The sampling and laboratory analysis conducted during the site assessment were performed in accordance with Section 7:26E-2.1 of the *Technical Requirements for Site Remediation*. Soils surrounding the tank were screened visually and with air monitoring equipment for evidence of contamination. Following removal, the UST was inspected for corrosion holes or punctures. No holes or punctures were noted in the UST and no evidence of potentially contaminated soils was observed surrounding the tank. Groundwater was not encountered. Soil samples contained TPHC concentrations ranging from non-detect to 391.39 mg/kg.

Site Restoration

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Following receipt of all post-excavation soil sampling results, the excavation was backfilled to grade with crushed stone, sand, and native backfill and restored to its original condition.

Conclusions and Recommendations

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

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-207 at Building 1150.

1.0 UNDERGROUND STORAGE TANK DECOMMISSIONING ACTIVITIES

1.1 OVERVIEW

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f i) La a One underground storage tank (UST), New Jersey Department of Environmental Protection (NJDEP) Registration No. 0081533-207, was closed at Building 1150 at the Main Post-West area of U.S. Army Fort Monmouth, Fort Monmouth, New Jersey on June 20, 1998. Refer to site location map on Figure 1. This report presents the results of the Department of Public Works= (DPW) implementation of the UST Decommissioning/Closure Plan approved by the NJDEP. The UST was a steel 300-gallon tank containing No. 2 fuel oil.

Decommissioning activities for UST No. 0081533-207 complied with all applicable Federal, State and Local laws and ordinances in effect at the date of decommissioning. These laws included but were not limited to N.J.A.C. 7:14B-1 et seq., N.J.A.C. 5:23-1 et seq., and Occupational Safety and Health Administration (OSHA) 1910.146 & 1910.120. All permits including but not limited to the NJDEP-approved Decommissioning/Closure Plan were posted onsite for inspection. The decommissioning activities were conducted by DPW personnel who are registered and certified by the NJDEP for performing UST closure activities. Closure of UST No. 0081533-207 proceeded under the approval of the NJDEP Bureau of Underground Storage Tanks (NJDEP-BUST). The Standard Reporting Form and signed Site Assessment Summary form for UST No. 0081533-207 are included in Appendices A and B, respectively.

Based on inspecting the UST, field screening of subsurface soils and groundwater, and reviewing analytical results of collected soil samples, the DPW has concluded that no significant historical discharges are associated with the UST or associated piping.

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

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

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1.2 SITE DESCRIPTION

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Building 1150 is located in the Main Post-West area of the Fort Monmouth Army Base. UST No. 0081533-207 was located southwest of Building 1150 and appurtenant copper piping ran approximately eight (8) feet northeast from the excavation to Building 1150. A site map is provided on Figure 2.

1.2.1 Geological/Hydrogeological Setting

The following is a description of the geological/hydrogeological setting of the area surrounding Building 1150. 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 thicknesses for these units vary greatly (i.e., from several feet to several hundred feet). The Coastal Plain deposits thicken to the southeast from the Fall Line to greater than 6,500 feet in Cape May County (Brown and Zapecza, 1990).

Local Geology

Based on the regional geologic map (Jablonski, 1968), the Cretaceous age Red Bank and Tinton Sands outcrop at the Main Post area. The Red Bank sand conformably overlies the Navesink Formation and dips to the southeast at 35 feet per mile. The upper member (Shrewsbury) of the Red Bank sand is a yellowish-gray to reddish brown clayey, medium-to-coarse-grained sand that contains abundant rock fragments, minor mica and glauconite (Jablonski). The lower member (Sandy Hook) is a dark gray to black, medium-to-fine grained sand with abundant clay, mica, and glauconite.

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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

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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:

- X tidal influence (based on proximity to the Atlantic Ocean, rivers, and tributaries)
- X topography
- X nature of the fill material within the Main Post area
- X presence of clay and silt lenses in the natural overburden deposits
- X 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 1150 located approximately 125 feet north of Wampum Brook, the nearest water body. Based on the Main Post topography, the groundwater flow in the area of Building 1150 is anticipated to be to the south.

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1.3 HEALTH AND SAFETY

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

1.4 REMOVAL OF UNDERGROUND STORAGE TANK

1.4.1 General Procedures

- X All underground obstructions (utilities, etc.) were identified by the contractor performing the closure prior to excavation activities.
- X All activities were carried out with the greatest regard to safety and health and the safeguarding of the environment.
- X All excavated soils were visually examined and screened with an OVA for evidence of contamination. Potentially contaminated soils were identified and logged during closure activities.
- X Surface materials (i.e., asphalt, concrete, etc.) were excavated and staged separately from all soil and recycled in accordance with all applicable regulations and laws.
- X A Sub-Surface Evaluator from the DPW was present during all site assessment activities.

1.4.2 Underground Storage Tank Excavation and Cleaning

Prior to UST decommissioning activities, surficial soil was removed to expose the UST and associated piping. All free product present in the piping was drained into the UST, and the UST was purged to remove vapors prior to cutting and removal of the piping. After removal of the associated piping, a manway was made in the UST to allow for proper cleaning. The UST was completely emptied of all liquids prior to removal from the ground. Approximately 50 gallons of liquid from the UST and its associated piping were transported by Casie Protank to Casie Ecology Oil Salvage, Inc. facility, a NJDEP-approved petroleum recycling and disposal company located in Vineland, New Jersey. Refer to Appendix C for the waste manifest.

The UST was cleaned prior to removal from the excavation in accordance with the NJDEP-BUST regulations. After the UST was removed from the excavation, it was staged on polyethylene sheeting and examined for holes. No holes or punctures were observed during the inspection by the Sub-Surface Evaluator. Soils surrounding the UST were screened visually and with an OVA for evidence of contamination. No evidence of contamination was observed. Soil screening was also performed along the piping run associated with the UST closure. No contamination was noted anywhere along the piping length. Groundwater was not encountered. See Figure 3 for a cross-sectional view of the excavated area.

1.5 UNDERGROUND STORAGE TANK TRANSPORTATION AND DISPOSAL

The tank was transported to Mazza and Sons, Inc., Metal Recyclers. See Appendix D for a copy of the UST disposal certificate and Appendix F for photographs of the UST. The transportation of the UST was in compliance with all applicable regulations and laws.

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

X Site of origin

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- X Contact person
- X NJDEP UST Facility ID number
- X Former contents

1.6 MANAGEMENT OF EXCAVATED SOILS

Based on OVA air monitoring and TPHC analysis results from the post-excavation soil samples, no soils exhibited signs of contamination. Therefore, the excavated soils were used as backfill following removal of the UST.

2.0 SITE INVESTIGATION ACTIVITIES

2.1 OVERVIEW

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

The following Parties participated in Closure and Site Investigation Activities:

- X Subsurface Evaluator: Dinker DeSai
 Employer: U.S. Army, Fort Monmouth
 Phone Number: (732) 532-6224
 NJDEP Certification No.: 10173
- X Analytical Laboratory: U.S. Army Fort Monmouth Environmental Laboratory Contact Person: Daniel K. Wright Phone Number: (908) 532-4359
 NJDEP Company Certification No.: 13461
- X Hazardous Waste Hauler: Casie Protank Environmental Services Contact Person: Bob Corsiglia Phone Number: (609) 696-4401
 NJDEP Company Certification No.: 16931

2.2 FIELD SCREENING/MONITORING

Field screening was performed by a NJDEP Certified Sub-Surface Evaluator using an OVA and visual observations to identify potentially contaminated material. Soil excavated from around the tank and appurtenant piping, as well as the UST excavation sidewalls and bottom, did not exhibit any evidence of potential contamination. Groundwater was not encountered.

2.3 SOIL SAMPLING

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On June 22, 1998, following the removal of the UST, post-excavation soil samples A, B, C, D, E, and DUP B were collected from a total of five (5) locations of the UST excavation. Samples A, B, and DUPB were collected along the centerline at a depth of 6.5 feet bgs. Sidewall samples C and D were collected at a depth of 6.0 feet bgs. Sample E was collected along the former piping length of the excavation, which was approximately eight (8) feet in length. The piping sample was collected at a depth of 1.0 feet bgs. All samples were analyzed for total petroleum hydrocarbons (TPHC) and total solids.

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

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3.0 CONCLUSIONS AND RECOMMENDATIONS

3.1 SOIL SAMPLING RESULTS

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To evaluate soil conditions following removal of the UST, post-excavation soil samples were collected on June 22, 1998, from a total of five (5) locations. All samples were analyzed for TPHC and total solids. The post-excavation sampling results were compared to the NJDEP residential direct contact total organic contaminants soil cleanup criteria of 10,000 mg/kg (N.J.A.C. 7:26D and revisions dated February 3, 1994). A summary of the analytical results and comparison to the NJDEP soil cleanup criteria is provided in Table 2 and the soil sampling locations are shown on Figure 4. The analytical data package is provided in Appendix E.

All post-excavation soil samples collected on June 22, 1998, from the UST excavation and from below piping associated with the UST contained concentrations of TPHC below the NJDEP soil cleanup criteria. Samples contained levels of TPHC ranging in concentration from non-detect to 391.39 mg/kg.

3.2 CONCLUSIONS AND RECOMMENDATIONS

The analytical results for all post-excavation soil samples collected from the UST closure excavation at Building 1150 were below the NJDEP soil cleanup criteria for total organic contaminants.

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

No further action is proposed in regard to the closure and site assessment of UST No. 0081533-165 at Building 1150.

TABLES

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SUMMARY OF POST-EXCAVATION SAMPLING ACTIVITIES BUILDING 1150, MAIN POST-WEST AREA FORT MONMOUTH, NEW JERSEY

Sample ID	Date of Collection	Date Analysis Started	Matrix	Sample Type	Analytical Parameters*	Analysis Method
А	6/22/98	6/22/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
В	6/22/98	6/22/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
С	6/22/98	6/22/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
D	6/22/98	6/22/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
Е	6/22/98	6/22/98	Soil	Post-Excavation	TPHC	OQA-QAM-025
DUP B	6/22/98	6/22/98	Soil	Post-Excavation	TPHC	OQA-QAM-025

Note:

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* TPHC Total Petroleum Hydrocarbons

TABLE 2

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POST-EXCAVATION SOIL SAMPLING RESULTS BUILDING 1150, MAIN POST-WEST AREA FORT MONMOUTH, NEW JERSEY

Page 1 of 1

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Sample ID/ Depth	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
A/6.5=	3678.01	6/22/98	6/22/98	Total Solid			82.85		
				TPHC	185	yes	ND	10,000	No
B/6.5=	3678.02	6/22/98	6/22/98	Total Solid			84.71		
				TPHC	183	Yes	391.39	10,000	No
C/6.0=	3678.03	6/22/98	6/22/98	Total Solid			82.22		
				TPHC	189	yes	ND	10,000	No
D/6.0=	3678.04	6/22/98	6/22/98	Total Solid			88.51		
				TPHC	173	yes	ND	10,000	No
E/1.0=	3678.05	6/22/98	6/22/98	Total Solid			86.28		
				TPHC	179	yes	ND	10,000	No
DUP B/6.5 =	3678.06	6/22/98	6/22/98	Total Solid		·	89.42		
				TPHC	174	yes	ND	10,000	No

Note:

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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

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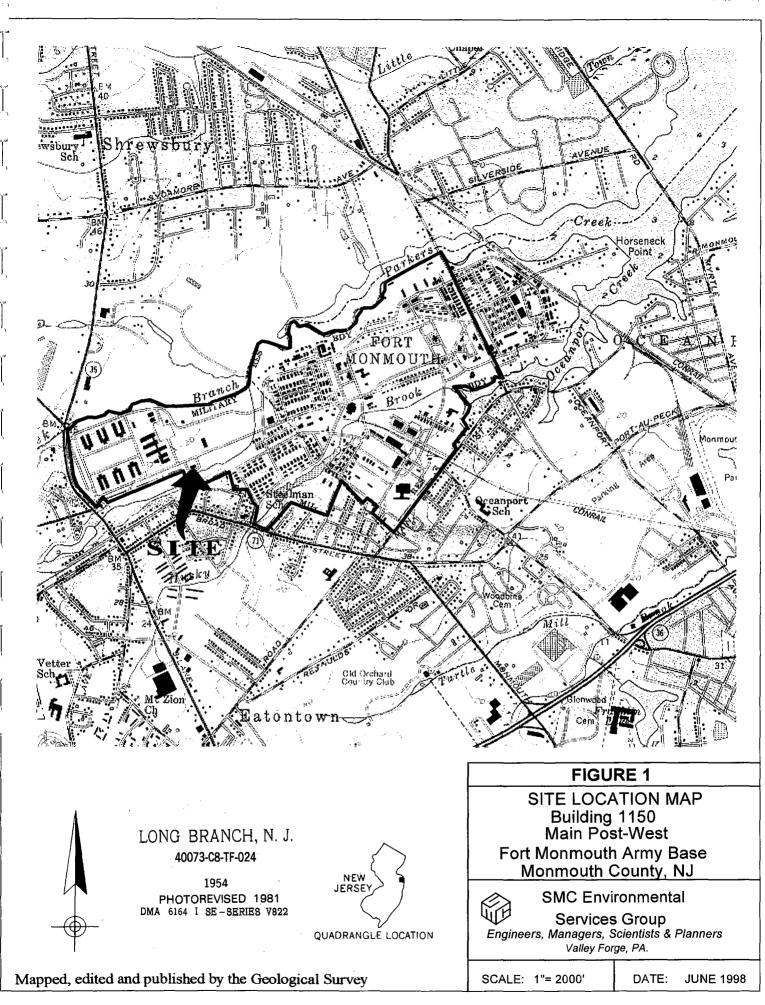
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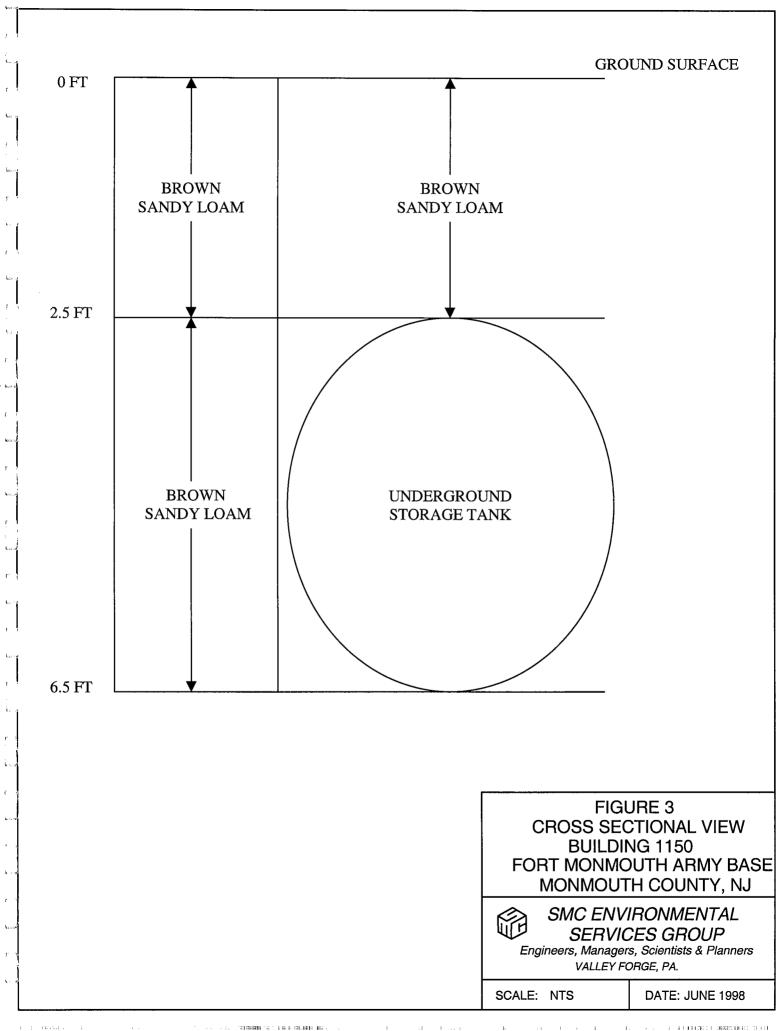
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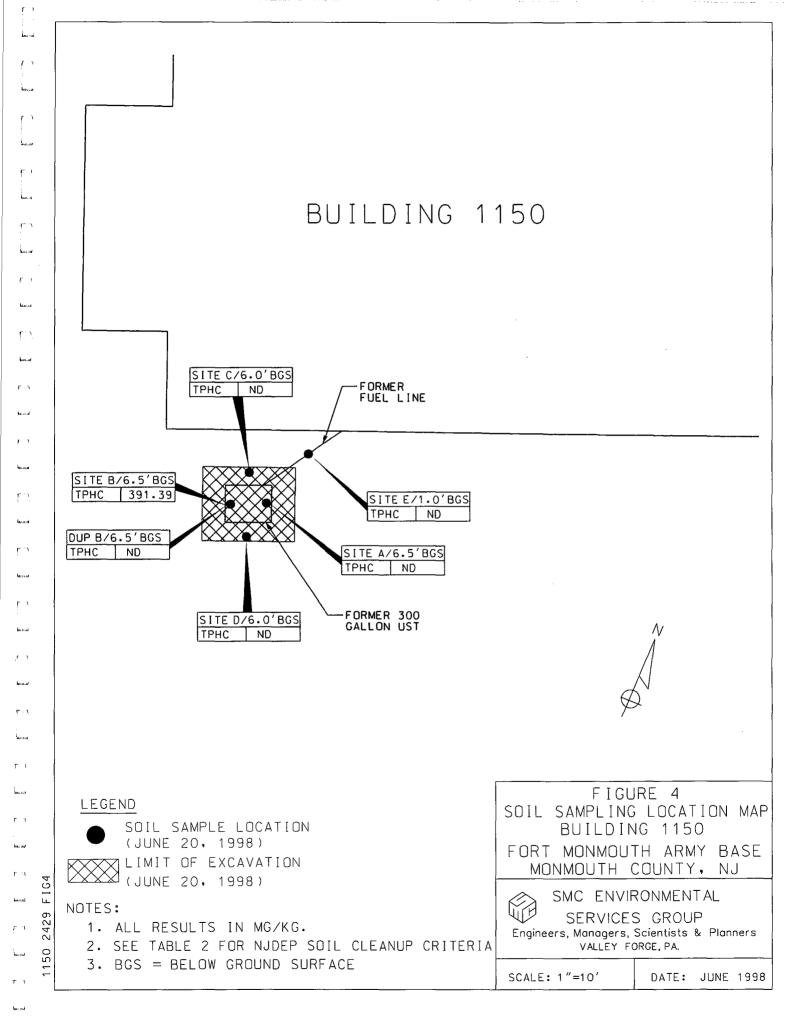
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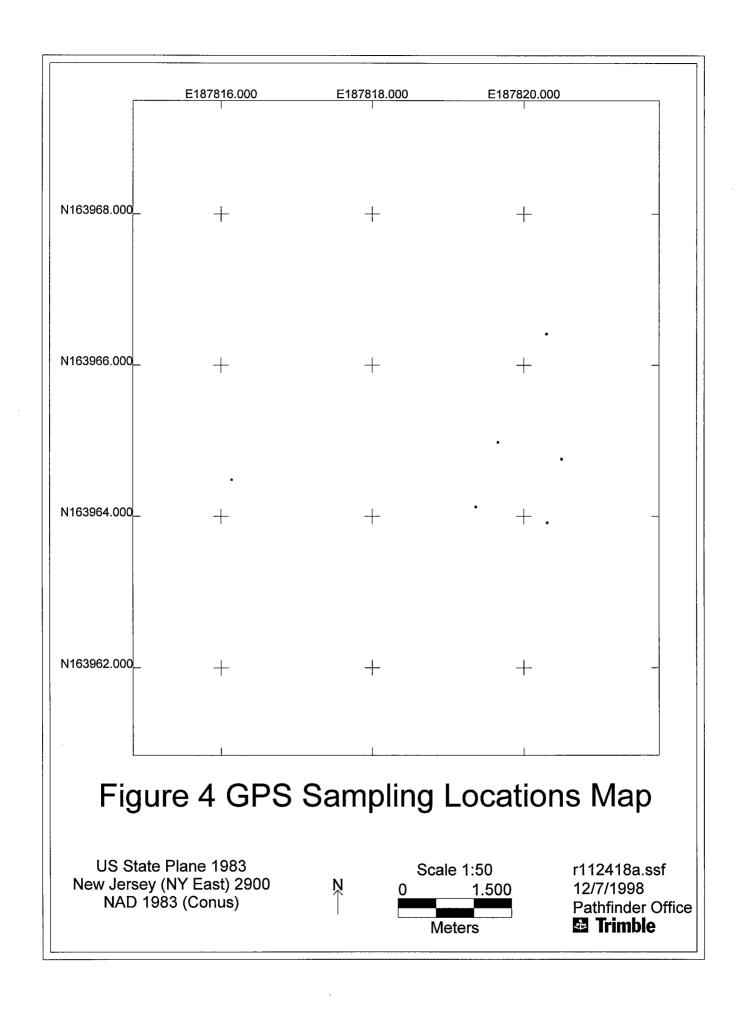


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150 2429 FIG2				SMC ENVIR SERVICES Engineers, Managers, VALLEY FC	RONMENTAL S GROUP Scientists & Planners
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E)	<u>Locations</u>	Y Coord. (Northing)	X Coord. (Easting)
ke sa	1150 SOUTH CORNER	163964.489	187816.135
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lu		Sample Points	
г)	Locations	Y Coord. (Northing)	X Coord. (Easting)
lase con	1150 A	163963.924	187820.302
(°)	1150 B	163964.134	187819.362
	1150 C	163964.989	187819.654
ku::	1150 D	163964.764	187820.491
Γ,)	1150 E	163966.418	187820.291

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APPENDIX A

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NJDEP-STANDARD REPORTING FORM

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·	NEW JERSEY ARTMENT OF ENVIRONMENTAL PRC	STION	
	DIVISION OF RESPONSIBLE PARTY SITE REMEDIATION		FOR STATE USE ONLY
	BUREAU OF APPLICABILITY AND COMPLIANCE Registration and Billing Unit		Check In Yes No
	- CN 028, Trenton, N.J. 08625-0028 1-609-984-3156		STATUS COMCODE
	UNDERGROUND STORAGE TANK		
	FACILITY QUESTIONNAIRE		
FACILITY UST #		RGDG 115	
	nis Registration Questionnaire will satisfy the registration require stances Act, N.J.S.A. 58:10A-21, and the Registration and Billir		
B. Is this a reg C. I Is this a con D. There have signatures)	istration of a proposed or newly installed underground storage tank? istration of an existing underground storage tank not presently register rection or amendment to an existing facility registration? UST # been no changes to the facility registration since last submittal. UST	ed? //533-207	at least 30 days prior to operation) (Go to certification page for
	and/or Address Change	 Financial Responsi	bility Change
Owner Name	and/or Address Change Spills, Leaks, Releases for and/or Address Change Tank(s) and/or Piping Changes	Substantial Modific	ation(s)
	t Person Change	_Other (please spec	complete Questions 4,5,6 & 13D
SECTION A - (GENERAL FACILITY INFORMATION		
1. Facility Name	WISI ARMIELLING		
2. Facility Location	FIOIRITIMOINIMOICITIMI TILLILLI		· · · · · · · · · · · · · · · · · · ·
a)			
1			
المسا			
3. Facility Operato		Contact	(Extension)
Operator Address (if different than	S		<u></u>
#2)		┶┶┶┶┶┶┶	
" 1 .		1 1 1 1 1 1	<u></u>
4. Tank Owner			
5. Tank Owner Address	NUMBER AND STREET		
y v			
()			
لا ين ت	STATE ZIP CODE	-	
(Tank Owner)		Contact	(Extension)
7. EPA ID #			
	f regulated underground storage tanks at facility (Comple	te Section B for each	tank)

-10. Facility Type:	A State C C C B Commercial/ D Fe	ouniv/Municipal E	Charitable / Public School Residence	G Officer H Farm (as defined in N.J.S.A. 54:4-23.1 et seg.)
baul .	facility site plan submitted with the PECIFIC TANK INFORMATIO		o N.J.A.C. 7:148-2?	

ALL underground tanks, including those taken out of operation (UNLESS THE TANK WAS REMOVED FROM THE GROUND PRIOR TO 9/3/86) must be registered. Report all tank/piping status changes unless previously submitted.

. Tank Identification Number	1 1	ANK	NO.	1 7	NK	NO.	TAN	ik No.	TAN	KNO.	TAN	IK NO.
				1-1-	<u>1 1</u>	·		111				
2. CAS Number (hazardous substances only)	111	11			1.1		111	LIIÎ		1111		144
3. Date Tank Installed (Month/Day/Year)	Mo.	Dey	Year	Mo.	Dey	Year	iio. Dey	Year	Mo. Day	y Year	Mo. Day	Year
4. Tank Size (gallons)					Î							
5. Tank Contents (Mark one "X" for each tank)	1					 1		_	1 1 -			_
A. Leaded gasoline]				_	
B. Unleaded gasoline			.									
C. Alcohol endriched gasoline	┣──										L	
D. Light diesel fuel (No. 1-D)	ļ		<u></u>	<u> </u>								
E. Medium diesel fuel (No. 2-D)	<u> </u>	_		<u> </u>	-							
F. Waste Oil						· · · · · · · · · · · · · · · · · · ·						
G. Kerosene (No. 1)	<u> </u>	_										_
H. Home heating oil (No. 2)	Ļ			<u> </u>	_				┞──┤		-	
J. Heating oil (No. 4)	 								 			<u> </u>
K. Heavy heating oil (No. 6)	 			<u> </u>	-		┝──┤		 		 .	
L Aviation fuel	<u> </u>		ļ									
M. Motor oil	<u> </u>		ļ			ļ	└ ── ┤					
N. Lubricating oil	 											
P. Sewage								_			 	
Q. Sewage sludge	Ļ			- 	1.	l		<u>_</u>	ļ			
R. Other hazardous substances (specify)	 								 	·	ļ	
S. Hazardous waste (specify ID number)	Ļ								 			
T. Mixtures (please specify)												
U. Emergency spill tank (specify substance)			<u> </u>						ļ			
V. Other petroleum products (please specify)	Ļ				<u> </u>				ļ			
W. Other (please specify)	_	- <u></u>							 		ļ	
6. Tank & Piping Construction	Tar	ık	Piping	Tan	k	Piping	Tank	Piping	Tank	Piping	Tank	Pipin
(Mark one each for both tank & piping) A. Bare Steel		٦	[]]							
B. Cathodically protected steel	┢┼╾	+	╾┾╌┼╌╸	++			+ + + - + + + + + + + + + + + + + + +				┠╾┞╍┾╾╸	
C. Fiberglass-coated steel	╋╋			-1	<u> </u>							╾┼╾╀
D. Fiberglass-reinforced plastic	++	+	╾┼╌┼╌	++							╏╼┼╾┾╾╴	
	╋╋	+		++	<u> </u>	++					+ + - + - + - + - + - + + - + + - +	
E Internally lined	1 1											
E. Internally lined	╋╌┷			┤─┴──	L							
F. Other (please specify)		- 1 -	ll,				T o-lo		Toolo	Dia in a	Taula	D 's is
F. Other (please specify) 7. Tank & Piping Structure	Tar	nk	Piping	Tan	k	Piping	Tank	Piping	Tank	Piping	Tank	Pipin
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping)	Tar		Piping	Tan		Piping	Tank	Piping	Tank	Piping	Tank	Pipin
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall		nk	Piping	Tan	k	Piping	Tank	Piping	Tank	Piping	Tank	Pipin
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping)		nk	Piping	Tan	k	Piping	Tank	Piping	Tank	Piping	Tank	Pipin
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify)		<u>}</u>			<u> </u>							
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping)		<u>}</u>	Piping		<u> </u>	Piping Piping Piping	Tank Tank	Piping Piping	Tank Tank Tank	Piping Piping	Tank Tank Tank	
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) A. Statistical Inventory Reconciliation		<u>}</u>			<u> </u>							
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) A. Statistical Inventory Reconciliation B. Manual Tank Gauging		<u>}</u>			<u> </u>							
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 3. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) A. Statistical Inventory Reconciliation B. Manual Tank Gauging C. Inventory Control		<u>}</u>			<u> </u>							
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) A. Statistical Inventory Reconciliation B. Manual Tank Gauging C. Inventory Control D. Interstitial		<u>}</u>			<u> </u>							
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) A. Statistical Inventory Reconciliation B. Manual Tank Gauging C. Inventory Control		<u>}</u>			<u> </u>							
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) A. Statistical Inventory Reconciliation B. Manual Tank Gauging C. Inventory Control D. Interstitial E. Precision Test F. Ground water observation wells		<u>}</u>			<u> </u>							
F. Other (please specify) 7. Tank & Piping Structure (Mark one each for both tank & piping) A. Single wall B. Double wall C. Other (please specify) 8. Type of Monitoring/Detection System (Mark all that apply for both tank & piping) A. Statistical Inventory Reconciliation B. Manual Tank Gauging C. Inventory Control D. Interstitial E. Precision Test		<u>}</u>			<u> </u>							Pipin

) T	ANK	(NO.	TA	NK NO.	-N	K NO.	TAI	WK NO.	TAN	K NO.
Tank Identification Number	ſ	Ī	\Box	[T	1 🗇			
8. Type of Monitoring/Detection System K. None	Tan	ik]	Piping	Tan	k Piping	Tank	Piping	Tank	Piping	Tank	Pipin
L Other (please specify)	- <u> </u>	<u></u>									·····
Overfill Protection (tank only) (Mark one X for each tank)										:	
A. Yes	{	Г	ר ר			1 1	٦			l r	- 1.
8. No	T	1	<u> </u>								
10. Spill Containment Around Fill Pipe (Mark one X för each tank)			 							ſ	
A. Yes	╂	+-	+		. 	 		4			
B. No	+	<u> </u>							<u>ارد</u>	1	
11. Tank Status (Mark one X for each tank) A. In-use		1 K 	Piping	Tan	c Piping				Piping	Tank	
B. Empty less than 12 months	╉╋	+		┠╍┝╍╎		╉╼┾╼┼━		+++		┠╾┤─┼─	
C. Empty 12 months or more	╉╋╋	+	╾┼╌┼╌╴	┠╌┾╌┤		╆┾╌┾╌	-+	┟╌┼╌┼╴		┠╌┾╍┾╍	-+-+
D. Emergency spill tank (sump) E. Emergency backup generator tank	╉╾┼╾	+		┢╌┼╌┤		+++		╋╌┼╌┼		┠─┼╍┼╾	-++
F. Abandoned in Place	╉╼┼╍	┼╌╴		╆╌┼╍┤	╍╍╍┼╍┼╼	╉╴╆╌┿╼	╺╼┼╾┼╼╍	╁╾┼╌┼╴	╺╼╌┼╶┼╌╍	┟╼┼╌┼╾	╾┼╴┼
G. Removed	╋╋	+				╁┼┼╴	-+	╏╌┼╌┼╴		┟╾┼╌┼╍	
H. Other (please specify)	+	-L		┟──└──┘	ll	┪	ll	╁╌┴╌└╴	I	╏──┴──└──	
12. If box 11B, C, or D above has been	Mo.	Day	Year	Mo. I	Day Year	Mo. Day	Year	Mo. Da	y Year	Mo. Day	Year
marked, indicate the estimated date last used (month/day/year)	1.1				1 1 1 1				1		1 1 1
iast used (month/day/year)	┽┵╬	TANI	K NO.	┝╍┶┶╆	NK NO.	TAN	KNO.	┤╴╵╍┶ ╼╼	<u>NK NO.</u>	TANK	
13. Closure Information - Tank ID No.		22			Dey , Year	Mo., Day			ay, Year	Mo., Da	
A. Date abandoned in place	Mo.	Day									
B. Date taken temporarily out of service		1	1111								
C. Date removed	16	20	1993	11		111	111		1 1 1 1		11
D. Date of Sale or Transfer			111		1 1 1 1	1111	111		1 1 1 1 1		11
		1500	AL CASE	TMG.	Ê	┫		+	<u>·</u>	<u> </u>	<u>-</u> <u>-</u> <u>-</u>
E. TMS # (if applicable)	رميسر		<u> </u>	+···/	<u> </u>	+		+	··· ·· ·· ·· ··	1	
	YEL			1				1			
E. TMS # (if applicable) F. ISRA # (if applicable) SECTION C - FINANCIAL RESPON]					1			
F. ISRA # (if applicable) SECTION C - FINANCIAL RESPON Does this facility have a Financial Respons Please list the appropriate financial informa	SIBIL	ITY \ssu		chanisi	n as required			YES		·	
F. ISRA # (if applicable) SECTION C - FINANCIAL RESPON Does this facility have a Financial Respons	SIBIL	ITY \ssu		chanisi	n as required		R 280? [Issuing A	 	- NO		
F. ISRA # (if applicable) SECTION C - FINANCIAL RESPON Does this facility have a Financial Respons Please list the appropriate financial informa Type	SIBIL ibility A ttion be	ITY \ssu		chanisr		Carrier /		 	\$		
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F. ISRA # (if applicable) SECTION C - FINANCIAL RESPON Does this facility have a Financial Respons Please list the appropriate financial informa Type	SIBIL ibility A ttion be	ITY \ssu		chanis		Carrier /		 	\$		
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F. ISRA # (if applicable) SECTION C - FINANCIAL RESPON Does this facility have a Financial Respons Please list the appropriate financial informa Type	SIBIL ibility A ttion be / Date MS monitor ist mee comPL tion on ection operate current	Assumed a factor of the system of an it ation.	system wi appropri NCE cility basis ems for a id maintai n of moni	hich is ate dea s. Any Il steel ined put toring s	Policy in compliance adline. (See one tank not tanks and pig rsuant to N. systems main	Carrier / Number with N.J "Dates to in compli- bing? J.A.C. 7:14 ttained by	A.C. 7:14 Know" on ance requ 48-5? the owne	gency B-6? Page 4) ires a "N		for the en YES	itire faci NO NO
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· ·	IMPORTANT	INFORMATION
E:	Please make checks payble to: "Treasurer, processing. Registration and Billing Schedu	, State of New Jersey". Use of the enclosed return envelope will expedite the can be found in N.J.A.C. 7:148.
· · · · · · · · · · · · · · · · · · ·	All Initial Registration fees are \$100 per fact	ility.
NALTY:	Failure by owner or operator of a regulated a Act or regulations may result in the penalties	underground storage tank to comply with any requirement of the State US set forth in N.J., S.A. 58:10A-10.
ERGENCY:	If a discharge or spill occurs, the NIDEP Ho	tline at (609) 292-7172 must be called IMMEDIATELY - 24 hours a day.
GRADE EXEMPTION		tanks are exempt from all upgrade requirements.
	· ·	W (critical deadlines)
December 22, 1988		must have cathodic protection and spill/overfill protection,
September 4, 1990		s must have cathodic protection and spill/overfill protection.
December 22, 1990 February 19, 1993		negun leak detection. maintain financial responsibility assurance.
December 22, 1993		- •
December 22, 1998		
· · · · · · · · · · · · · · · · · · ·	(TERTI	FICATIONS
NOTE: IF THE PERS		E SAME AS THE PERSON SIGNING CERTIFICATION NO. 1. THEN
		sons are required to sign No. 1 and No. 2, then they must do so.)
CERTIFICATION N	<u>40. 1:</u>	
Aust be signed by the	highest ranking individual at the facility w	vith overall responsibility
nowledge, information naccurate or incomplete to be the penalties "	on and belief. I am aware that there are since the information and that I am committing a	in this document is true, accurate and complete to the best of ignificant civil and criminal penalties for knowingly submitting fa a crime of the fourth degree if I make a written false statement which rect or authorize the violation of any statute, I am personally liable
	Typed / Printed Name)	(Signature)
	Public Works	6/23/98
	(Title)	/ (Date)
CERTIFICATION	<u>NO. 2:</u>	
For a partnership or For a municipality,	y a principal executive officer of at least the sole proprietorship, by a general partner or	the proprietor, respectively ther a principal executive officer or ranking elected official
locuments, and that t submitted information submitting false, inac	based on my inquiry of those individuals im in is true, accurate and complete. I am awa curate or incomplete information and that not believe to be true. I am also aware th	and am familiar with the information submitted herein and all attac amediately responsible for obtaining the information. I believe that re that there are significant civil and criminal penalties for knowin I am committing a crime of the fourth degree if I make a written fa at if I knowingly direct or authorize the violation of any statute, I
NOT	REQUIRED	
	(Typed / Printed Name)	(Signature)
<u></u>	(Title)	(Date)
· .		
CERTIFICATION		
and a star in the second s	<u>NO. 3:</u>	o perform services.
If applicable, must be I certify under pen- cnowledge, informat naccurate or incomp	NO. 3: signed by the individual who is certified to alty of law that the information provided ion and belief. I am aware that there are so lete information and that I am committing a	in this document is true, accurate and complete to the best of ignificant civil and criminal penalties for knowingly submitting fa a crime of the fourth degree if I make a written false statement whi
If applicable, must be I certify under pen- cnowledge, informat inaccurate or incomp to not believe to be to the penalties."	NO.3: e signed by the individual who is certified to alty of law that the information provided ion and belief. I am aware that there are si lete information and that I am committing a rue. I am also aware that if I knowingly di $M = D \in M$	o perform services. in this document is true, accurate and complete to the best of ignificant civil and criminal penalties for knowingly submitting fa a crime of the fourth degree if I make a written false statement whi rect or authorize the violation of any statute. I am personally liable
If applicable, must be I certify under pen- knowledge, information inaccurate or incomp do not believe to be to the penalties." DINKGN (Typed / Printed Na	NO.3: e signed by the individual who is certified to alty of law that the information provided ion and belief. I am aware that there are si lete information and that I am committing a rue. I am also aware that if I knowingly di $M = D \in M$	in this document is true, accurate and complete to the best of ignificant civil and criminal penalties for knowingly submitting fare crime of the fourth degree if I make a written false statement white rect or authorize the violation of any statute. I am personally liable

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APPENDIX B

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SITE ASSESSMENT SUMMARY

UST Site/F	Site Remediation Program Remedial Investigation Report Certification Form
A. Facility Name : <u>U.S. Army</u>	Fort Monmouth New Jersey
Facility Street Address : D	Directorate of Public Works Building 173
Municipality: Eatontown	County : Monmouth
Block:L	Lot(s):Telephone Number :732-532-6224
B. Owner (RP)'s Name:	
Street Address:	City :
State:	Zip: Telephone Number :
C. (Check as appropriate) Site Investigation Report (SIR) \$500 Fee Remedial Investigation Report (RIR) \$1000 Fee X. NA – Federal Agreement	 D. (Complete all that apply) Assigned Case Manager : <u>Ian Curtis, Federal Case Manager</u> UST Registration Number : <u>81533-207</u> (7 digits) Incident Report Number <u>•</u> • <u>•</u> • <u>•</u> (10 or 12 digits) <u>•</u> • <u>•</u> • <u>•</u> • <u>•</u> Tank Closure Number : <u>Federal Case Manager</u>
Name: Dinker DeSai	ms to the specific reporting requirements of N.J.A.C. 7:26E
Firm: U.S. Army Fort Monr	mouth Firm's UST Cert. Number: <u>NA - U.S. Army</u>
Firm: U.S. Army Fort Monr Firm Address: Directorate of	
Firm Address: <u>Directorate or</u> State: <u>New Jersey</u>	f Public Works Building 173 City: Fort Monmouth
 Firm Address: <u>Directorate of</u> State: <u>New Jersey</u> (NOTE: Certification numbers of the following certification shates) For a Corporation by a performation of the following certified as a true For a partnership or sole present the following of the following certified as a true 	f Public Works Building 173 City: Fort Monmouth _Zip: 07703 Telephone Number : 732-532-6224
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 Firm Address: <u>Directorate of</u> State: <u>New Jersey</u> (NOTE: Certification numbers of F. Certification by the Respo The following certification shat 1. For a Corporation by a perresolution, certified as a true 2. For a partnership or sole prodices 3. For a municipality, State, fee "I certify under properties of a partnership or and a information, I be significant civil committing a crimer termine the significant civil committing a crimer termine termin	<u>f Public Works Building 173</u> <u>City: Fort Monmouth</u> <u>Zip: 07703</u> <u>Telephone Number : 732-532-6224</u> required only if work was conducted on USTs regulated per N.J.S.A. 58:10A-21 et seq.) posible Party(ies) of the Facility: all be signed [according to the requirements of N.J.A.C. 7:14B-1.7(b)]as follows: rson authorized by a resolution of the board of directors to sign the document. A copy of the copy by the secretary of the corporation, shall be submitted along with the certification; or oprietorship, by a general partner or the proprietor, respectively; or ederal or other public agency by either a principal executive officer or ranking elected Official. enalty of law that I have personally examined and am familiar with the information submitted in this all attached documents, and that based on my inquiry of those individuals responsible for obtaining the elieve that the submitted information is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false, inaccurate, or incomplete information and that I am me of the fourth degree if I make a written false statement which I do not believe to be true. I am also isowingly direct or authorize the violation of any statute, I am personally liable for the penalties."
 Firm Address: <u>Directorate of</u> State: <u>New Jersey</u> (NOTE: Certification numbers of F. Certification by the Respo The following certification shat 1. For a Corporation by a perresolution, certified as a true 2. For a partnership or sole pro 3. For a municipality, State, fee "I certify under prapplication and a information, I be significant civil committing a critical aware that if I kn 	<u>f Public Works Building 173</u> <u>City: Fort Monmouth</u> <u>Zip: 07703</u> <u>Telephone Number : 732-532-6224</u> required only if work was conducted on USTs regulated per N.J.S.A. 58:10A-21 et seq.) posible Party(ies) of the Facility: all be signed [according to the requirements of N.J.A.C. 7:14B-1.7(b)]as follows: rson authorized by a resolution of the board of directors to sign the document. A copy of the copy by the secretary of the corporation, shall be submitted along with the certification; or oprietorship, by a general partner or the proprietor, respectively; or ederal or other public agency by either a principal executive officer or ranking elected Official. enalty of law that I have personally examined and am familiar with the information submitted in this all attached documents, and that based on my inquiry of those individuals responsible for obtaining the elieve that the submitted information is true, accurate, and complete. I am aware that there are penalties for knowingly submitting false, inaccurate, or incomplete information and that I am me of the fourth degree if I make a written false statement which I do not believe to be true. I am also isowingly direct or authorize the violation of any statute, I am personally liable for the penalties."

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APPENDIX C

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ac	cording to applicable international an hereby certify that the above-named mai	d national government regu	lations.					
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3. Generator's Name and Mailing Address U.S		- 13	A. Non-	hazardous Ma 020 19		Imen
	rt Monmouth NJ 07703	FAIION	B. State	Generator's ID		
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9 Designated Fac-ity Name and Site Address	10. US EPA ID Nu	mber		antania Di	······	
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Additional Descriptions for Materials Listed	Above	<u> </u>	K Hand	ling Codes for	Wastes Liste	C Ab
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a.ERG# 128 b.24 hr emergency response	#609-696-4401 K.Ambrosia		031	Clasur	C	
16 GENERATOR'S CERTIFICATION: I hereby proper shipping name and are classified, pa	declare that the contents of this consignment a licked marked, and labeled, and are in all respec	ire fully and acc cts in proper co	urately des	cribed above t transport by h	by nghway	
according to applicable international and na I hereby certify that the above-named materia	ational government regulations at is not nazardous waste as defined by 40 CFR Pa	art 261, 264 and	279 or any	applicable state	e law.	
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APPENDIX D

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	Tinton Falls, NJ (908) 922-9292	DATE. 22 CA- 94
Customer's Name	Term - VINU.	, <u>L</u>
Address		
Weight Price		
Weight Price	· · ·	Weight Price
Steel Tank 50.05	1997-9-1B	Brass
I t Iron		Alum Clean
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Copper #2	* Check Not Picked up.	Stainless
	* Check Not Picked up.	Battery
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	MAZZA & SONS, INC. RECYCLING DIVISION	1.10
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APPENDIX E

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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:

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ر) است Total Petroleum Hydrocarbons 98-0001 Bldg. 11<u>5</u>0

1-6-48

Daniel K. Wright Date: Laboratory Director

Section	Pages
Cover Sheet	1
Table of Contents	2
Method Summary	3
Conformance/Non-Conformance	4
Chain of Custody	5-6
Results Summary	7
Initial Calibration Summary	8
Continuing Calibration Summary	9
Surrogate Results Summary	10
MS/MSD Results Summary	11
Quality Control Spike Summary	12
Raw Sample Data	13-24
Laboratory Deliverable Checklist	25

Table of Contents

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Method Summary

NJDEP Method OQA-QAM-025-10/97

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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

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	<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	
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).	
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).	NA
(If not met, list the sample and corresponding recovery which falls outside the acceptable range).	NA

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 (732)532-4359 Fax (732)532-3484 EMail:appleby@doim6.monmouth.army.mil

NJDEP Certification #13461

Chain of Custody Record

Anoleby - UHW Customer: Project No: 98.1001 Analysis Parameters **Comments:** #=SAMPLES KEPT BELOW 4°C. Location: B/150 Phone #: 61705 M 81533-20)DERA MOMA ()Other: JUB Samplers Name / Company: GARY DIMANTINIS-TUS Sample Remarks / Preservation Method Lab Sample I.D. Sample Location Date Time Type bottles 36718. 1150-R 01 6-20-98 1013 SOIL 3 CENTER LINE @6.5* 3 02 B 1005 NO SIDEWALLE 6.0' 03 \mathcal{C} 1008 DY D ND 1018 ND Piping Run @ 1.0' FIELD DUPLICATE E ØS 1022 Dup NOTE: OLM (#AST SO3) CAL SRATES 495 per CHy + Etxo () AVE & 1000 HAS. ON 61 dished by signature Date/Time: Received by (signature): Relinquished by (signature): Date/Time: Received by (signature): 22-98 0930 Relinquished by (signature): Date/Time: Beceived by (signature): Relinquished by (signature): Date/Time: Received by (signature): Remarks: DEDICATED SAMPLING TOULS USED. Report Type: (_)Full, KReduced, (_)Standard, (_)Screen / non-certified Turnaround time: 🔊 Standard 4 wks, () Rush Days, ()ASAP Verbal Hrs.

Client :	U.S. Army			Lab. ID # :		3678
	DPW. SELFM-P	W-EV		Date Rec'd:		22-Jun-98
	Bldg. 173			Analysis Sta	rt:	22-Jun-98
	Ft. Monmouth, N	J 07703		Analysis Con	nplete:	22-Jun-98
Analysis:	OQA-QAM-025			UST Reg. #:		
latrix:	Soil			Closure #:		
Analyst:	D.DEINHARDT			DICAR #:		
Ext. Meth:	Shake		<u> </u>	Location #:		B. 1150
Sample	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	TPHC Resul (mg/kg)
3678.01	1150-A	1.00	15.33	82.85	185	ND
3678.02	1150-В	1.00	15.16	84.71	183	391.39
3678.03	1150-C	1.00	15.14	82.22	189	ND
3678.04	1150-D	1.00	15.38	88.51	173	ND
3678.05	1150-Е	1.00	15.25	86.28	179	ND
3678.06	1150-DUP	1.00	15.12	89.42	· 174	ND
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MDL = Method Detection Limit

Daniel K. Wright

Laboratory Director

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Response Factor Report &C/MS Ins

Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title : TPHC Calibration 06/05/97 21 peaks Last Update : Thu Jun 11 14:59:41 1998

Calibration Files

100	С	=T05610.D =T05613.D	50 5	=T05611 =T05614		20	=T05	5612.D			
		Compound		100	50						%RSD
2) 3) 4) 5) 6) 7) 8) 9) 10) 11) 12) 13) 14) 15) 16)	tC tC tC tC tC tC tC tC tC tC tC tC tC t	C10 C12 C14 C16 C18 C20 C22 C24 C26 C28 C30 C32 C34 C36 C38		3 100	2.923	2.657	2.575	2.270	2.705	E4	3.93 2.76 3.30 2.96 2.56 1.91 2.34 2.24 2.25 2.30 2.47 2.90 3.58 4.24 6.33 11.86 21.76
17) 18) 19) 20) 21) 22)	tC tC TC TC sC tC	C40 c42 Pristane Phytane o-terphenyl TPHC - total		2.791 2.484 2.844 2.979 3.572 3.082	2.665	2.705	2.785	2.764	2.753	Е4 Е4	31.76 2.54 2.29
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TPH41.M

Fri Jun 12 08:15:45 1998

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line a	Evaluate Continuing Calibration Report	
	Data File : C:\HPCHEM\1\DATA\980622\T05832.D Vial: 2 Acq On : 22 Jun 98 8:57 pm Operator: Deinhardt	
ke	Sample : 50 PPM STANDARD Inst : GC/MS Ins	
Γì	Misc : Multiplr: 1.00 IntFile : TPHCINT.E	
لوییست : : ایری اهمی به	Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title : TPHC Calibration 06/05/97 21 peaks Last Update : Thu Jun 11 14:59:41 1998 Response via : Multiple Level Calibration	
f") Note at	Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min Max. RRF Dev : 20% Max. Rel. Area : 200%	
() 	Compound AvgRF CCRF %Dev Area% Dev(min)	
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Г : Іс. 1.12	17 CCC4022.201 30.477 13 -30.8 134 0.00 18 tCc4218.150 29.562 $E3$ -62.9 170 -0.01 19 TCPristane 27.526 28.386 $E3$ -3.1 109 0.00 20 TCPhytane 28.919 29.404 $E3$ -1.7 107 0.00 21 sC $o-terphenyl$ 34.563 35.729 $E3$ -3.4 110 0.00	
r \	21 SC 0-templenyi 54.505 55.725 HS 5.4 110 0.00 22 tC TPHC - total 30.963 31.312 E3 -1.1 112 0.00	

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(#) = Out of Range SPCC's out = 0 CCC's out = 2 T05832.D TPH41.M Tue Jun 23 11:56:09 1998

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Page 1

Surrogate Recovery Report

			Lab. ID # :	3678
		_	Location #:	B. 1150
Sample		Surrogate Added (ppm)	Amount Recovered (ppm)	Percent Recovery
3678.01		10.00	10.07	100.69
3678.02		10.00	9.75	97.46
3678.03		10.00	9.12	91.24
3678.04		10.00	9.02	90.20
3678.05		10.00	9.12	91.18
3678.06		10.00	9.21	92.07
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METHOD BLANK	TBLK 118	10.00	9.32	93.22

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Matrix Spike Recovery Report

				Lab. ID # :	3678
				Location #:	B. 1150
Sample	Spike Amount Added (ppm)	Sample Amount (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
3674.04MS	1000	0.00	887.63	88.76	75-125
3674.04MSD	1000	0.00	826.18	82.62	75-125

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		RPD	7.17	20.00
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Blank Spike Recovery Report

			Lab. ID # :		3678
	<u> </u>		Location #:		B. 1150
Sample	Date Extracted	Spike Amount Added (ppm)	Matrix Spike Amount (ppm)	Percent Recovery	QC Limits %
Blank Spike	22-Jun-98	1000	875.35	87.53	75-125

Quantitation Report (OT Reviewed) Data File : C:\HPCHEM\1\DATA\980622\T05835.D Vial: 16 Acq Un Sample : Acq On : 22 Jun 98 11:03 pm Operator: Deinhardt : 3678.01 Inst : GC/MS Ins Multiplr: 1.00 IntFile : TPHCINT.E Quant Time: Jun 23 11:38 1998 Quant Results File: TPH41.RES Ouant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title : TPHC Calibration 06/05/97 21 peaks Last Update : Thu Jun 11 14:59:41 1998 Response via : Initial Calibration DataAcq Meth : TPH41.M Volume Inj. : 1 ul Signal Phase : HP-5 Signal Info : 30m x 0.32mm Compound R.T. Response Conc Units System Monitoring Compounds

 21) sC o-terphenyl
 13.90
 348007
 10.069 mg/L

 Spiked Amount
 10.000
 Range
 8 - 13
 Recovery
 = 100.69%#

 Target Compounds 11.4521660.086 mg/L12.4534620.132 mg/L12.9123350.077 mg/L13.3525090.087 mg/L14.1613160.046 mg/L12.9416360.059 mg/L13.3910680.037 mg/L13.90110590235.716 mg/L m 4) tC C14 5) tC C16 6)_tC_ C18 7) tC C20 8) tC C22 19) TC Pristane 20) TC Phytane

(f) = RT Delta > 1/2 Window

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T05835.D TPH41.M Tue Jun 23 11:45:23 1998

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Title : THC Calibration 06/05/97 21 peaks Last Update : Thu Jun 11 14:59:41 1998 Response via : Multiple Level Calibration DataAcq Meth : TPH41.M Volume Inj. : 1 ul Signal Phase : HP-5 Signal Info : 30m x 0.32mm Response 46000 40000 40000 40000 3000 3000 30				Quant Re	sults Fi	le: TP	H41.RES	
Signal Phase : HP-5 Signal Info : 30m x 0.32mm Response 46000 40000 40000 58000 36000 36000 36000 36000 26000 2800 28000 28000 28000 28000	Title Last Upd Response	: TPHC (late : Thu Ju via : Multip	Calibratic un 11 14:5 ple Level	on 06/05/9 59:41 1998	7 21 pea		on Integr	ator)
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26000 24000 22000 20000 16000 16000 14000 10000 8000 6000 4000 2000 100000	30000							:
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22000 20000 18000 16000 14000 12000 10000 8000 6000 4000 2000 0 -2000 -4000 -4000	:							
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16000 14000 12000 10000 8000 6000 4000 2000 -2000 -4000 -4000								
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-2000 -4000	2000			12.4 13.3 14.16	bi			
-0007-232 69 460 - 24 232 69 460 - 25 232 69 460 - 24 232 69 460 - 24 24 25 25 69 460 - 24 25 25 69 460 - 24 26 27 69 460 - 24 26 27 69 460 - 24 27 26 27 60 - 24 27 26 27 60 - 24 27 26 26 - 24 27 26 27 60 - 24 27 27 26 27 60 - 24 27 27 26 27 60 - 24 27 26 26 26 - 24 27 26 27 60 - 24 27 26 20 - 24 27 27 20 - 24 27 27 20 - 24 27 20 - 24 20 - 24	0							
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Time 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00	Time 4.00	6.00 9.00	10 00 13		16 00	18.00	20.00 22.0	0

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Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA\980622\T05836.D Vial: 17 Acq On : 22 Jun 98 11:47 pm Operator: Deinhardt Sample : 3678.02 Misc : Inst : GC/MS Ins Multiplr: 1.00 IntFile : TPHCINT.E Quant Time: Jun 23 11:39 1998 Quant Results File: TPH41.RES Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title: TPHC Calibration 06/05/97 21 peaksLast Update: Thu Jun 11 14:59:41 1998 Response via : Initial Calibration DataAcg Meth : TPH41.M Volume Inj. : 1 ul Signal Phase : HP-5 Signal Info : 30m x 0.32mm Compound R.T. Response Conc Units System Monitoring Compounds 21) sC o-terphenyl13.903368499.746 mg/LSpiked Amount10.000Range8 - 13Recovery = 97.46%# Target Compounds 39100.155 mg/L14760.056 mg/L23640.078 mg/L28530.099 mg/L18960.067 mg/L 11.44 4) tC C14 5) tC C16 12.45 - 12.91 13.35 6)-tG C18 7) tC C20 14.16 8) tC C22 14.1010500.007 mg/L14.9110150.035 mg/L17.3817540.059 mg/L18.7220250.071 mg/L12.9410120.037 mg/L13.3927990.097 mg/L13.903112610100.525 mg/L m 9) tC C24 13) tC C32 15) tC C36 19) TC Pristane 20) TC Phytane 22) tC TPHC - total

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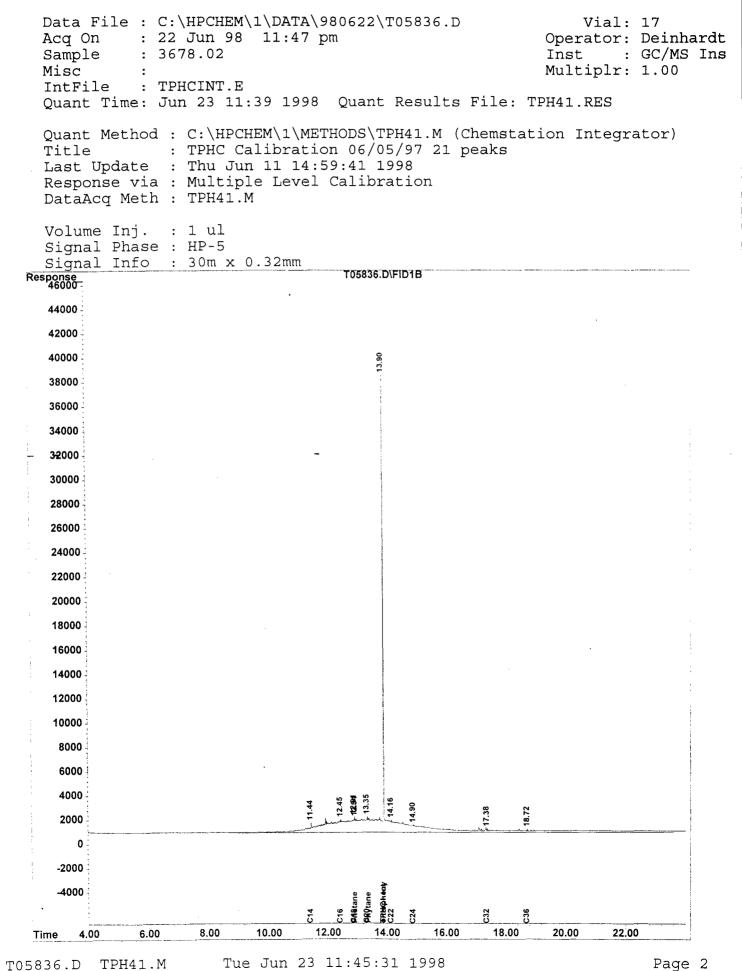
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Quantitation Report (OT Reviewed)

Data File : C:\HPCHEM\1\DATA\980622\T05837.D Vial: 18 Acg On : 23 Jun 98 12:31 am Operator: Deinhardt Sample : 3678.03 Inst : GC/MS Ins Misc Multiplr: 1.00 IntFile : TPHCINT.E Quant Time: Jun 23 11:40 1998 Quant Results File: TPH41.RES Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title : TPHC Calibration 06/05/97 21 peaks Last Update : Thu Jun 11 14:59:41 1998 Response via : Initial Calibration DataAcq Meth : TPH41.M Volume Inj. : 1 ul Signal Phase : HP-5 Signal Info : 30m x 0.32mm Compound R.T. Response Conc Units System Monitoring Compounds 21) sC o-terphenyl13.903153539.124 mg/LSpiked Amount10.000Range8 - 13Recovery = 91.24%#

Target Compounds

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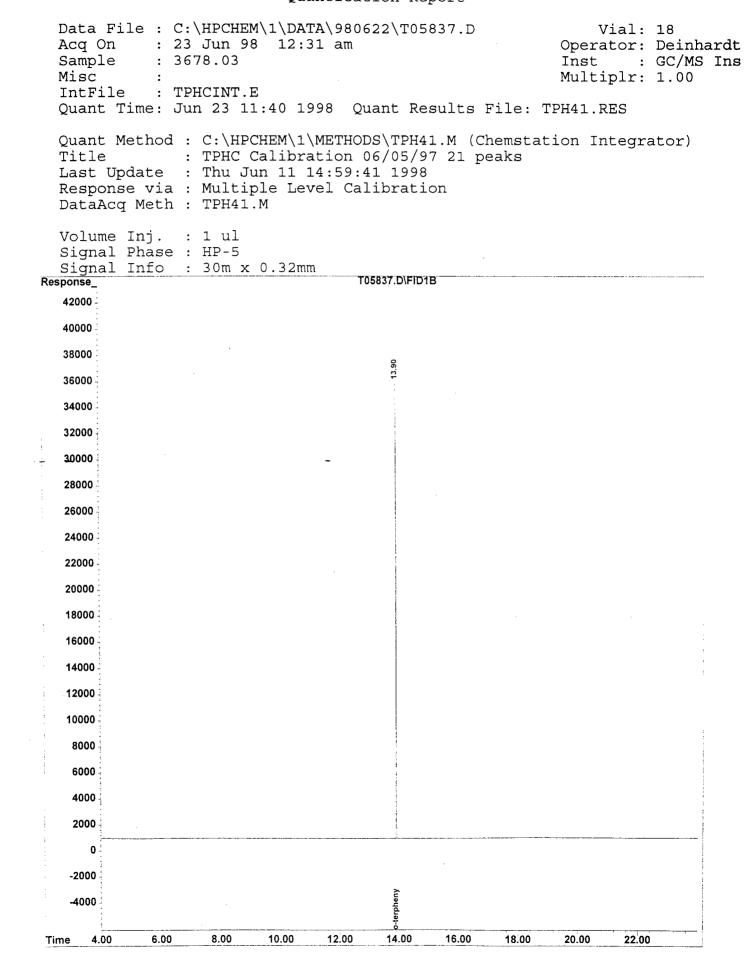
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Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA\980622\T05838.D Vial: 19 Acq On : 23 Jun 98 1:16 am Sample : 3678.04 Operator: Deinhardt Inst : GC/MS Ins 1. . . Multiplr: 1.00 Misc : IntFile : TPHCINT.E Misc Quant Time: Jun 23 11:40 1998 Quant Results File: TPH41.RES Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title: TPHC Calibration 06/05/97 21 peaksLast Update: Thu Jun 11 14:59:41 1998 Response via : Initial Calibration f) DataAcq Meth : TPH41.M Volume Inj. : 1 ul E 3 Signal Phase : HP-5 Signal Info : 30m x 0.32mm Compound R.T. Response Conc Units ſ. No. 1 System Monitoring Compounds System Monitoring compounds21) sC o-terphenyl13.913117689.020 mg/LSpiked Amount10.000Range8 - 13Recovery=90.20%# r a ير. با r i Target Compounds لاستنا E D han an a (° -) . İstanlır Bartar $r \rightarrow$ à..... 10.00 E 1 فمعا $r \rightarrow$ la c./ C 3 f^{-ij} (m)=manual int. (f) = RT Delta > 1/2 Window la con T05838.D TPH41.M Tue Jun 23 11:45:40 1998 Page 1 S.C

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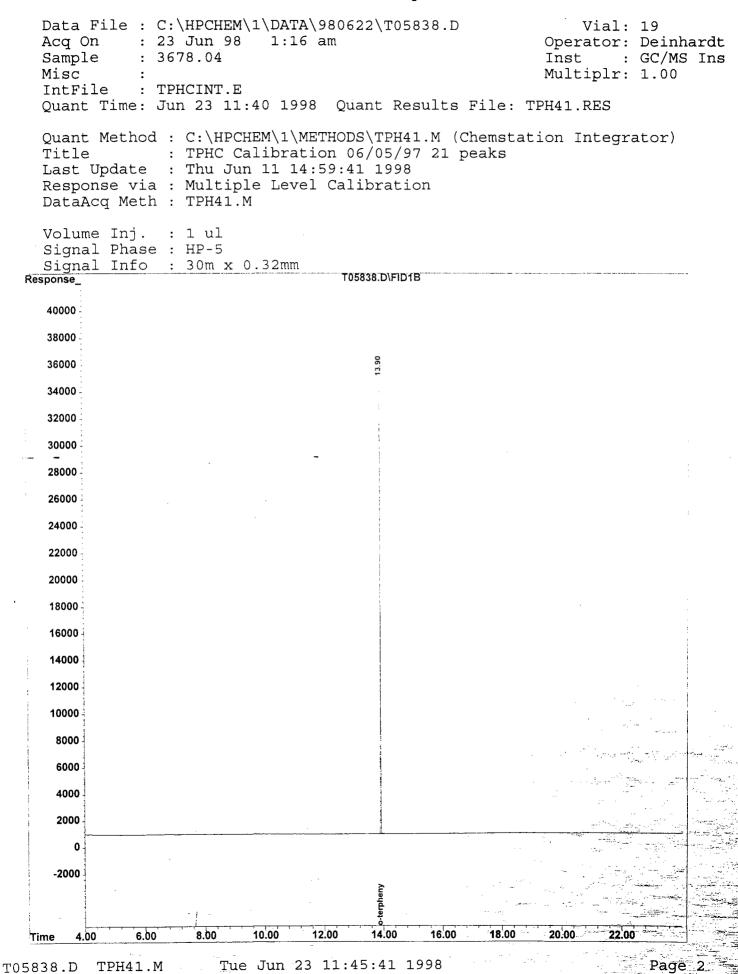
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Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA\980622\T05839.D Vial: 20 Acq On : 23 Jun 98 2:02 am Operator: Deinhardt Sample : 3678.05 Inst : GC/MS Ins Misc : Multiplr: 1.00 IntFile : TPHCINT.E Quant Time: Jun 23 11:41 1998 Quant Results File: TPH41.RES Quant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title : TPHC Calibration 06/05/97 21 peaks Last Update : Thu Jun 11 14:59:41 1998 Response via : Initial Calibration DataAcg Meth : TPH41.M Volume Inj. : 1 ul Signal Phase : HP-5 Signal Info : 30m x 0.32mm Compound R.T. Response Conc Units System Monitoring Compounds 21) sC o-terphenyl13.913151419.118 mg/LSpiked Amount10.000Range8 - 13Recovery=91.18%# Target Compounds 13.5115380.054 mg/L14.9050190.175 mg/L16.1217770.062 mg/L16.9616430.056 mg/L17.3817910.060 mg/L18.1710980.036 mg/L13.5115380.053 mg/L13.90125191040.432 mg/L m 7) tC C20 9) tC C24 - 16.12 16.96 17.38 18.17 11)-tG C28 12) tC C30 13) tC C32 14) tC C34 20) TC Phytane 13.51

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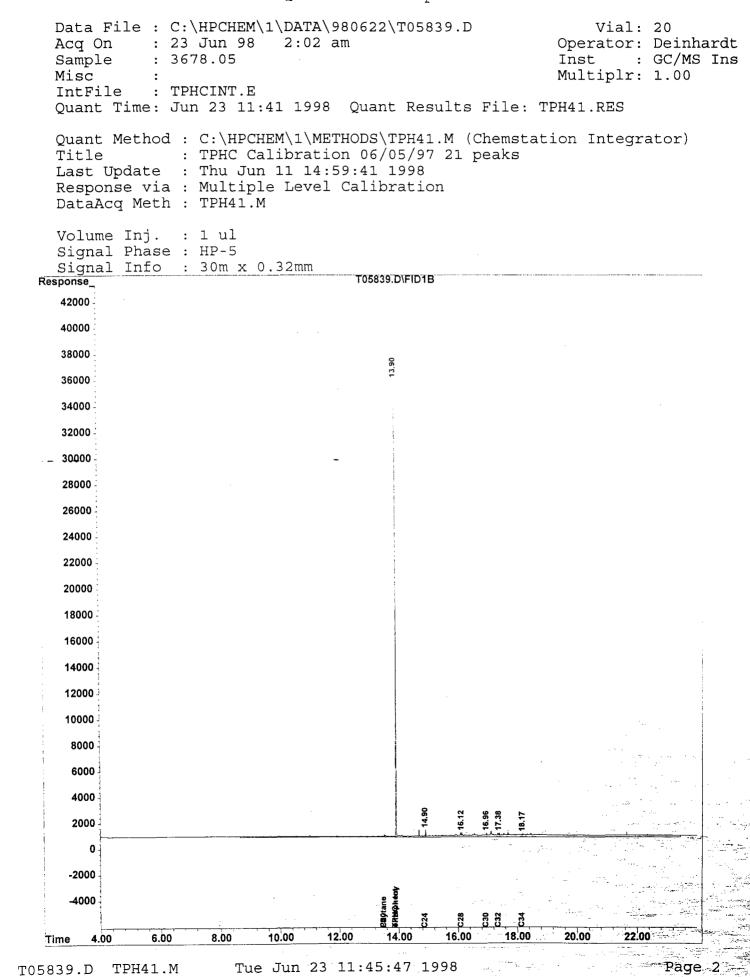
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ke s Quantitation Report (QT Reviewed) Data File : C:\HPCHEM\1\DATA\980622\T05840.D Vial: 21 Acg On : 23 Jun 98 2:47 am Operator: Deinhardt Sample : 3678.06 Inst : GC/MS Ins Multiplr: 1.00 Misc (· : IntFile : TPHCINT.E han. . . Quant Time: Jun 23 11:41 1998 Quant Results File: TPH41.RES **۲** 1 Ouant Method : C:\HPCHEM\1\METHODS\TPH41.M (Chemstation Integrator) Title : TPHC Calibration 06/05/97 21 peaks 6.0 Last Update : Thu Jun 11 14:59:41 1998 Response via : Initial Calibration DataAcq Meth : TPH41.M here a Volume Inj. : 1 ul ΕD Signal Phase : HP-5 5.... Signal Info : 30m x 0.32mm compound R.T. Response Conc Units System Monitoring Compounds 21) sC o-terphenyl13.913182259.207 mg/LSpiked Amount10.000Range8 - 13Recovery=92.07%# Target Compounds ۲ I ۲ I (f) = RT Delta > 1/2 Window (m)=manual int. TO5840 D TPH41.M Tue Jun 23 11:45:50 1998 Page 1

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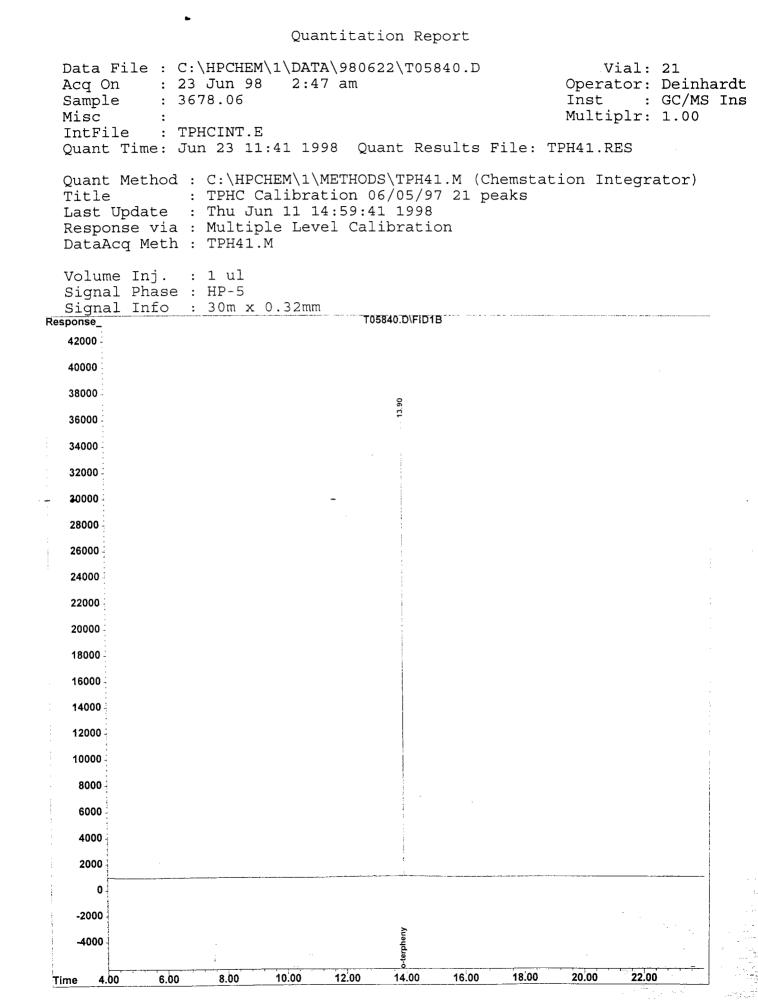
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LABORATORY DELIVERABLES CHECKLIST AND NON-CONFORMANCE SUMMARY

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.

Cover page, Title Page listing Lab Certification #, facility name 1. 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 Document paginated and legible 4 5. Chain of Custody submitted Samples submitted to lab within 48 hours of sample collection 6. 7. Methodology Summary submitted Laboratory Chronicle and Holding Time Check submitted 8. 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 7/6/44 Laboratory Certification #13461

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

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APPENDIX F

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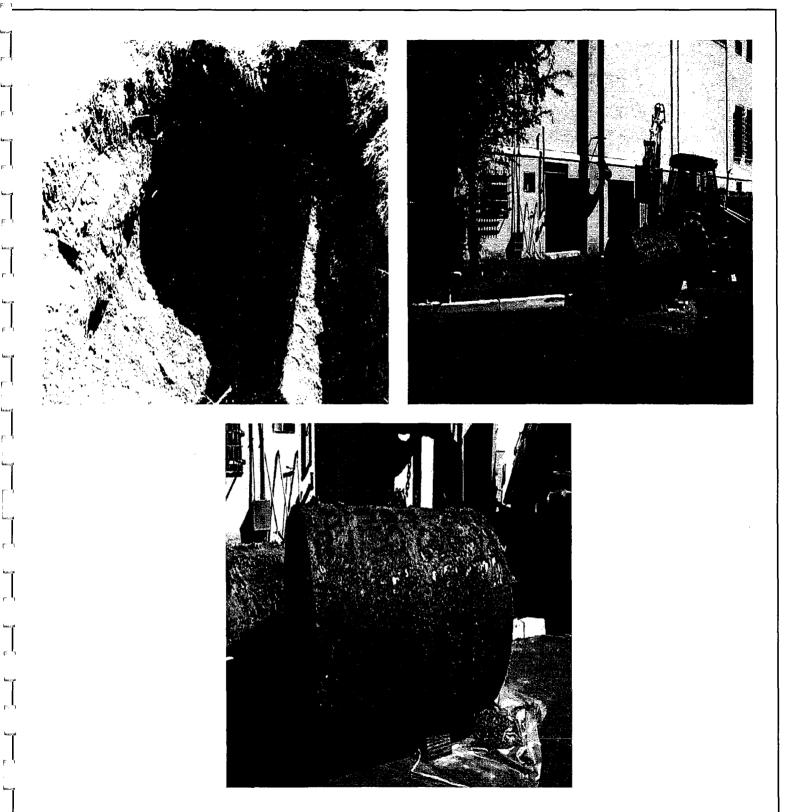
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PHOTOGRAPHS

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June 20, 1998 **PHOTOGRAPHIC LOG** UST NO. 81533-207 **Building 1150 Main Post-West**

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SMC ENVIRONMENTAL P SERVICES GROUP Engineers, Managers, Scientists & Planners VALLEY FORGE, PA.