
MEMORANDUM

SUBJECT: Supplement to the Remedial Investigation Report for Site 812, FTMM-64, Fort Monmouth, Oceanport, New Jersey

DATE: 6 June 2018

The Fort Monmouth (FTMM) Team has prepared this supplement to the subject report (Reference 1) to complete the evaluation of soils at this site. This memorandum summarizes the results of compliance averaging using the 95 percent Upper Confidence Limit (UCL) of the mean (95% UCL) for the FTMM-64 site in accordance with New Jersey Department of Environmental Protection (NJDEP) technical guidance (Reference 2). In addition, this memorandum documents the removal of a fuel pipeline and two associated excavations that occurred at the site in 2010.

FTMM-64 Background

FTMM-64, also known as Building 812 or Site 812, is approximately 2.75 acres and is located in the south-central portion of the Main Post (**Figures 1 and 2**). The site is bordered to the southeast by Stephenson Avenue, and to the north and west by Lane Avenue. Building 812 formerly served as the Army Community Center and was also a reported location of a former gasoline station.

A Remedial Investigation (RI) Report and Remedial Action Work Plan (RAWP) for FTMM-64 was prepared in 2001 (Reference 1, provided as Correspondence 1 of **Attachment A**) and approved by NJDEP in October 2002 (Reference 3, provided as Correspondence 2 of **Attachment A**). The RI/RAWP identified groundwater as the principal medium of concern. In March 2017, following long-term groundwater monitoring, a No Further Action (NFA) determination for groundwater was requested. NJDEP issued a NFA approval for groundwater in April 2017 (Reference 4, provided as Correspondence 3 of **Attachment A**).

An extensive soil investigation was conducted at FTMM-64 as part of the RI/RAWP. One sample result for lead and one sample result for total petroleum hydrocarbons (TPH) exceeded the current NJDEP residential direct contact soil remediation standards (RDCSRS). Therefore, all the soils associated with FTMM-64 were reevaluated herein to facilitate property transfer.

2001 RI/RAWP Summary

During the RI, soil boring samples were collected in 1999 and 2000 at 162 locations and analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCBs), TPH, and target analyte list (TAL) metals. Sample depths

varied from surface to 11.5 feet below ground surface (bgs). Soil sample locations are shown on **Figure 3**. Sample results were presented in the RI/RAWP included in **Attachment A**.

The 1999 and 2000 soil results were compared to the current (September 2017) NJDEP RDCSRs to assess the potential requirement for additional remedial actions for soils. Only lead and TPH were detected at concentrations in exceedance of the current NJDEP RDCSRs. Because TPH concentrations were less than the 10,000 milligram per kilogram (mg/kg) standard for total organic compounds (TOC) (which was the appropriate comparison standard for TPH in 2001), TPH was not identified as a contaminant of concern (COC) in the RI/RAWP. The RI/RAWP also reported that only one sample resulted in an exceedance of the NJDEP RDCSRs for lead (which was 400 mg/kg in 2001 and currently) by less than an order of magnitude, and therefore lead was not identified as a COC. The RI/RAWP was approved by NJDEP in October 2002 (see Reference 3, provided as Correspondence 2 of **Attachment A**).

2010 Pipeline Removal

In 2010, the Army excavated approximately 200 feet of 3-inch steel pipeline (**Figure 2**) that was historically used to convey fuel from a rail unloading station to fuel dispensers located at FTMM-64. The entire pipeline except the portion beneath Building 812 was removed. Soil samples were collected along the pipeline excavation for potential release characterization (**Figure 3**), and analyzed for VOCs, TPH, and lead (**Table 1 of Attachment B**). Naphthalene was detected at concentrations greater than the current NJDEP RDCSRs at two locations: in a sample from below the former fuel dispenser, and in sample 12A along the pipeline (**Table 1 of Attachment B**). Both locations were excavated further and post-excavation samples were collected (**Figure 3**). All post-excavation sample results were less than the current RDCSRs, indicating that soil contamination was removed. The analytical reports for these samples are included in **Attachment B**. The excavations were backfilled with sand and stone.

Compliance Averaging for Lead and TPH

Compliance averaging was applied at FTMM-64 in February 2018 to determine whether the current residential remedial goals for lead and extractable petroleum hydrocarbons (EPH) have been achieved at FTMM-64. The previous TPH results are considered comparable to EPH results for decision making purposes based on NJDEP guidance (References 5 and 6).

Consistent with NJDEP guidance (Reference 2), 0.25-acre functional areas were drawn for each chemical and each functional area was evaluated for two vertical zones: the surface zone (0 to 2 feet below ground surface [bgs]) and the subsurface zone (greater than 2 feet bgs). Compliance averaging was not applied to those chemicals with a maximum detected concentration that was less than the current RDCSRs within the functional area. Compliance averaging for the remaining functional areas consisted of calculating the 95% upper confidence limit (UCL) if there were sufficient samples within the functional area. If there were fewer than ten samples, compliance averaging was based on the arithmetic mean. The compliance averaging methodology and supporting documentation are provided in **Attachment C**. The average lead and TPH concentrations for each functional area were less than the respective RDCSRs (**Table 1**).

Further, the compliance averaging results are also compliant with the New Jersey Administrative Code 5:17 (Reference 7) which requires that arithmetic mean of lead: 1) in children's bare soil play areas is less than 400 mg/kg; and 2) in all other bare soil areas is less than 1,200 mg/kg. The future land use is currently designated as low density residential (Reference 8).

Conclusions

1. Removal activities in 2010 adequately addressed soil contamination associated with the former fuel pipeline.
2. The two sample results reported in the RI/RAWP (Reference 1) that exceeded the current NJDEP RDCSRs do not require further action. This is consistent with NJDEP regulations as the compliance average results are less than the current RDCSRs.
3. No further action is warranted for soil or groundwater at FTMM-64.



William R. Colvin PMP, CHMM, PG
Fort Monmouth BRAC Environmental Coordinator



Date

FIGURES:

- Figure 1 – FTMM-64 Location
- Figure 2 – FTMM-64 Site Layout
- Figure 3 – FTMM-64 Sample Locations

TABLES:

- Table 1 – Summary of Compliance Averaging Results

ATTACHMENTS:

- Attachment A – Previous Reports and Correspondence
- Attachment B – 2010 Pipeline Excavation Supporting Documents
- Attachment C – Compliance Averaging Methodology Applied at FTMM-64

REFERENCES CITED

1. VERSAR, Inc. (Versar), 2001. Final Remedial Investigation Report and Remedial Action Workplan, Site 812. June.
2. NJDEP, 2012. Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria. September 24.

3. NJDEP, 2002. NJDEP Letter to the Army Dated October 1, 2002, re: RAWP Approval and Permit-by-Rule Extension Site 812, Fort Monmouth Main Post, Tinton Falls, Monmouth County.
4. NJDEP, 2017. NJDEP Letter to Army Dated April 28, 2017, re: Remedial Action Type: Unrestricted Use, Scope of Remediation: Areas of Concern: Ground Water at FTMM-64, Monmouth County, SRP PI#G00000032, RFC000001.
5. NJDEP, 2010a. Protocol for Addressing Extractable Petroleum Hydrocarbons. Version 5.0, August 9.
6. NJDEP, 2010b. Health Based and Ecological Screening Criteria for Petroleum Hydrocarbons, Frequently Asked Questions. Version 4.0, August 9.
7. New Jersey Administrative Code Title 5 Community Affairs, Chapter 17 Lead Hazard Evaluation and Abatement Code. New Jersey Register, Vol. 46 No. 21, September 5, 2017. Available at: http://www.state.nj.us/dca/divisions/codes/codreg/pdf_regs/njac_5_17.pdf
8. EDAW, Inc. 2008. Fort Monmouth Reuse and Redevelopment Plan, Final Plan. Prepared for Fort Monmouth Economic Revitalization Planning Authority. August 22.



New Jersey Department of Environmental Protection
Site Remediation Program

Report Certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites

These certifications are to be used for reports submitted for RCRA GPRA 2020, CERCLA, and Federal Facility Sites. The Department has developed guidance for report certifications for RCRA GPRA 2020, CERCLA, and Federal Facility Sites under traditional oversight. The "Person Responsible for Conducting the Remediation Information and Certification" is required to be submitted with each report. For those sites that are required or opt to use a Licensed Site Remediation Professional (LSRP) the report must also be certified by the LSRP using the "Licensed Site Remediation Professional Information and Statement". For additional guidance regarding the requirement for LSRPs at RCRA GPRA 2020, CERCLA and Federal Facility Sites see http://www.nj.gov/dep/srp/srra/training/matrix/quick_ref/rcra_cercla_fed_facility_sites.pdf.

Document:

- "FTMM-64 – Ft Monmouth, NJ; Request for Concurrence in Army's No Further Action Determination" (6 June 2018)

PERSON RESPONSIBLE FOR CONDUCTING THE REMEDIATION INFORMATION AND CERTIFICATION

Full Legal Name of the Person Responsible for Conducting the Remediation: William R. Colvin

Representative First Name: William Representative Last Name: Colvin

Title: Fort Monmouth BRAC Environmental Coordinator (BEC)

Phone Number: (732) 380-7064 Ext: Fax:

Mailing Address: P.O. Box 148

City/Town: Oceanport State: NJ Zip Code: 07757

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This certification shall be signed by the person responsible for conducting the remediation who is submitting this notification in accordance with Administrative Requirements for the Remediation of Contaminated Sites rule at N.J.A.C. 7:26C-1.5(a).

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

Signature:  Date: 6 June 2018

Name/Title: William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator

Completed form should be sent to:

Mr. Ashish Joshi
New Jersey Department of Environmental Protection
Division of Remediation Management & Response
Bureau of Northern Field Operations
7 Ridgedale Avenue (2nd Floor)
Cedar Knolls, New Jersey 07927-1112



DEPARTMENT OF THE ARMY

OFFICE OF ASSISTANT CHIEF OF STAFF FOR INSTALLATION MANAGEMENT
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6 June 2018

Mr. Ashish Joshi
New Jersey Department of Environmental Protection
Division of Remediation Management & Response
Bureau of Northern Field Operations
7 Ridgedale Avenue (2nd Floor)
Cedar Knolls, NJ 07927-1112

**Subject: FTMM-64 – Fort Monmouth, NJ
Request for Concurrence in Army's No Further Action Determination
PI G000000032**

Dear Mr. Joshi:

The Fort Monmouth Team has reviewed existing file information for FTMM-64 and prepared the attached memorandum for the Administrative Record. Based on the information presented in the memorandum, we request the Department's concurrence in the Army's determination that no further action is warranted at FTMM-64.

Thank you for reviewing this request. We look forward to the Department's concurrence and/or comments. Our technical Point of Contact is Kent Friesen at (732) 383-7201; kent.friesen@parsons.com. I can be reached at (732) 380-7064; william.r.colvin18.civ@mail.mil.

Sincerely,

William R. Colvin, PMP, CHMM, PG
BRAC Environmental Coordinator

Attached: Memorandum dated 6 June 2018, "Supplement to the Remedial Investigation Report for Site 812, FTMM-64, Fort Monmouth, Oceanport, New Jersey."

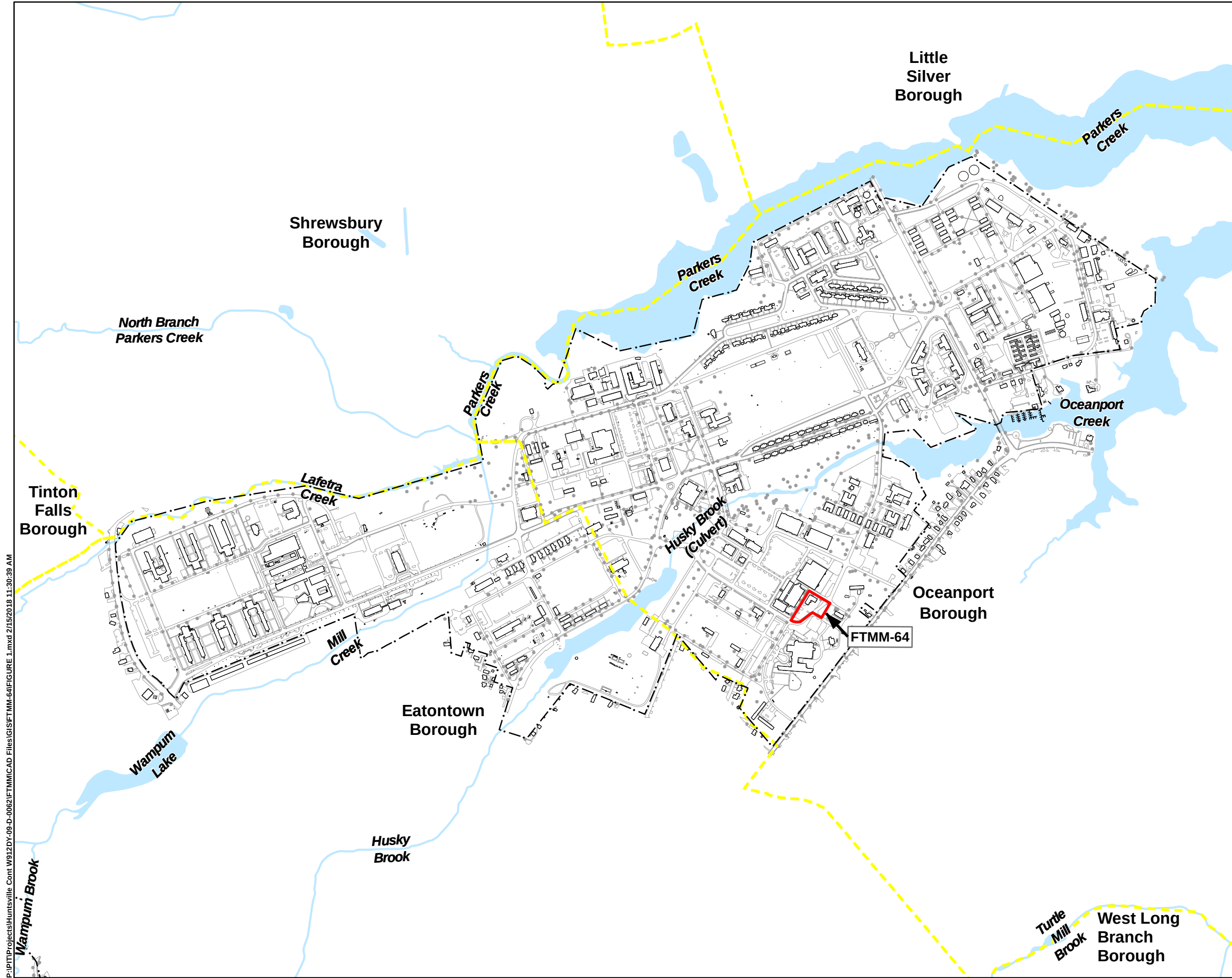
cc: Ashish Joshi, NJDEP (e-mail and 2 hard copies)
William Colvin, BEC (e-mail and 1 hard copy)
Joseph Pearson, Calibre (e-mail)
James Moore, USACE (e-mail)
Jim Kelly, USACE (e-mail)
Cris Grill, Parsons (e-mail)

Figures

Figure 1 – FTMM-64 Location

Figure 2 - FTMM-64 Site Layout

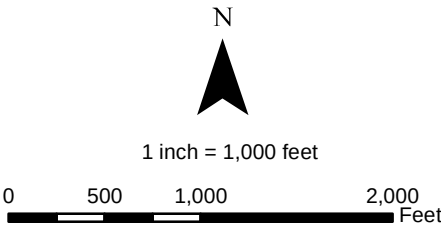
Figure 3 - FTMM-64 Sample Locations



P:\P\TIP\Projects\Huntsville Cont W912.DY-09-D-0062\FTMM-64\FIGURE 1.mxd 2/15/2018 11:30:39 AM

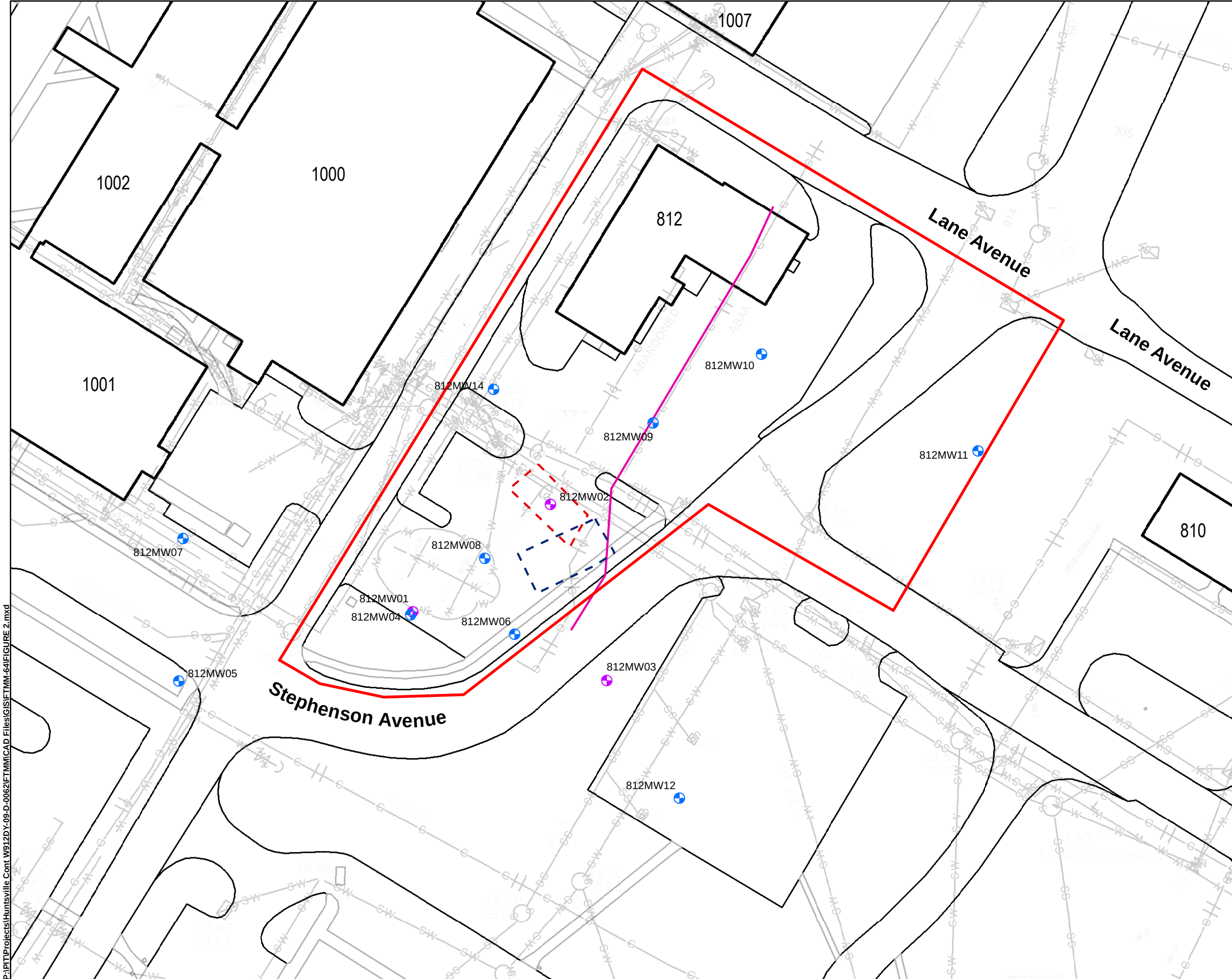
LEGEND:

- FTMM-64 Carve-Out Boundary
- Installation Boundary
- Municipal Boundary

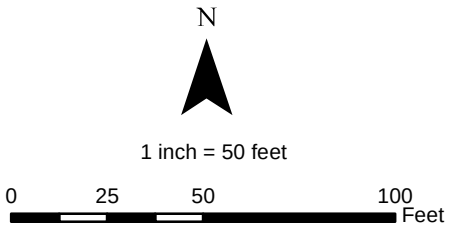


Source: FTMM Supplied CAD, 2013; ESRI Data and Maps, 2011; USGS NHD, 2012.

PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey
FTMM-64 LOCATION	
CREATED BY: RR	REVIEWED BY: KF
DATE: FEB. 2018	FIGURE NUMBER: FIGURE 1
PROJECT NUMBER: 748810-06012	FILE: FIGURE 1.mxd

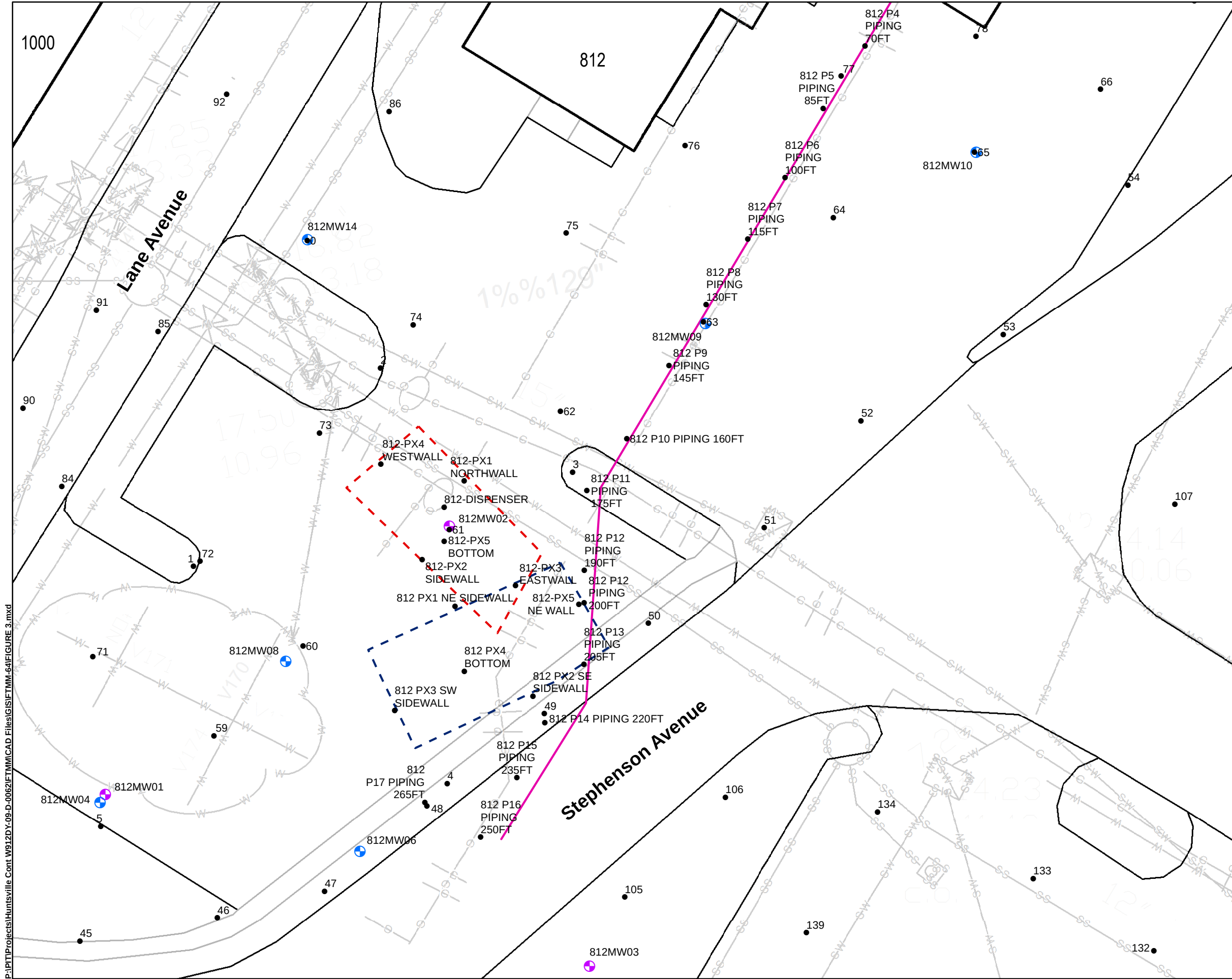


- LEGEND:**
- Deep Monitoring Well
 - Shallow Monitoring Well
 - FTMM-64 Carve-Out Boundary
 - Dispenser Excavation
 - Additional Excavation from Pipeline Hotspot
 - Excavated Pipeline (2010)
 - W Water Line
 - S Sanitary Sewer Line
 - SW Storm Sewer Line
 - G Gas Line

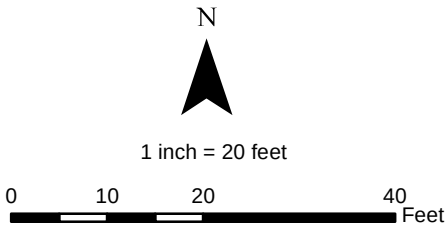


Source: FTMM Supplied CAD	
PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey
FTMM-64 SITE LAYOUT	
CREATED BY: RR	REVIEWED BY: CL
DATE: FEB. 2018	FIGURE NUMBER: FIGURE 2
PROJECT NUMBER: 748810-01000	FILE: FIGURE 2.mxd

P:\P\Projects\Huntsville Cont W012DY-09-D-0062\FTMM\CAD Files\GIS\FTMM-64\FIGURE 2.mxd



- LEGEND:**
- Soil Sample Location
 - Deep Monitoring Well
 - Shallow Monitoring Well
 - - - Dispenser Excavation
 - - - Additional Excavation from Pipeline Hotspot
 - Excavated Pipeline (2010)
 - W Water Line
 - S Sanitary Sewer Line
 - SW Storm Sewer Line
 - G Gas Line



Source: FTMM Supplied CAD	
PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey
FTMM-64 SAMPLE LOCATION MAP	
CREATED BY: RR	REVIEWED BY: CL
DATE: FEB. 2018	FIGURE NUMBER: FIGURE 3
PROJECT NUMBER: 748810-01000	FILE: FIGURE 3.mxd

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Tables

Table 1 - Summary of Compliance Averaging Results

Table 1
Summary of Compliance Averaging Results
FTMM-64
Fort Monmouth, New Jersey

Functional Area	Acres	Number of Samples ^A	Functional Area Depth Interval (feet bgs)	Maximum Detected Concentration (mg/kg)	NJDEP RDCSRS (mg/kg)	Compliance Averaging Result ^B (mg/kg)
Lead FA A	0.25	2	0-2	32.9	400	32.9 ^C
Lead FA B	0.25	29	>2	601.75	400	150.2
TPH FA A	0.25	4	0-2	7,099.80	5,100	2,526 ^D
TPH FA B	0.25	21	>2	608.13	5,100	608.13 ^C

Notes:

^A – Does not include field duplicates. Includes only *in situ* soil samples (i.e., excludes excavated soil samples).

Does not include sample locations not analyzed for chemical of concern.

^B – 95 percent upper confidence limit (UCL) unless noted. See Attachment C for ProUCL output.

^C – Because maximum detected concentration was less than the RDCSRS, compliance averaging for this functional area was not necessary.

^D – Too few detections were available to calculate a UCL. Therefore, the arithmetic mean is presented. See Attachment C for arithmetic mean calculation.

Value UCL achieves compliance with remedial goal

Abbreviations:

bgs - below ground surface

Attachment A

Previous Reports and Correspondence

1. Versar, 2001. Final Remedial Investigation Report and Remedial Action Workplan, Site 812. June.
2. NJDEP, 2002. NJDEP Letter to the Army Dated October 1, 2002, re: RAWP Approval and Permit-by-Rule Extension Site 812, Fort Monmouth Main Post, Tinton Falls, Monmouth County.
3. NJDEP, 2017. NJDEP Letter to Army Dated April 28, 2017, re: Remedial Action Type: Unrestricted Use, Scope of Remediation: Areas of Concern: Ground Water at FTMM-64, Monmouth County, SRP PI#G00000032, RFC000001.

FINAL

Remedial Investigation Report And Remedial Action Workplan

Site 812

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



Directorate of Public Works



June 2001

***Versar* INC.**

**2558 Pearl Buck Road, Suite 1
Bristol, Pennsylvania 19007**

**Contract No. DACA51-00-D-0004
Delivery Order No. 5**

United States Army

Fort Monmouth, New Jersey

FINAL

Remedial Investigation Report and Remedial Action Workplan

Site 812

JUNE 2001

**FINAL
REMEDIAL INVESTIGATION REPORT
&
REMEDIAL ACTION WORKPLAN**

SITE 812



PREPARED FOR:

**UNITED STATES ARMY FORT MONMOUTH
DIRECTORATE OF PUBLIC WORKS
BUILDING 167
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PREPARED BY:



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JUNE 2001

VERSAR PROJECT NO. 104936.4936.105

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Table 2	Results of GeoProbe® Groundwater Investigation, September 1999 – February 2000
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Table 4	Groundwater Monitoring Well Specifications, Site 812

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Appendix B	Fort Monmouth Standard Operating Procedures
Appendix C	Groundwater Monitoring Well and Soil Boring Logs
Appendix D	Aquifer Study, Slug Test Evaluation
Appendix E	Sensitive Receptor Survey
Appendix F	Well Search Summary
Appendix G	Analytical Data Package (under separate cover)

EXECUTIVE SUMMARY

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

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

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

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

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

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

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

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

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

Based on the results of the RI, three (3) areas of concern at Site 812 were evident. The first area (Area 1), and the area of most concern, is proximate to monitoring wells MW-1, MW-4 and Boring B-5, and encompasses approximately 1,400 square ft (sq ft). To a lesser degree of

concern is Area 2, which is proximate to monitoring well MW-5 and Boring B-8, encompassing approximately 875 sq ft. Area 3, which is proximate to monitoring well MW-7, encompasses approximately 500 sq ft. Although these areas all have contaminants in groundwater that exceed the NJDEP GWQC, only Area 1 significantly exceeds the standards (by several orders of magnitude). Additionally, based on the soil and groundwater data, it is apparent that the Area 1 COC plume (1,2-dichloroethene) is isolated and unrelated to the COC plume (1,1,1-trichloroethane) present in Areas 2 and 3.

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

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

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

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

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

The following remedial action objectives were established for Site 812:

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

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

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

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

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

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

SECTION 1.0 INTRODUCTION

1.1 OVERVIEW

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

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

1.2 SITE DESCRIPTION

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

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

Specific historical information is not available regarding previous operations and conditions at Site 812. Reportedly, Site 812 is the former location of a gasoline station with underground fuel storage. Site 812 was not identified as a suspected hazardous waste site at Fort Monmouth in the Installation Assessment Report prepared in 1980 by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) (USATHAMA, 1980). This report identified sites with

known or suspected waste materials at the Fort Monmouth facility. Furthermore, Site 812 was not identified or addressed in the Site Investigation (SI) Report prepared by Roy F. Weston, Inc. (WESTON) for the Main Post and Charles Wood Areas of Fort Monmouth (WESTON, 1995). As previously discussed, Site 812 was identified as an area of potential environmental concern during an internal DPW review of historical aerial photographs and site records.

1.3 REPORT ORGANIZATION

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

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

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

SECTION 2.0 TECHNICAL OVERVIEW

2.1 HISTORIC INFORMATION

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

2.1.1 Historical Aerial Photograph Review

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

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

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

purpose of this structure could not be determined because of the scale of the photograph. The 1954 photograph was unchanged.

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

2.1.2 Previous Site Reports

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

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

2.2 PHYSICAL SETTING

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

2.2.1 Geology

Regional Geology and Local Geology

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

In general, New Jersey Coastal Plain formations consist of a seaward-dipping wedge of unconsolidated deposits of clay, silt, sand and gravel. These formations typically strike

northeast-southwest with a dip ranging from 10 to 60 feet (ft) per mile and are deposited on Precambrian and lower Paleozoic rocks (Zapeczka, 1989). These sediments, predominantly derived from deltaic, shallow marine, and continental shelf environments, date from Cretaceous through the Quaternary Periods. The mineralogy ranges from quartz to glauconite.

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

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

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

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

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

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

2.2.2 Soils

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

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

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

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

2.2.3 Hydrogeology

Regional Hydrogeology

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

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

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

Local Hydrogeology

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

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

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

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

Aquifer Classification

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

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

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

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

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

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

2.2.4 Topography

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

2.2.5 Surface Water and Wetlands

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

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

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

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

2.3 SITE INVESTIGATION SUMMARY

2.3.1 Reliability and Quality of Laboratory Analytical Data

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

2.3.2 Contamination Summary

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

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

2.3.3 Significant Events/Seasonal Variation

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

2.4 TREATABILITY, BENCH-SCALE AND PILOT-SCALE STUDIES

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

2.5 DEVELOPMENT OF PERMIT LIMITATIONS

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

2.6 ECOLOGICAL ASSESSMENT SUMMARY

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

SECTION 3.0 REMEDIAL INVESTIGATION REPORT

3.1 INVESTIGATION APPROACH

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

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

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

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

(where applicable and appropriate) were then compared to the respective NJDEP criteria.

3.2 SITE AND REMEDIAL INVESTIGATION ACTIVITIES

3.2.1 GeoProbe® Investigation

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

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

3.2.1.1 Soils

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

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

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

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

Four SVOC were detected in seven soil samples: bis(2-ethylhexyl)phthalate, chrysene, di-n-butylphthalate, and pyrene. Bis(2-Ethylhexyl)phthalate was detected in all seven soil samples ranging from 0.17 to 0.55 mg/Kg, below the RDCSCC of 49 mg/Kg. Chrysene was detected in one soil sample at 0.11 mg/Kg, below the RDCSCC of 9 mg/Kg. Di-n-Butylphthalate was detected in all seven soil samples ranging from 0.14 mg/Kg to 1.2 mg/Kg, below the RDCSCC of 5,700 mg/Kg. Pyrene was detected in two soil samples at 0.13 and 0.15 mg/Kg, below the RDCSCC of 1,700 mg/Kg. No SVOC are identified as COC.

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

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

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

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

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

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

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

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

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

3.2.1.2 Groundwater

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

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

Summary of VOC detections at Boring B-5

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

ND – Not detected.

NLE – No GWQC exists for this analyte.

D – Analytical value from sample dilution.

Exceedences of the GWQC are printed in **bold-faced** type.

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

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

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

for 4-methyl phenol (which lacks evidence of carcinogenicity) did not exceed the Interim Generic Criteria for SOCs of 100 ug/l.

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

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

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

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

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

1,1,1-Trichloroethane was detected at three boring locations ranging from 4.69 ug/L to 84.32 ug/L, with the detection at 84.32 ug/L exceeding the GWQC of 30 ug/L. 1,1-Dichloroethane was detected at one boring location at 13.13 ug/L, below the GWQC of 70 ug/L. 1,1-Dichloroethene was detected at one boring location at 1.85 ug/L, below the GWQC of 2 ug/L. 2-Butanone was detected at five boring locations ranging from 1.62 ug/L to 14.46 ug/L, below the GWQC of 300 ug/L. 2-Hexanone was detected at one boring location at 2.42 ug/L, there is no GWQC for 2-hexanone. Acetone was detected at 28 boring locations ranging from 2 ug/L to 22.59 ug/L, below the GWQC of 700 ug/L. Benzene was detected at three boring locations ranging from 1.06 ug/L to 4.04 ug/L, with all three of the detections exceeding the GWQC of 1 ug/L. Bromoform was detected at three boring locations ranging from 3.49 ug/L to 7.58 ug/L, with two of the detections at 5.6 ug/L and 7.58 ug/L exceeding the GWQC of 4 ug/L. Chloroform was detected at three boring locations ranging from 1.35 ug/L to 3.05 ug/L, below the GWQC of 6

ug/L. Ethylbenzene was detected at five boring locations ranging from 1.2 ug/L to 21.07 ug/L, below the GWQC of 700 ug/L. Methylene chloride was detected at one boring location at 20.95 ug/L, which exceeded the GWQC of 2 ug/L. MTBE was detected at five boring locations ranging from 1.56 g/L to 5.78 ug/L, below the GWQC of 70 ug/L. Toluene was detected at three boring locations ranging from 1.31 ug/L to 6.13 ug/L, below the GWQC of 1000 ug/L. Trichlorofluoromethane was detected at four boring locations ranging from 1.36 ug/L to 7.86ug/L, there is currently no GWQC for trichlorofluoromethane. Xylenes (total) were detected at three boring locations ranging from 1.59 ug/L to 7.64 ug/L. The GWQC for total xylenes is 40 ug/L.

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

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

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

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

3.2.2 Groundwater Monitoring Wells

3.2.2.1 Groundwater Monitoring Well Installation

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

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

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

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

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

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

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

3.2.2.2 Groundwater Results

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

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

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

Volatile Organic Compounds

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

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

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

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

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

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

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

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

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

Note (1): D – Analytical value from sample dilution.

Note (2): GWQC do not exist separately for m+p-xylenes and o-xylene.

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

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

Semi-Volatile Organic Compounds

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

There are no SVOC identified as COC at Site 812.

Pesticides/PCB

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

Metals

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

potassium, sodium, and zinc. However, the native metal constituents (i.e., those indigenous to the soil types present at Fort Monmouth) were consistently present in the groundwater, even when the low-flow sampling methodology was employed.

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

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

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

Source: Table 4.1-6, WESTON, 1995

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

Background Metals:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Non-Native Metals:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

3.2.3 Hydraulic Conductivity Testing

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

MW-3, MW-5, MW-8, and MW-12 on May 19, 2000. Each test was conducted by inserting a bailer of known volume into the well and then quickly withdrawing the bailer while monitoring the dynamic water level. The test was continued until the water level recovered to at least 80 percent of the initial static level. The water level was monitored using an electronic data recorder linked to pressure transducer.

Water-level data from slug tests were analyzed by two methods: (1) the method developed by Bouwer (Bouwer and Rice, 1976; Bouwer, 1989); and (2) the Hvorslev method (Hvorslev, 1951). The equations used for these methods, the input parameters used for each test, and graphs of the data are presented in **Appendix D**. The two methods yielded comparable results, discussed in the following paragraphs.

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

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

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

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

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

3.2.4 Sensitive Receptors & Well Search Summary

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

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

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

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

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

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

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

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

3.3 SUMMARY AND DISCUSSION (SITE CONCEPTUAL MODEL)

3.3.1 Hydrogeologic Characteristics

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

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

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

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

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

3.3.2 Contaminant Distribution

Soil

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

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

TPHC contamination was identified at seven locations (B-61, B-64, B-71, B-106, B-136, B-138, and B-144). The concentration of the contamination ranged from 1,042.12 mg/Kg to 7,099.80 mg/Kg and occurred in the uppermost 1 to 5 ft of soil. No associated VOC concentrations were identified at these locations suggesting that the TPHC contaminants are likely the result of heavier hydrocarbons such as oil and grease, fuel oil, diesel fuel, or similar petroleum compounds. The distribution of TPHC contamination in the soil suggests isolated areas of impact. Several areas of TPHC contamination exist proximate to the Site of the apparent historic fuel station (MW-61, MW-71, and MW-106), suggesting that past operations near this area could be the source of the TPHC contamination. However, none of the TPHC concentrations

encountered at the Site exceeded the 10,000 mg/Kg standard for TOC, and as a result, TPHC is not identified as a COC.

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

Groundwater

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

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

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

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

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

Lead was identified above New Jersey GWQC in several of the other monitoring well locations (MW-1, MW-5, MW-9, MW-12, and MW-13); however, the concentrations did not significantly exceed the GWQC. It is possible that the lead is naturally occurring because of the geologic mineralogy, or higher concentrations were induced as the result of the sampling procedure (i.e.,

turbidity). As previously discussed, future low-flow sampling events will be used to evaluate the significance, if any, of the detected lead.

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

Area 1 – MW-4

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

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

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

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

Area 2 - MW-5

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

Area 3 - MW-7

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

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

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

Monitoring wells MW-5 and MW-7 (Areas 2 and 3) have each been impacted by the same contaminant (1,1,1-trichloroethane), potentially the result of the same source material. Through natural degradation or dilution, the low-level contamination in these areas will quickly degrade

to concentrations below New Jersey GWQC. Based on the results of borings proximate to MW-5 and MW-7, it is unlikely that the extent of contamination extends significantly beyond the actual sampling locations of MW-5 and MW-7. Treatment of soil and/or groundwater at these locations is arguable based on the low contaminant concentrations. The focus of potential remedial alternatives target MW-4 (Area 1) and the potential migration of COC to the north, i.e., in the direction of groundwater flow.

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

SECTION 4.0 REMEDIAL ACTION WORKPLAN

4.1 CHECK LIST

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

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

4.2 SITE SUMMARY

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

4.2.1 Summary of Areas of Environmental Concern

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

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

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

4.2.2 Summary of Proposed Remedial Action(s)

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

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

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

4.2.2.1 Area(s) Proposed for Remedial Action

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

4.2.2.2 Identification of Applicable Remediation/Cleanup Standards

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

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

4.2.2.3 Description of Proposed Remedial Actions/Technologies

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

Chemical Treatment

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

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

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

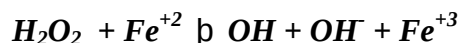
Oxygen Release Compounds (ORC)

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

Fenton Reagents

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

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



The hydroxyl radical ($\text{OH}\cdot$) attacks the carbon-carbon bonds, resulting in cleavage fragments as follows:



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



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

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

Bioremediation

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

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

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

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

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

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

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

Bioventing/Air Sparging Systems

These systems deliver air (oxygen) from the atmosphere into the soil and/or groundwater through injection wells placed in the ground where the contamination exists. The number,

location, and depth of the wells depend on many geological factors and engineering considerations.

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

Hydrogen Release Compounds

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

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

Monitored Natural Attenuation

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

The term “monitored natural attenuation” became EPA policy under OSWER Directive (9200.4-17P) with the objective to emphasize and require that a long-term monitoring program become

an important component of a remedy where natural processes are to be relied upon to achieve the cleanup objectives. The intent of the directive was to distinguish between the case where “monitored natural attenuation”(MNA) is used as a remedy, as opposed to the case where “natural attenuation” processes are occurring as part of a no-action remedy and are not being relied upon to attain a remedial objective. The NJDEP has also accepted “monitored natural attenuation” as an optional remedy for the cleanup of a contaminated Site, particularly in the case of underground storage tanks.

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

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

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

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

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

Potential advantages of using MNA include:

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

treatment, and reduced risk of human exposure to contaminants, contaminated media, and other hazards, and reduced disturbances to ecological receptors;

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

The potential disadvantages of using MNA include:

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

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

4.2.3 Proposed Remedial Alternative

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

The total number of injection locations is estimated as follows:

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

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

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

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

4.2.3.1 Required Permits and Approvals

Requested Authorization for Discharge to Ground Water by Permit-By-Rule

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

The groundwater discharges authorized by permit-by-rule, N.J.A.C. 7:14A-7.5, under Subsection (b) include:

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

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

4.2.3.2 Deed Notification

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

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

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

4.2.3.4 Treatment and Disposal Methods

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

4.2.3.5 Implementation Schedule

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

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

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

4.2.3.6 Soil and Sediment Erosion

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

4.2.3.7 Quality Assurance Project Plan

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

4.2.3.8 Site-Specific Health and Safety Plan

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

4.2.4 Site Restoration and Remedial System Dismantling Plan

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

4.2.5 Remedial Action Costs

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

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

Estimated Order of Magnitude Costs¹ Proposed Bioremediation at Site 812 Utilizing HRC	
TASK	ESTIMATED COSTS¹
1. Site Mobilization	\$2,500
2. GeoProbe [®] Injection and HRC Application ²	
Hydrogen Release Compound – 4,200 lbs.	\$ 23,800
Materials	\$520
Labor	\$3,840
3. Quarterly Groundwater Monitoring (Labor only)	\$9,200 ^{3, 4}
4. Confirmatory Sampling and Analysis	\$2,300 ^{3, 4}
5. Preparation of Remedial Action Report	\$15,000
TOTAL ESTIMATED COSTS	\$57,160

NOTES: (1) These activities are to be performed directly by the Government.

(2) The Government owns a GeoProbe[®] and Injection Trailer to be used during the planned remedial action. No costs have been shown for these items.

(3) Quarterly groundwater monitoring costs have been estimated for Four (4) Quarters.

(4) Analyses are performed by the Fort Monmouth Environment Environmental Testing Laboratory.

4.2.5 Maintenance and Evaluation Schedule for Engineering and Institutional Controls

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

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

4.3 PROGRESS REPORTS

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

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

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

4.4 POST-REMEDIAL ACTION EVALUATION

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

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

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

SECTION 5.0 REFERENCES

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- Martin, M. 1998. *Groundwater Flow in the New Jersey Coastal Plain*. USGS Professional Paper 1404-H.
- Meisler, H., J.A. Miller, L.L. Knobel, and R.L. Wait. 1988. "Region 22, Atlantic and Eastern Gulf Coastal Plan." In: *Hydrogeology: The Geology of North America*, W. Back, J.S. Rosenhein, and P.R. Seaber, editors. Vol. 0-2. pp. 209-218.
- Minard, J.P., 1969. *Geology of Sandy Hook Quadrangle in Monmouth County, New Jersey*. U.S. Government Printing Office, Washington, DC.
- New Jersey Geological Survey, *Geologic Map of New Jersey*, 1994.
- SMC (SMC Environmental Services Group) *Underground Storage Tank Closure and Site Investigation Report, Building 812, Main Post-West Area, NJDEP UST Registration No. 0081533-133*. September 1998.
- USATHAMA (U.S. Army Toxic and Hazardous Materials Agency), 1980. *Installation Assessment of Fort Monmouth*. Report 171. May 1980.
- U.S. Army Garrison, Fort Monmouth, Directorate of Public Works (DPW), Nad-83 Base Map of Fort Monmouth, New Jersey.
- U.S. Department of Agriculture (USDA) Soil Conservation Service, *Soil Survey of Monmouth County, New Jersey*. 1989.
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- WESTON (Roy F. Weston, Inc.) *Site Investigation Report - Main Post and Charles Wood Areas, Fort Monmouth, New Jersey*. December 1995.
- Zapecza, O. 1989. *Hydrogeologic Framework of the New Jersey Coastal Plain*. USGS Professional Paper 1404-B. U.S. Government Printing Office, Washington, DC.

Figures

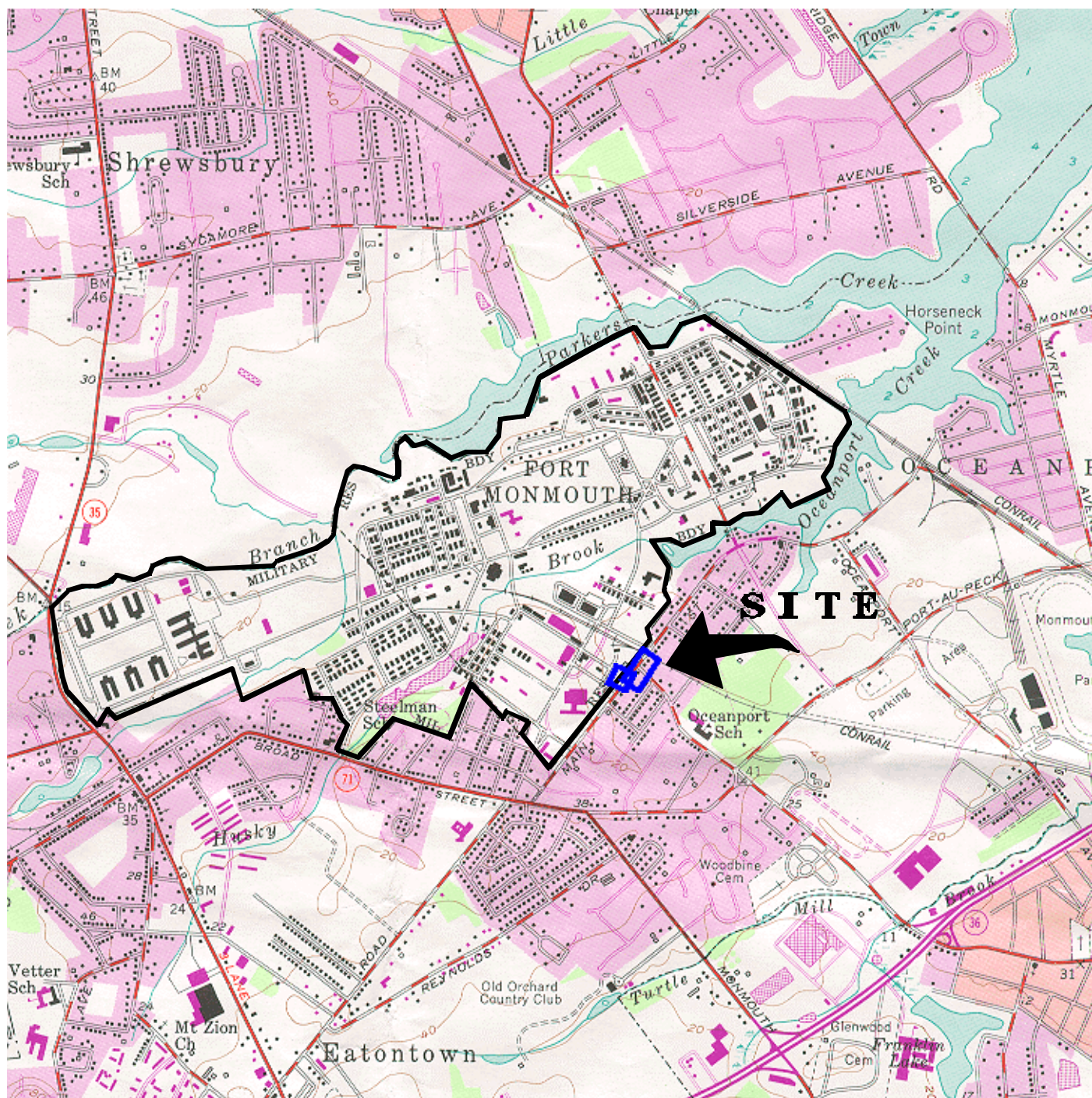


FIGURE 1

LOCATION MAP

Site 812

Fort Monmouth Army Base

Fort Monmouth, NJ

VERSAR

Engineers, Managers, Scientists, & Planners
Bristol, PA

Scale: 1" = 2000'

Date: August 2000

LONG BRANCH, N. J.

40073-C8-TF-024

1954

PHOTOREVISED 1981

DMA 6164 I SE-SERIES V822

NEW
JERSEY

QUADRANGLE LOCATION

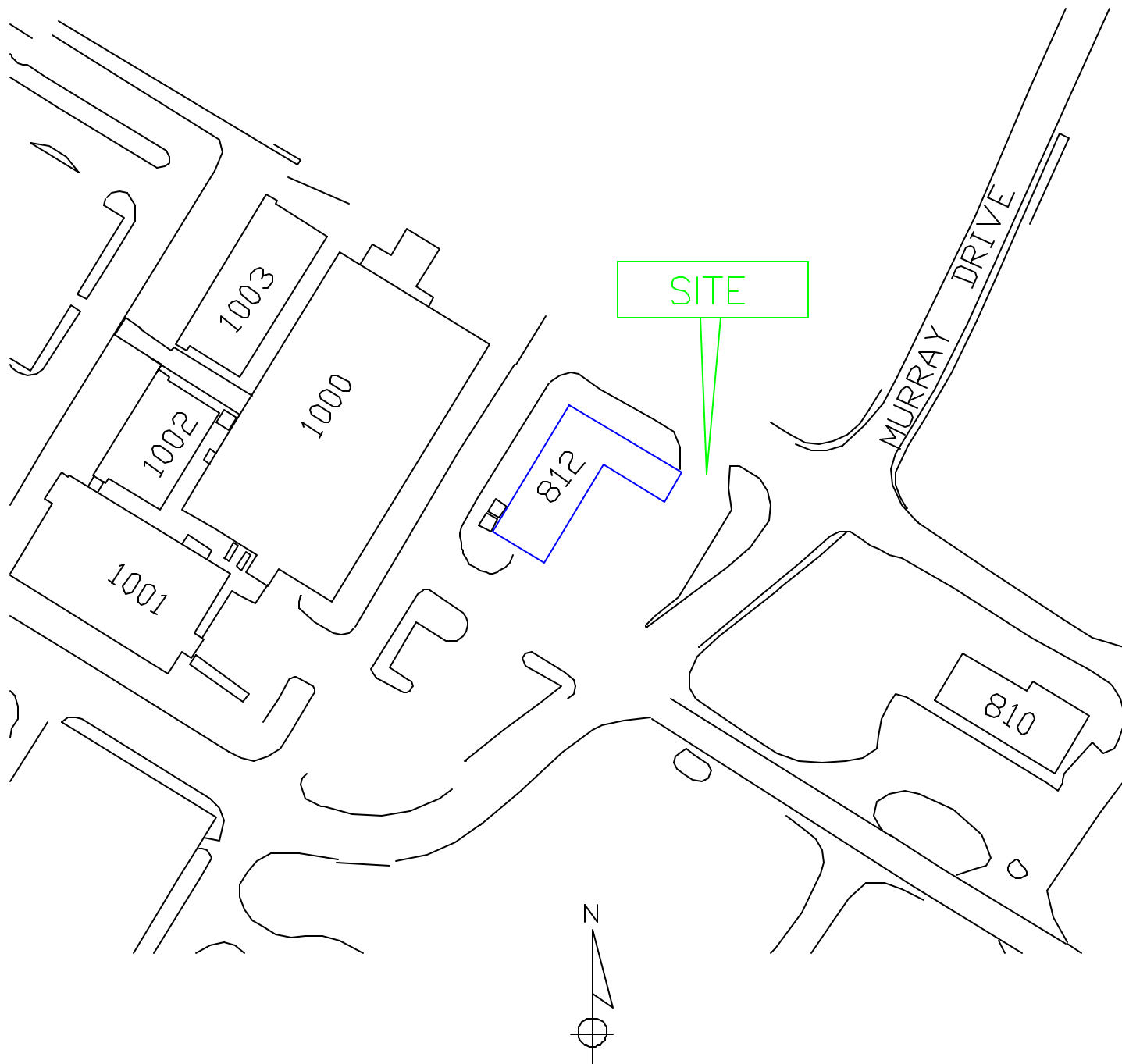
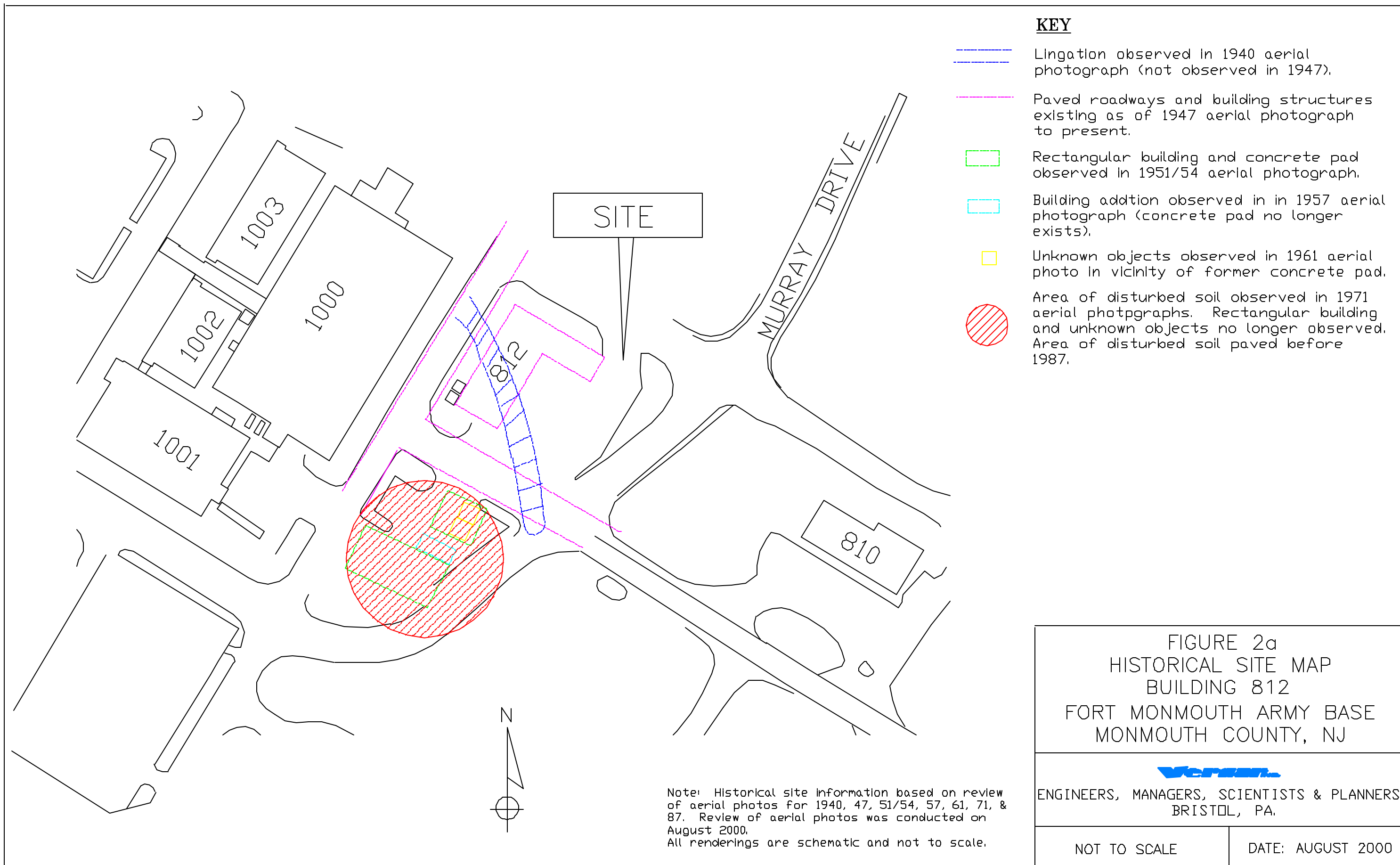


FIGURE 2
SITE MAP
BUILDING 812
FORT MONMOUTH ARMY BASE
MONMOUTH COUNTY, NJ

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

SCALE: 1"=100'

DATE: JULY 1994



Geologic Map of New Jersey

- SEDIMENTARY ROCKS**
- CENOZOIC**
- Holocene: sand
 - Tertiary: sand, silt, clay
- MESOZOIC**
- Cretaceous: sand, silt, clay
 - Jurassic: siltstone, shale, sandstone
 - Triassic: siltstone, shale, sandstone
- PALEOZOIC**
- Devonian: conglomerate, sandstone,
 - Silurian: conglomerate, sandstone, shale, limestone
 - Ordovician: shale, limestone
 - Cambrian: limestone, sandstone
- IGNEOUS AND METAMORPHIC ROCKS**
- MESOZOIC**
- Jurassic: basalt
 - Jurassic: diabase
- PRECAMBRIAN**
- marble
 - gneiss, granite

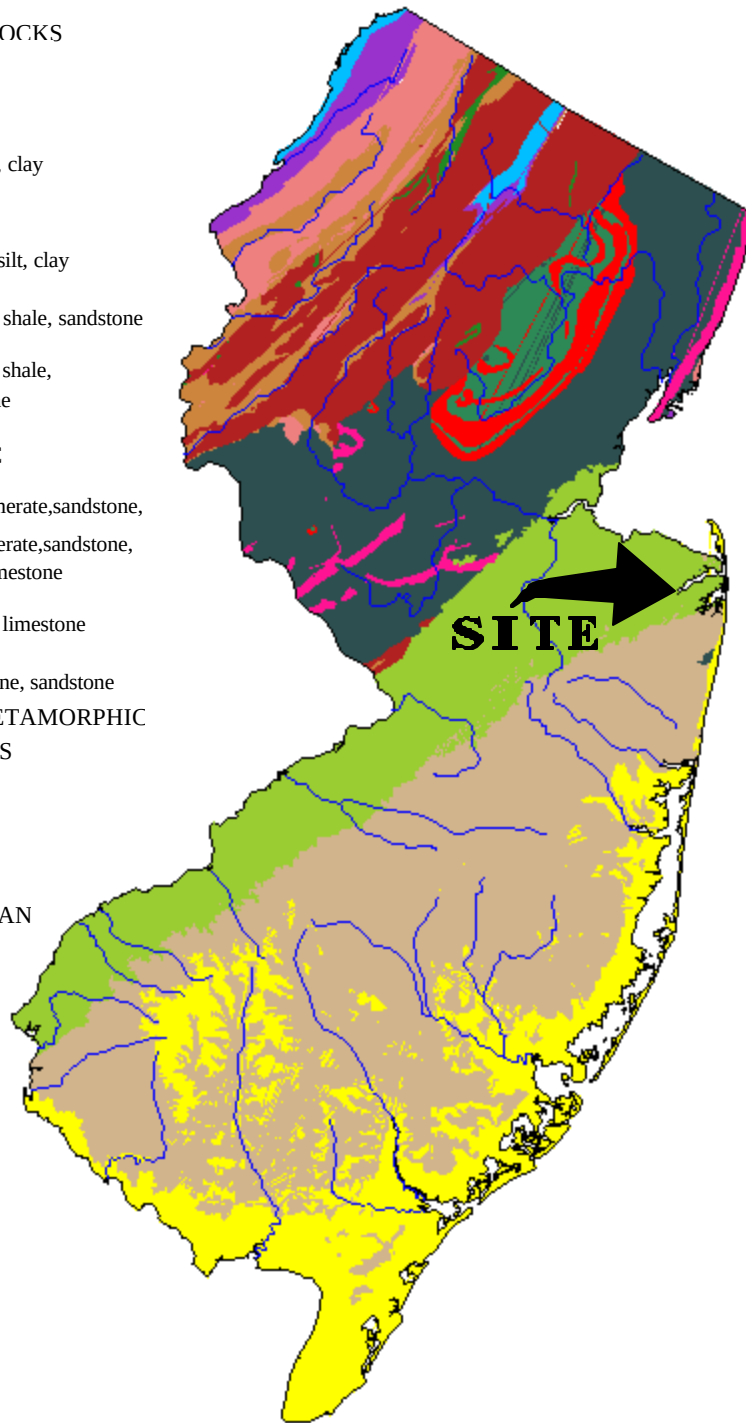


FIGURE 3
 Geological Map of New Jersey
 Site 812
 Fort Monmouth, New Jersey

VERSAR
 Engineers, Managers, Scientists & Planners
 Bristol, Pennsylvania



Fort Monmouth

125 feet in thickness
at Fort Monmouth

EXPLANATION

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

FIGURE 5

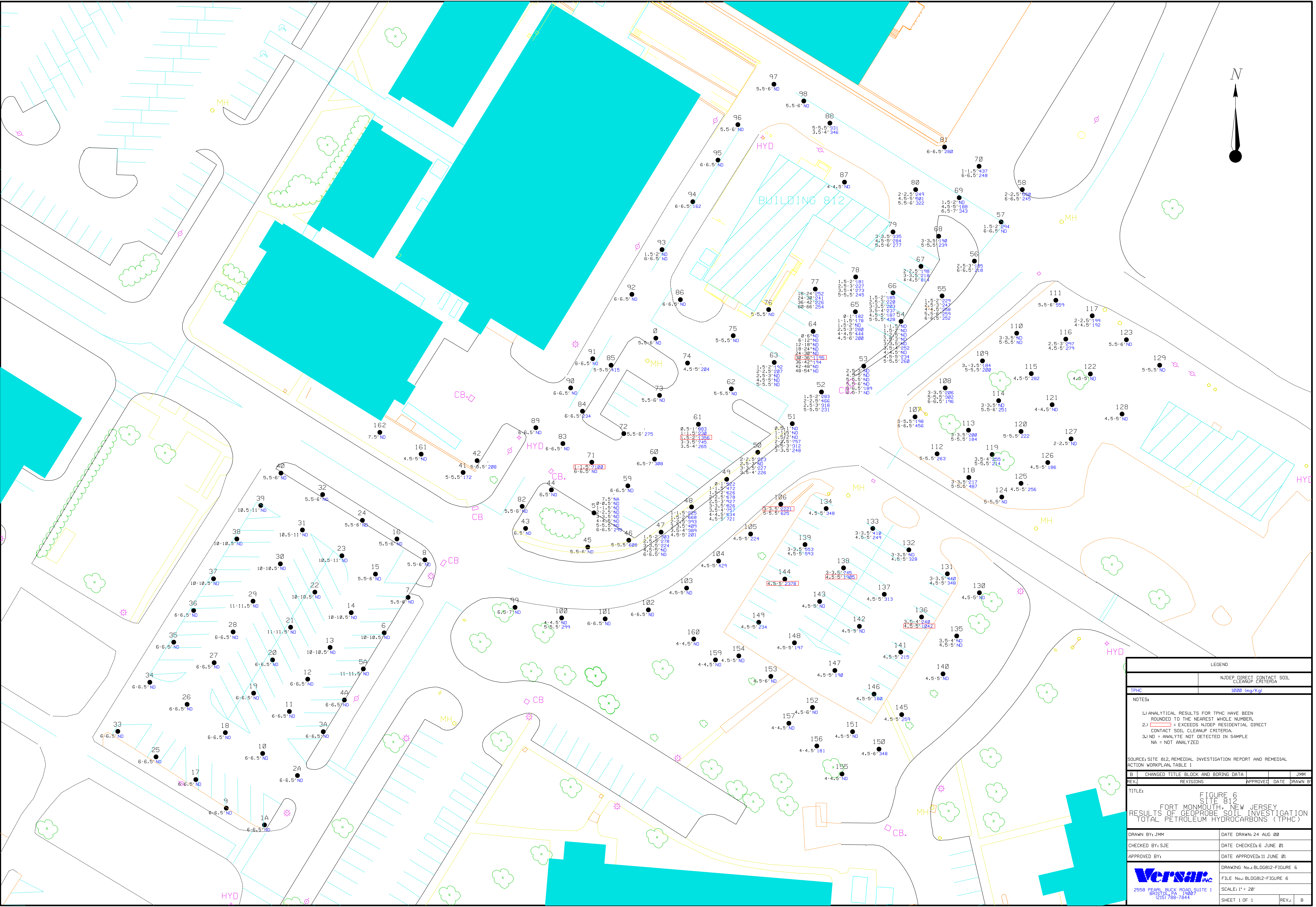
**Outcrop and Thickness of
Composite Confining Unit
Site 812**

Fort Monmouth, New Jersey

Versar
INC.

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

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



LEGEND

NJDEP DIRECT CONTACT SOIL
CLEANUP CRITERIA

TPHC

1000 (mg/Kg)

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

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

B

CHANGED TITLE BLOCK AND BORING DATA

JMM

REV.

REVISIONS

APPROVED

DATE

DRAWN BY

TITLE:

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

DRAWN BY: JMM

DATE DRAWN: 24 AUG 00

CHECKED BY: SJE

DATE CHECKED: 6 JUNE 01

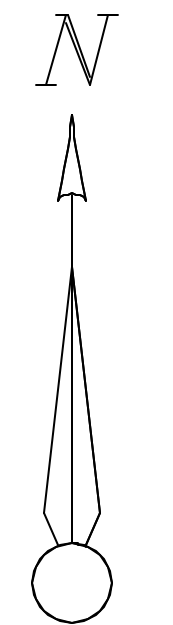
APPROVED BY:

DATE APPROVED: 11 JUNE 01


2555 PEARL BUCK ROAD, SUITE 1
BRISTOL, PA 19007
(215) 788-7844

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

REV.: B



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

NOTES:

1.) = EXCEEDS NJDEP GROUNDWATER QUALITY CRITERIA.

2.) NLE = NO GWQC EXISTS FOR THIS ANALYTE

ND = ANALYTE NOT DETECTED IN SAMPLE

NA = NOT ANALYZED

REV.	DESCRIPTION	APPROVED	DATE	DRAWN BY

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

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



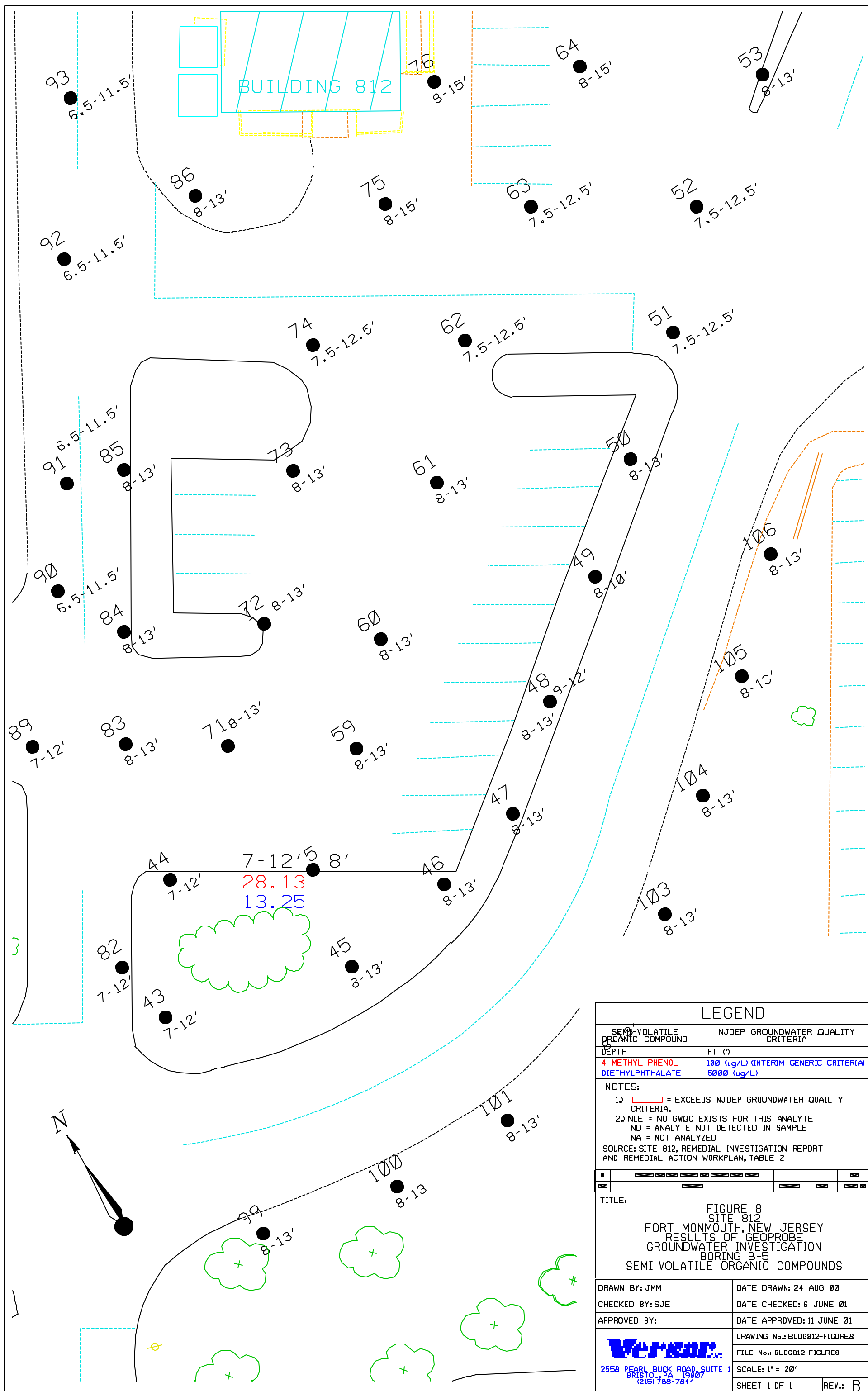
2558 PEARL BUCK ROAD, SUITE 100
BRISTOL, PA 19007
(215) 786-7844

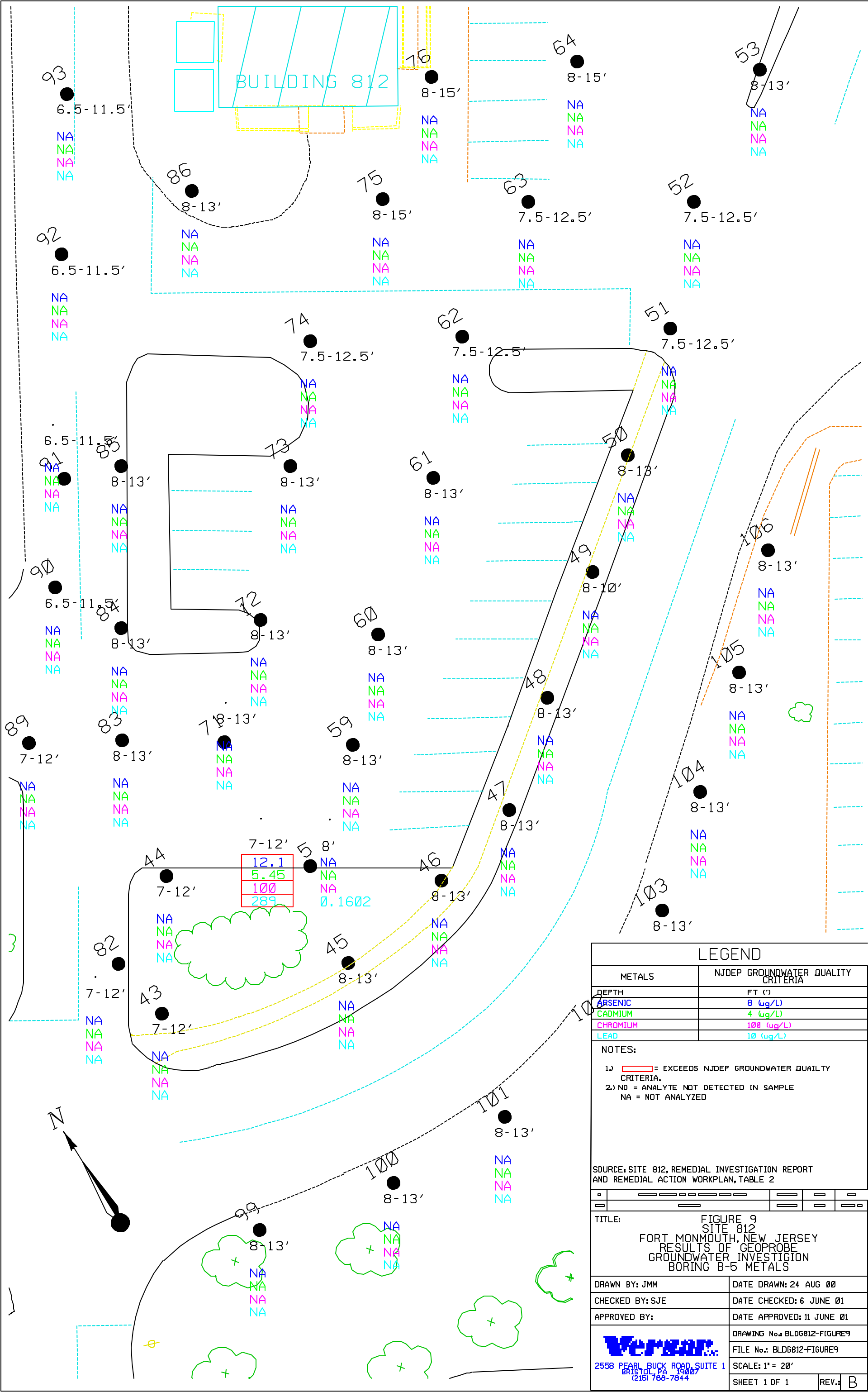
FILE No: BLDG812-FIGURE7

SCALE: 1" = 20'

SHEET 1 OF 1

REV: **B**







LEGEND

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

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

REV.	DESCRIPTION	APPROVED	DATE	DRAWN BY
1	REVISED SEMI-VOLATILES AND METALS			JMM

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

DRAWN BY: JMM DATE DRAWN: 22 AUG 00

CHECKED BY: SJE DATE CHECKED: 6 JUNE 01

APPROVED BY: DATE APPROVED: 11 JUNE 01

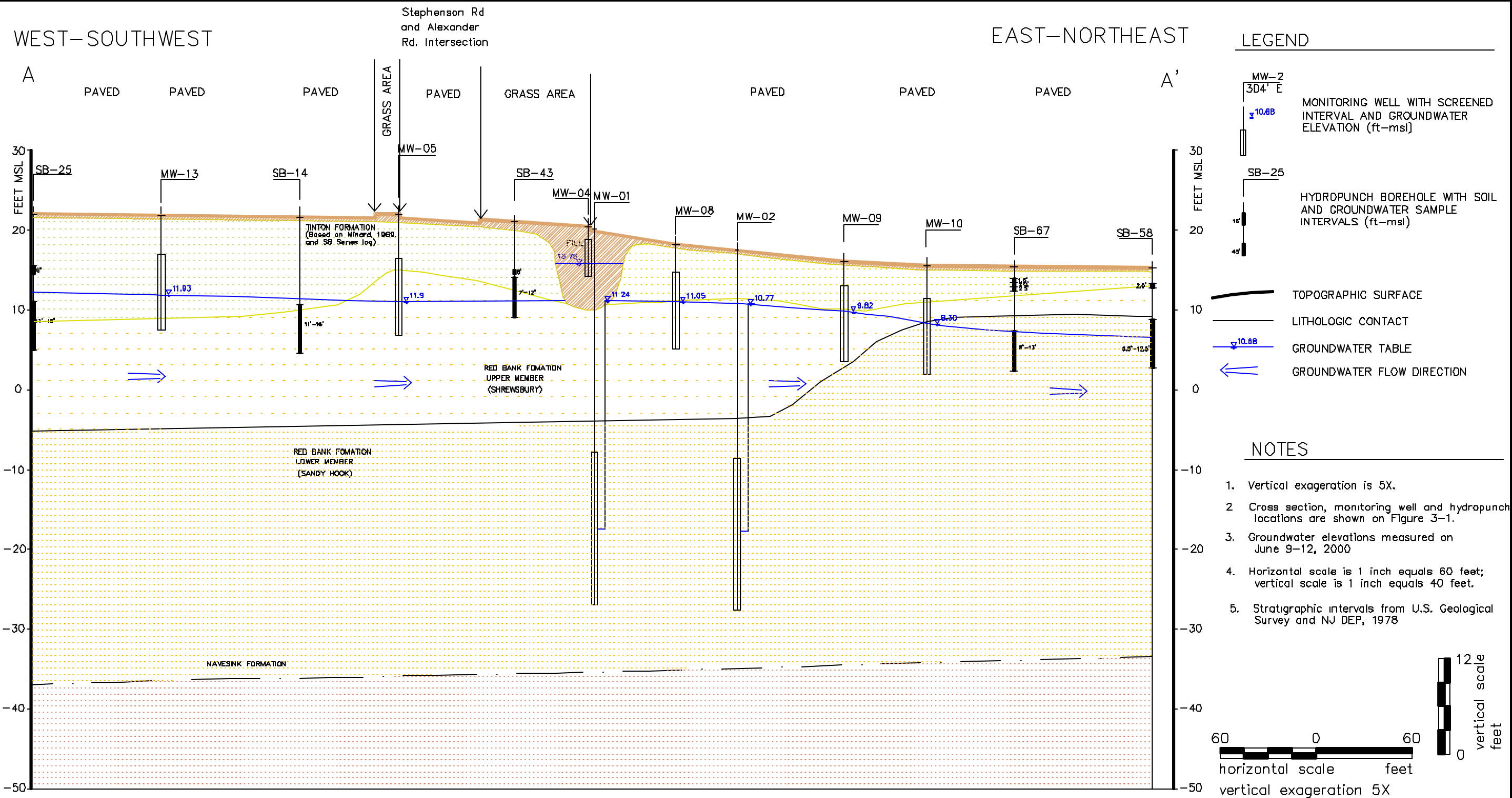
DRAWING No.: BLDG812-FIGURE8

FILE No.: BLDG812-FIGURE8

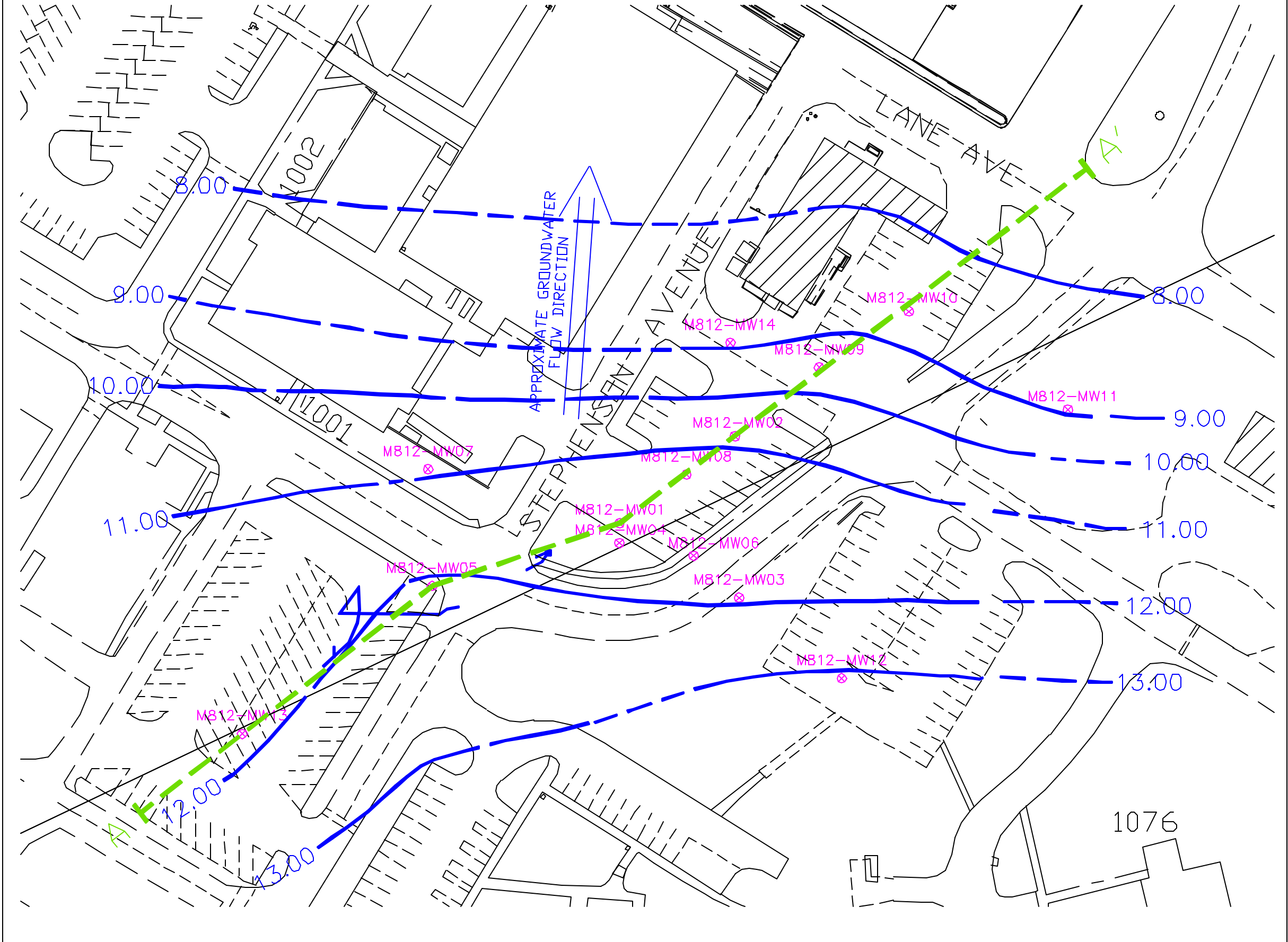
SCALE: 1" = 16'

SHEET OF REV. B

Versar
2558 PEARL BUCK ROAD, SUITE 100
BRISTOL, PA 19007
(215) 788-7844



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



ROAD (PAVED)			CROSS SECTION
MONITORING WELL			
BUILDING			
GROUNDWATER ELEVATION CONTOUR (DASHED WHEN INFERRED)			

NOTES:
GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL

REV.	REVISIONS	S.J.E.	02/15/01	T.M.
		APPROVED	DATE	DRAWN BY

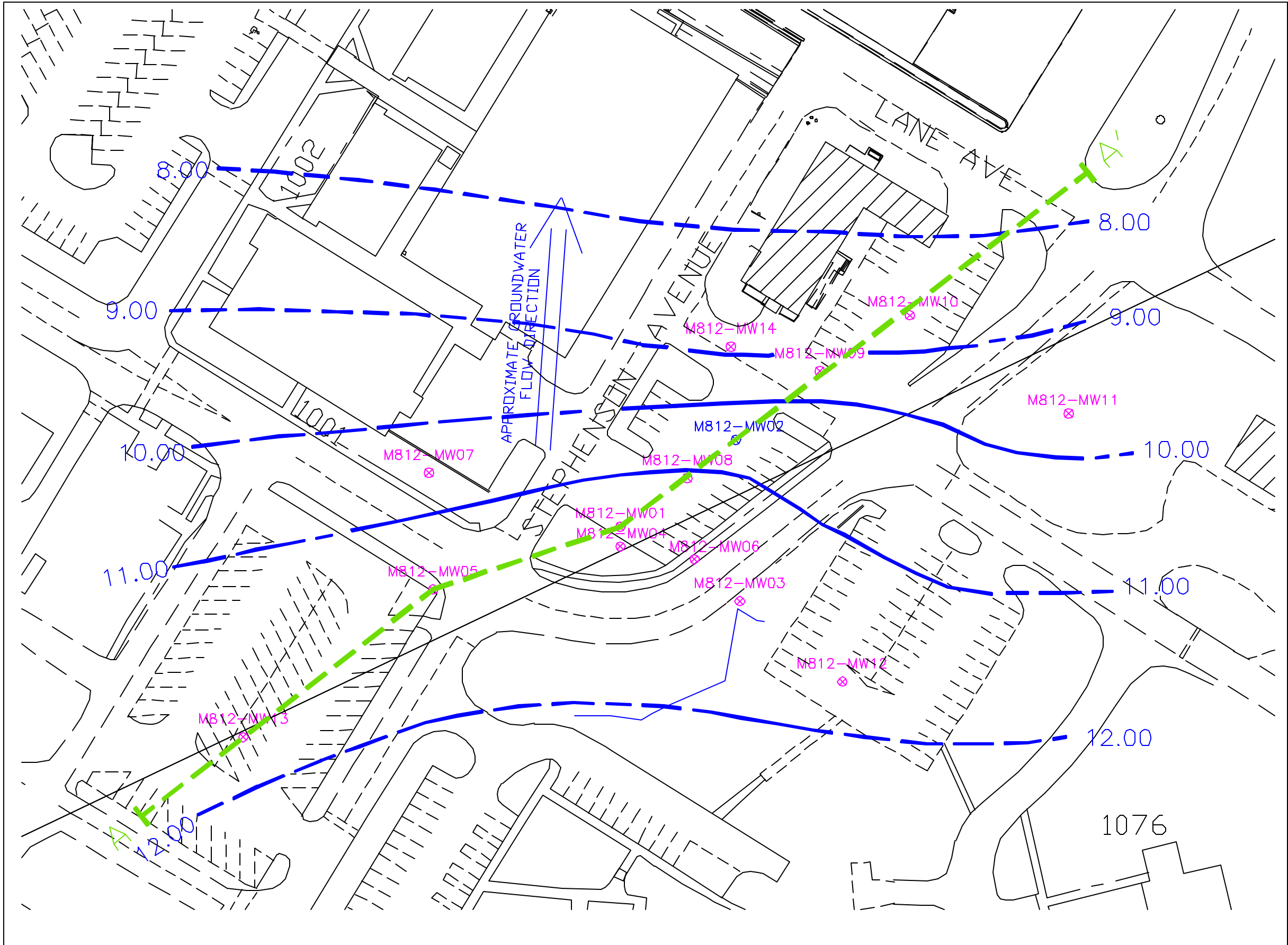
TITLE:
FIGURE 12
GROUNDWATER ELEVATION
CONTOUR MAP (MAY 30, 2000)

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

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

FIGURE 12	
SITE 812 FIG 12	
SCALE: NTS	
SHEET 1 OF 1	REV: B

Fortmon2\DD5_SITE812



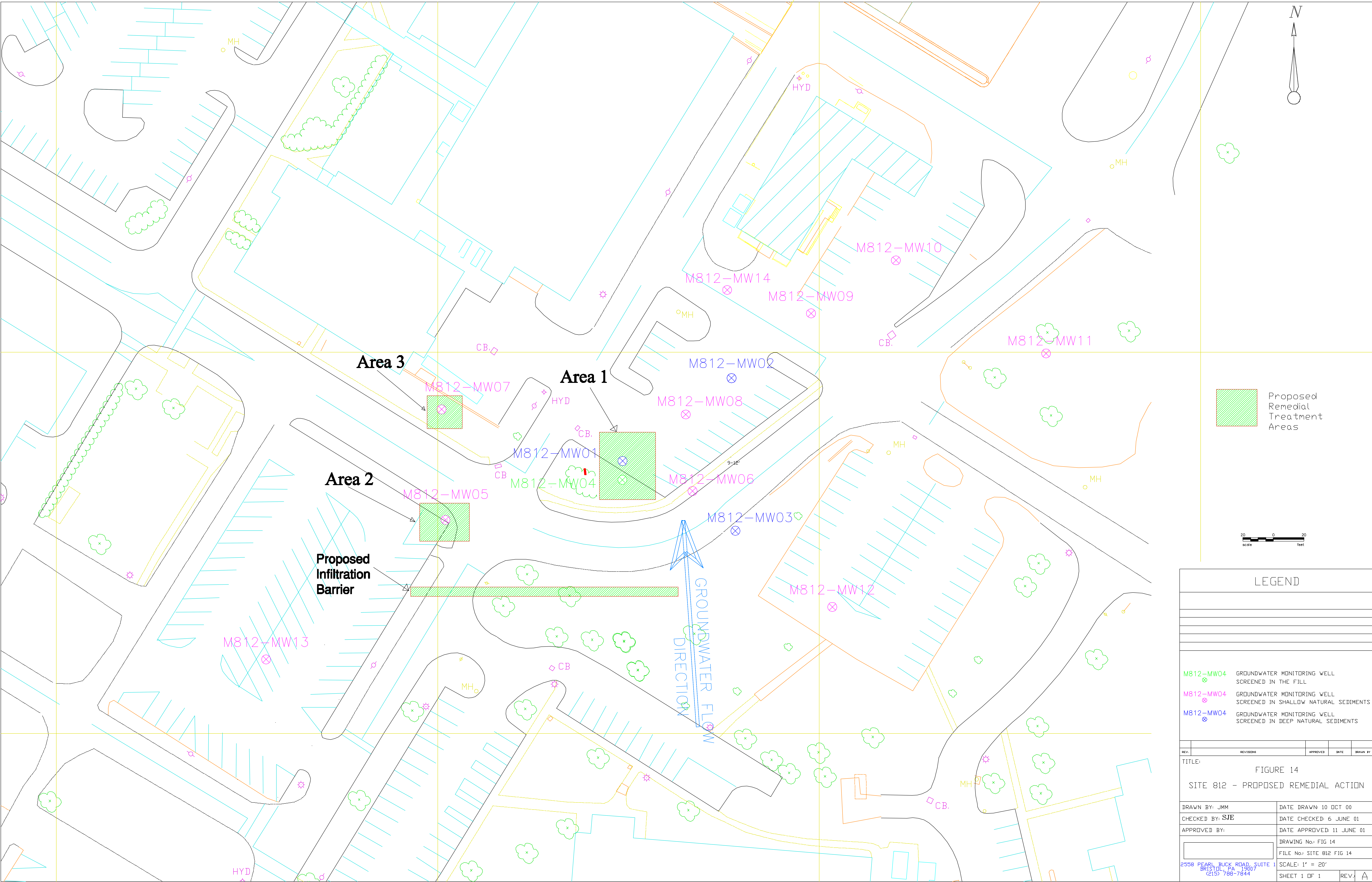
ROAD (PAVED)		A' A'	CROSS SECTION
MONITORING WELL			
BUILDING			
GROUNDWATER ELEVATION CONTOUR (DASHED WHEN INFERRED)		8.00	

NOTES:				
1		SJE	02/25/01	TJV
REV.	REVISIONS	APPROVED	DATE	DRAWN BY

TITLE:		FIGURE 13 GROUNDWATER ELEVATION CONTOUR MAP (JUNE12, 2000)		

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

 2558 PEARL BUCK ROAD, SUITE 1 BRISTOL, PA 19007 (215) 788-7844	FIGURE 13		
	SITE 812 FIG 13		
	SCALE: NTS		
	SHEET 1	OF 1	REV. B



Tables

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

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

NOTES:

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NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Only analytes with detections have been shown.

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NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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

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

NOTES:

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Table 1
Results of Geoprobe Soil Investigation - Site 812
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Fort Monmouth, New Jersey

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

NOTES:

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Fort Monmouth, New Jersey

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

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Only analytes with detections have been shown.

All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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

NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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Only analytes with detections have been shown.

All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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

NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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ND: Analyte not detected in sample.

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

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

NOTES:

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

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

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Only parameters with detections have been shown.

All concentrations are given in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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

NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Only analytes with detections have been shown.

All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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Only analytes with detections have been shown.

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NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

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Only analytes with detections have been shown.

All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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

NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Only analytes with detections have been shown.

All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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

NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Only analytes with detections have been shown.

All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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

NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES:

* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).

Only analytes with detections have been shown.

All concentrations are reported in milligrams per kilogram (mg/Kg) or parts per million (ppm).

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

NA: Not analyzed.

ND: Analyte not detected in sample.

NLE: No RDCSCC exists for this analyte.

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

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

NOTES

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

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

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

NOTES

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Exceedances of the NJDEP GWQC are highlighted and printed in **bold-faced** type.
NA: Not analyzed
ND: Analyte not detected in sample.
NLE: No GWQC exists for this analyte.
D – Analytical value from sample dilution.

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

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

NOTES

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

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

NOTES

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

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

NOTES

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September 1999 - February 2000
Fort Monmouth, New Jersey

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

NOTES

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

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

NOTES

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Table 2
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September 1999 - February 2000
Fort Monmouth, New Jersey

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

NOTES

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

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

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September 1999 - February 2000
Fort Monmouth, New Jersey

Lab ID	Regulatory Level (ug/L)*	5101.17	5101.18	5101.19	5101.20	5101.21	5101.22	5105.20	5105.21	5105.22	5105.23	5105.24	5105.25	5105.26	5105.27
Sample Location		18	25	26	33	34	10	130	131	132	133	134	135	136	137
Sample Depth		11-16'	11-16'	11-16'	11-16'	11-16'	11-16'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'	5.5-10.5'
Sample Date		1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/13/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00	1/14/00
Volatiles															
1,1,1-Trichloroethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Butanone	300	ND	ND	ND	ND	ND	ND	1.62	ND	ND	ND	ND	ND	ND	ND
2-Hexanone	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Methyl-2-Pentanone	400	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acetone	700	ND	ND	ND	ND	ND	ND	5.41	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	4	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Disulfide	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
MTBE	70	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butyl alcohol	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene (PCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.59	ND	ND	ND	ND
trans-1,2-Dichloroethene	100	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene (TCE)	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	NLE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes (Total)	40	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Semi-Volatiles															
4-Methyl phenol	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diethyl phthalate	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals															
Aluminum	200	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	1000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	300	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	10	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Magnesium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	100	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	50000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	NLE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	5000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

NOTES

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

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

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

NOTES

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

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

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

NOTES

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

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

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

NOTES:

Only detected analytes are shown.

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

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

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

ND: Analyte not detected in sample.

NLE: No GWQC exists for this analyte.

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

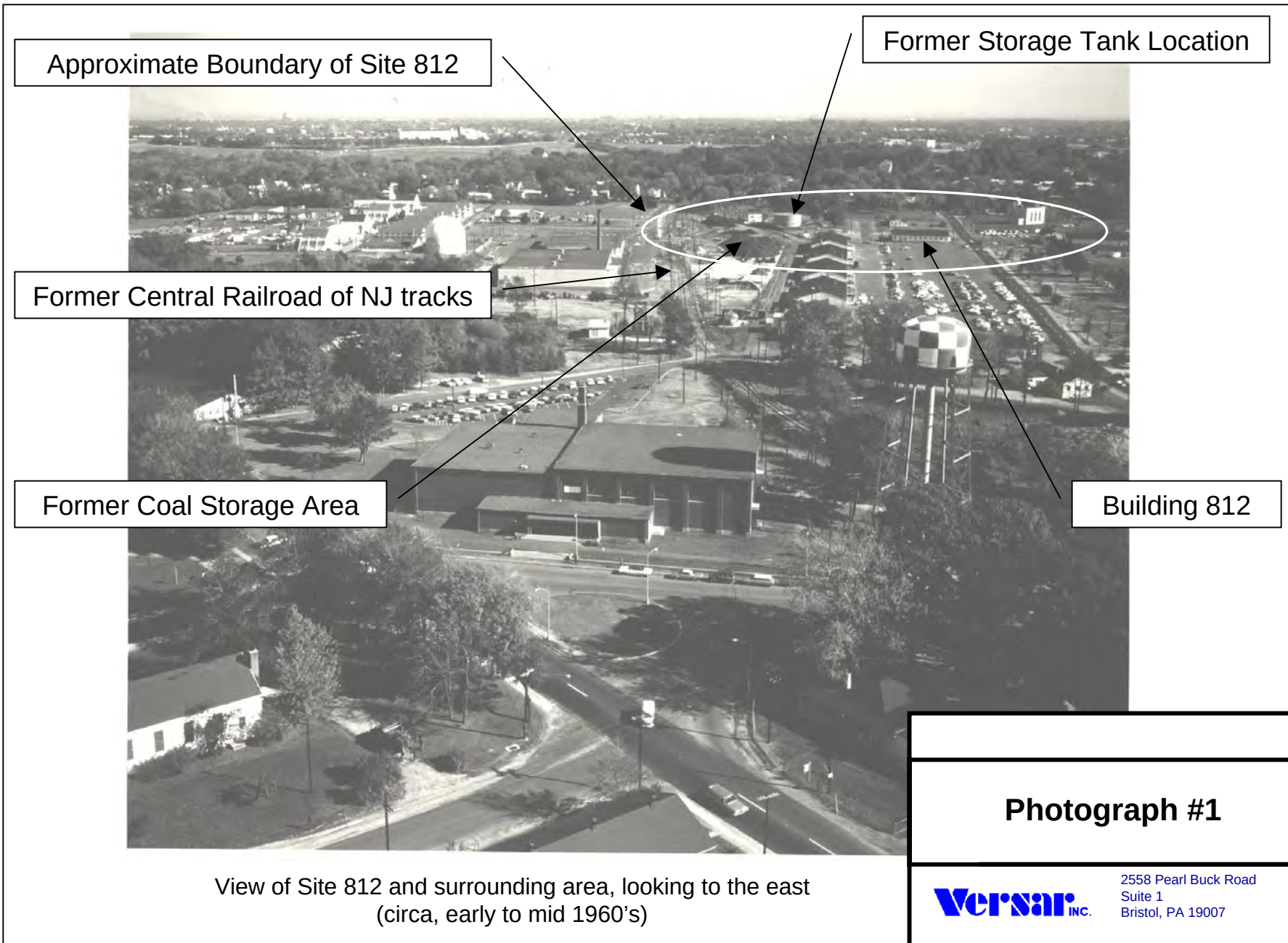
Groundwater Monitoring Well (MW) Specifications					
MW ID	Date of Installation	Well Diameter (inches)	Top of Casing (ft)	Total Depth (ft)	Screened Interval (ft)
MW-1	4-May-00	4	20.14	52	31.8 - 52.0
MW-2	26-Apr-00	4	17.47	50	30 - 50
MW-3	5-May-00	4	18.16	50.5	30.3 - 50.5
MW-4	26-Apr-00	4	20.48	7	2.0 - 7.0
MW-5	4-May-00	4	15.1	18	7.9 - 18.0
MW-6	26-Apr-00	4	19.27	16	5.9 - 16.0
MW-7	3-May-00	4	14.06	18	7.9 - 18.0
MW-8	1-May-00	4	18.22	16	5.9 - 16.0
MW-9	2-May-00	4	16.07	16	5.9 - 16.0
MW-10	3-May-00	4	15.51	16	5.9 - 16.0
MW-11	2-May-00	4	15.11	15	4.9 - 15.0
MW-12	3-May-00	4	17.2	16	5.9 - 16.0
MW-13	4-May-00	4	25.24	19	8.9 - 19.0
MW-14	3-May-00	4	17.52	15	4.9 - 15.0

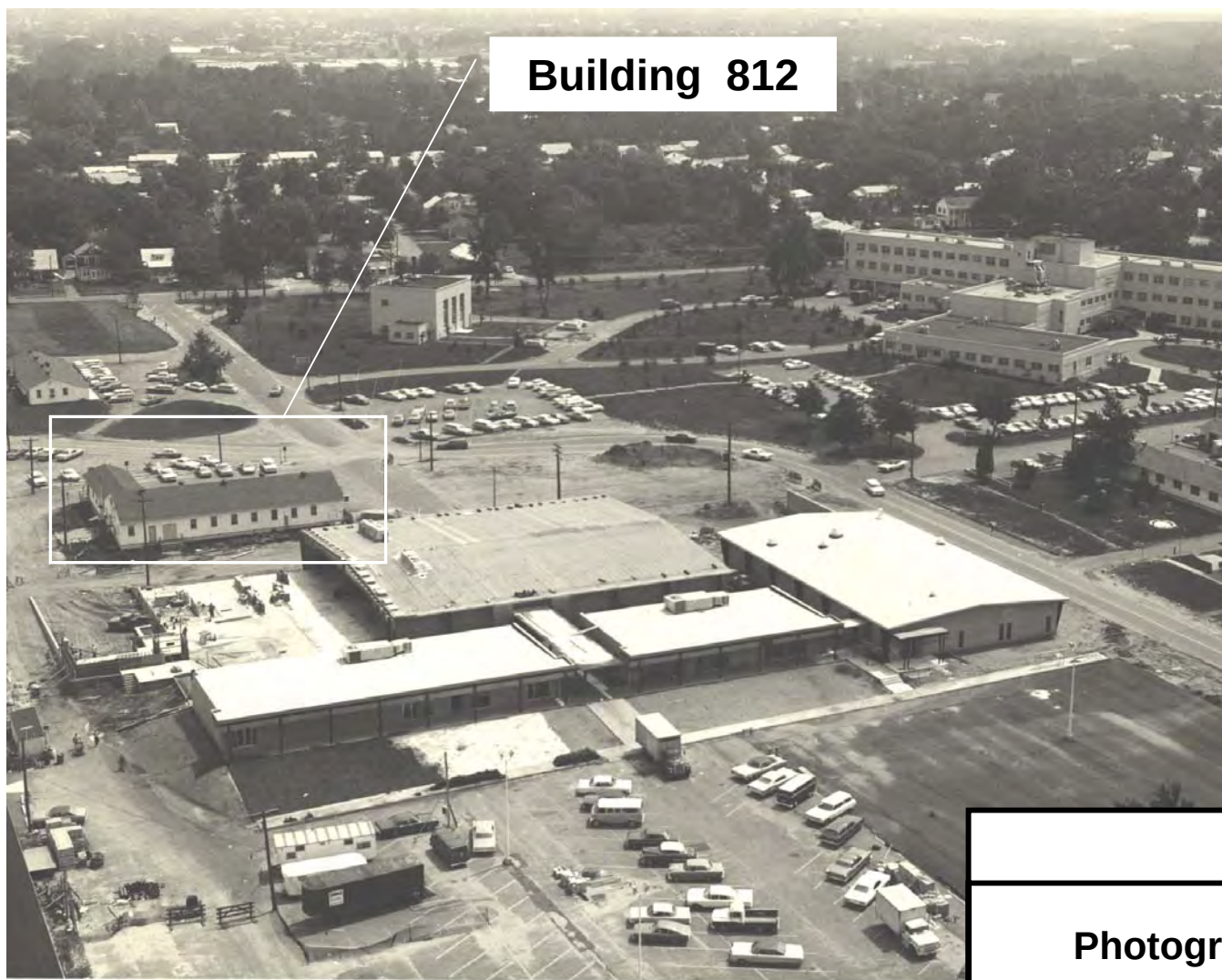
Groundwater Elevations Sampling Conducted May 25-30 2000	
Depth To Water (ft)	Groundwater Elevation (ft)
8.7	11.44
6.6	10.87
6.5	11.66
4.43	16.05
9.8	5.3
7.64	11.63
10.98	3.08
7.1	11.12
6.21	9.86
7.15	8.36
6.12	8.99
4.11	13.09
10.15	15.09
8.62	8.9

Groundwater Elevations Sampling Conducted June 9-12 2000	
Depth To Water (ft)	Groundwater Elevation (ft)
8.9	11.24
6.7	10.77
6.6	11.56
4.72	15.76
10.91	4.19
7.73	11.52
11.03	3.03
7.17	11.05
6.25	9.82
7.21	8.3
5.39	9.72
5.27	11.93
10.31	14.93
8.65	8.87

APPENDIX A

SITE 812 PHOTOGRAPHS





Building 812

Photograph #2

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

Versar INC.

2558 Pearl Buck Road
Suite 1
Bristol, PA 19007

APPENDIX B

FORT MONMOUTH STANDARD OPERATING PROCEDURES

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

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

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

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

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

APPENDIX C

GROUNDWATER MONITORING WELL AND SOIL BORING LOGS

VERSAR INC.

***Groundwater Monitoring Wells MW-1 thru MW-14
April 2000 – May 2000***

U.S. ARMY FORT MONMOUTH – DIRECTORATE OF PUBLIC WORKS

***Borings B-0 thru B-162
September 1999 – February 2000***

APPENDIX D

AQUIFER STUDY

Slug Test Evaluation

APPENDIX E
SENSITIVE RECEPTOR SURVEY

Environmental Data Resources, Inc.
Southport, CT

Offsite Receptor Report
Inquiry Number: 0511403.1r
June 27, 2000

APPENDIX F

WELL SEARCH SUMMARY

***Source: State of New Jersey Department of Environmental Protection
Well Permitting and Regulations Section of the Bureau of Water Allocation, Trenton, NJ
Search Date: 18 January 2001***

APPENDIX G

ANALYTICAL DATA PACKAGE
(under separate cover)



State of New Jersey
Department of Environmental Protection

James E. McGreevey
Governor

Bradley M. Campbell
Commissioner

Mr. Joseph Fallon
Directorate of Public Works
Headquarters, U.S. Army Garrison Fort Monmouth
Fort Monmouth, NJ 07703 - 5101

OCT. - 1 2002

Re: RAWP Approval and Permit-by-Rule Extension Site 812
Fort Monmouth Main Post
Tinton Falls, Monmouth County

Dear Mr. Fallon:

The NJDEP has reviewed the June 2001 Final Remedial Investigation and Remedial Action Workplan for Site 812 and we approve the document as submitted. In addition to this approval, the NJDEP extends the existing Permit-by-Rule one hundred eighty (180) calendar days for Site 812 by this letter. The extension shall commence upon initiation of the proposed Hydrogen Releasing Compounds (HRC) injection remedial actions at Site 812. This extension is granted upon request and receipt of the September 18, 2002 New Jersey Pollution Discharge Elimination System permit extension application for Site 812 from you.

The NJDEP will review the next few rounds of ground water monitoring results with you to determine the most appropriate next step. Should it be determined that subsequent HRC injections would be the most appropriate remedial action, the NJDEP shall review and comment on or issue a NJPDES permit for which you have applied.

This letter provides authorization of discharges to ground water by Permit-by-Rule in accordance with the New Jersey Pollution Elimination System regulations (N.J.A.C. 7:14A et seq.) and the subsequent ground water monitoring program conducted by the ARMY.

The NJDEP requires that all environmental sampling must be provided in electronic format. Temporary dispensation has been provided based on negotiation with Fort Monmouth and NJDEP management. Please provide me with a schedule for completion and submittal of EDSA information. For further information, please visit our web-site home page and specifically:
<http://www.state.nj.us/dep/srp/hazsite/index.html>.

If you should have any questions or comments, please do not hesitate to contact me at (609) 633-7232 or via E-mail.

Sincerely,

Ian R. Curtis, Case Manager
Bureau of Case Management
ICURTIS@DEP.STATE.NJ.US

FTMMTH115IRC.DOC



State of New Jersey

CHRIS CHRISTIE
Governor

KIM GUADAGNO
Lt. Governor

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Case Management
401 East State Street
P.O. Box 420/Mail Code 401-05F
Trenton, NJ 08625-0028
Phone #: 609-633-1455
Fax #: 609-633-1439

BOB MARTIN
Commissioner

April 28, 2017

William Colvin
BRAC Environmental Coordinator
OACSIM – U.S. Army Fort Monmouth
PO Box 148
Oceanport, NJ 07757

Approval

Re: **Remedial Action Type:** *Unrestricted Use*
Scope of Remediation: *Areas of Concern: Ground Water at FTMM-64*
Monmouth County
SRP PI# G000000032
RPC000001

Dear Mr. Colvin,

The New Jersey Department of Environmental Protection (Department) has completed review of the referenced submittal, received March 4, 2017 prepared by the Department of the Army Office of Assistant Chief of Staff for Installation Management to request determination of no further action for ground water at FTMM-64, also known as Building 812. It is agreed no additional action regarding ground water is necessary at FTMM-64.

Please contact Linda Range at (609) 984-6606 if you have any questions.

Sincerely,

Gwen B. Zervas, P.E.
Section Chief

C: James Moore, USACE
Rich Harrison, FMERA
Joe Fallon, FMERA
Joe Pearson, Calibre

Attachment B

2010 Pipeline Excavation Supporting Documents

Table 1. Summary of 2010 Excavation Soil Sample Data (Detects Only)
Analytical Data Reports

TABLE 1
SUMMARY OF 2010 EXCAVATION SOIL SAMPLE DATA (DETECTS ONLY)
FTMM-64
FORT MONMOUTH, NEW JERSEY

Lab Sample ID		1034501	1034502	1034503	1034504	1034505	1034506	1034507	1037501	1037502	1037503	1037504	1037505	1037506	1037507	1037508	1037509	1037510	1037511
Sample Location	NJDEP RDCSCC * (mg/kg)	812-PX1- NORTHWALL	812-PX2- SOUTHWALL	812-PX3- EASTWALL	812-PX4- WESTWALL	812-PX5- BOTTOM	812- Duplicate	812 DISPENSER	812-P1 (Piping)+	812-P2 (Piping)+	812-P3 (Piping)+	812-P4 (Piping)+	812-P5 (Piping)+	812-P6 (Piping)+	812-P7 (Piping)+	812-P8 (Piping)+	812-P9 (Piping)+	812-P10 (Piping)+	812- Duplicate
Excavated? (Y/N)		N	N	N	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	N
Sample Depth (ft bgs)		6-6.5	6-6.5	6-6.5	6-6.5	6.5-7	6-6.5	4-4.5	3-3.5	3-3.5	3-3.5	2.5-3	2.5-3	2.5-3	2.5-3	2.5-3	2.5-3	2.5-3	2.5-3
Sample Date		8/20/2010	8/20/2010	8/20/2010	8/20/2010	8/20/2010	8/20/2010	8/20/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010	9/1/2010
Volatiles																			
Benzene	2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethyl Benzene	7,800	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
m+p-Xylenes	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	6	ND	ND	ND	ND	ND	ND	12.76	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
o-Xylene	12,000	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	6,300	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Petroleum Hydrocarbons (TPH)	5,100	ND	ND	ND	ND	ND	ND	2,946	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Metals																			
Lead	400	9.73	9.28	8.88	6.41	7.49	8.18	19.9	21.7	23.1	10.7	11.9	11.3	6.44	10.2	3.8	6.11	8.58	9.53

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
Laboratory qualifiers reported. Data have not been validated.
All concentrations are reported in milligrams per kilogram (mg/kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
D - Compound required dilution
J - Estimated concentration
NA: Not analyzed.
ND: Analyte not detected in sample.

TABLE 1
SUMMARY OF 2010 EXCAVATION SOIL SAMPLE DATA (DETECTS ONLY)
FTMM-64
FORT MONMOUTH, NEW JERSEY

1037801	1037802	1037803	1037804	1037805	1039101	1039102	1039103	1039104	1039105	1045101	1045102	1045103	1045104	1045105	1045106	1045801	1046201
812-P11	812-P12	812-P12A	812-P13	812-	812-P14	812-P15	812-P16	812-P17	812-	812-PX1	812-PX2	812-PX3	812-PX4	812-	812-	812-	812-PX-5
(Piping)+	(Piping)+	(Piping)+205'	(Piping)+	Duplicate	(Piping)+	(Piping)+	(Piping)+	(Piping)+	Duplicate	NE Wall	SE Wall	SW Wall	Bottom	Duplicate	Composite	Overburden	NE Wall
175'	190'		205'		220'	235'	250'	265'									
N	N	Y	Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N
3-3.5	3-3.5	4.5-5	3.5-4	4.5-5	3.5-4	4-4.5	4-4.5	2.5-3	4-4.5	7.5-8	7.5-8	8-8.5	9-9.5	8-8.5	8-8.5	--	7-7.5
9/8/2010	9/8/2010	9/8/2010	9/8/2010	9/8/2010	9/14/2010	9/14/2010	9/14/2010	9/14/2010	9/14/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/25/2010	10/25/2010
ND	ND	ND	ND	ND	ND	0.15	ND	ND	0.05 J	ND	ND	ND	ND	ND	ND	NA	ND
ND	ND	30.01 D	ND	9.38 D	ND	5.79	ND	ND	0.91	ND	ND	ND	ND	ND	ND	NA	ND
ND	ND	22.36 D	ND	9.07	ND	23.47	ND	ND	3.69	ND	ND	ND	ND	ND	ND	NA	ND
ND	ND	38.69 D	ND	14.82 D	ND	3.97	ND	ND	0.79	ND	ND	0.45	ND	ND	0.31	NA	ND
ND	ND	0.56	ND	0.23	ND	8.45	ND	ND	1.41	ND	ND	ND	ND	ND	ND	NA	ND
ND	ND	ND	ND	ND	ND	4.55	ND	ND	0.82	ND	ND	ND	ND	ND	ND	NA	ND
ND	ND	1,230	ND	540.54	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9.16	7.27	15.5	9.58	15.7	16.8	9.31	10.5	16.8	9.69	ND	ND	24.9	ND	ND	55.1	NA	ND

NOTES:
* New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Cleanup Criteria (RDCSCC).
Only analytes with detections have been shown.
Laboratory qualifiers reported. Data have not been validated.
All concentrations are reported in milligrams per kilogram (mg/kg) or parts per million (ppm).
Exceedances of the NJDEP RDCSCC are highlighted and printed in **bold-faced** type.
D - Compound required dilution
J - Estimated concentration
NA: Not analyzed.
ND: Analyte not detected in sample.

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



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION Fort Monmouth, New Jersey PROJECT: 10-179124

Bldg. 812

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
812-PX1/North Wall	1035401	Soil	20-Aug-10 13:00	08/20/10
812-PX2/South Wall	1035402	Soil	20-Aug-10 13:20	08/20/10
812-PX3/East Wall	1035403	Soil	20-Aug-10 13:45	08/20/10
812-PX4/West Wall	1035404	Soil	20-Aug-10 14:05	08/20/10
812-PX5/Bottom	1035405	Soil	20-Aug-10 14:30	08/20/10
812-Duplicate	1035406	Soil	20-Aug-10 14:05	08/20/10
812-Dispenser	1035407	Soil	20-Aug-10 10:30	08/20/10
Trip Blank	1035408	Methanol	20-Aug-10	08/20/10

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

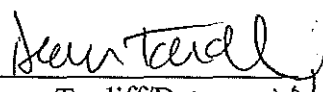
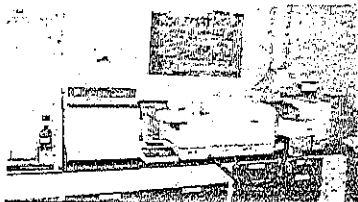

Dean Tardiff/Date: 10/21/10
Laboratory Manager

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CHAIN OF CUSTODY

000001



Fort Monmouth Environmental Testing Laboratory

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

Tel (732)532-6352 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: <u>CHUCK APPLEBY</u>		Project No: <u>10-179124</u>		Analysis Parameters								Comments:		
Phone #: <u>X22 692</u>		Location: <u>BLOG. 812</u>		TPH	LEAD	Pb	VOC	VOC	Pb	DEPT	VOC			
() DERA () OMA (X) Other: <u>BRAC</u>		Samplers Name / Company: <u>FRANK ACCORSI / TVS</u>										Sample #	Remarks / Preservation Method	
Work Order #	Sample Location	Date	Time	Type	bottles									
<u>10354</u>	<u>01 812-PX1, NORTH WALL</u>	<u>8-20-10</u>	<u>1300</u>	<u>SOIL</u>	<u>2</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>3</u>	<u>6-65</u>	<u>6869</u>	<u>ICE</u>	
	<u>02 812-PX2, SOUTH WALL</u>		<u>1320</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>0</u>	<u>6-65</u>	<u>6870</u>		
	<u>03 812-PX3, EAST WALL</u>		<u>1345</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>1</u>	<u>6-65</u>	<u>6871</u>		
	<u>04 812-PX4, WEST WALL</u>		<u>1405</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>2</u>	<u>6-65</u>	<u>6872</u>		
	<u>05 812-PX5, BOTTOM</u>		<u>1430</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>1</u>	<u>6-57</u>	<u>6873</u>		
	<u>06 812-DUPLICATE</u>		<u>1405</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>4</u>	<u>6-65</u>	<u>6874</u>		
	<u>07 812-DISPENSER</u>		<u>1030</u>			<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>220</u>	<u>4-45</u>	<u>6875</u>		
	<u>08 TRIP BLANK</u>		<u>-</u>		<u>1</u>	<u>X</u>			<u>X</u>	<u>-</u>	<u>-</u>	<u>6876</u>		
Relinquished by (signature): <u>Frank Accorsi</u>		Date/Time: <u>8-20-10 1500</u>		Received by (signature): <u>J. Tardiff</u>		Relinquished by (signature):		Date/Time:		Received by (signature):				
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):				
Report Type: () Full, (X) Reduced, () Standard, () Screen / non-certified, () EDD						Remarks:								
Turnaround time: () Standard 3 wks, (X) Rush <u>3</u> Wk., () ASAP Verbal <u> </u> Hrs.														

DAYS

SAMPLE RECEIPT FORM

Date Received: 8-20-10

Work Order ID#: 10354

Site/Proj. Name: Bladey 812

Cooler Temp (°C): 4.5°C

Received By: J. Cerny
(Print name)

Sign: [Signature]

Check the appropriate box

1. Did the samples come in a cooler?	yes	no	n/a
2. Were samples rec'd in good condition?	yes	no	
3. Was the chain of custody filled out correctly and legibly?	yes	no	
4. Was the chain of custody signed in the appropriate place?	yes	no	
5. Did the labels agree with the chain of custody?	yes	no	
6. Were the correct containers/preservatives used?	yes	no	
7. Was a sufficient amount of sample supplied?	yes	no	
8. Were air bubbles present in VOA vials?	yes	no	n/a
9. Were samples received on ice?	yes	no	
10. Were analyze-immediately tests perform within 15 minutes	yes	no	n/a

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments: _____

GPS POINTS

U.S. ARMY-FT. MONMOUTH, NJ

BLDG. 812

SOIL SAMPLING GPS POSITIONS & COORDINATES

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

<u>POSITION/DESCRIPTION</u>	<u>Y COORDINATE (NORTHING)</u>	<u>X COORDINATE (EASTING)</u>
812-PX1/NW	537992.840	620695.603
812-PX2/SW	537976.801	620686.969
812-PX3/EW	537971.480	620706.115
812-PX4/WW	537996.336	620678.443
812-PX5/Bottom	537980.507	620691.456
812-Dispenser	537897.202	620690.154

000005

FIELD DUPLICATE

000006

Field Duplicate Identification

Lab ID: 10354

Site: Bldg. 812

The Field Duplicate was performed on 812-P4/West Wall (1035404.)

000007

METHOD SUMMARY

Method Summary

EPA SW-846 Method 8260

Gas Chromatographic Determination of Volatiles in Methanol

A 10-gram volume of soil is combined with 25-ml of Methanol and surrogates in the field. Internal standards are added and the sample is placed on a purge and trap concentrator. The sample is purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

NJDEP Method OQA-QAM-025 02/08

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml 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 1-ml auto-sampler 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 moisture, sample weight and concentration.

EPA SW-846 Method 6010B, 3rd Edition Base Manual with Final Updates I, II, IIA, IIB and III: ICP RCRA Metals

Perkin Elmer OPTIMA 3000 DV

The method measures element-emitted light by optical spectrometry. Samples are nebulized and the resulting aerosol is transported to the plasma torch. Radio frequency inductively coupled plasma produces element-specific atomic-line emission spectra. The spectra are dispersed by a grating spectrometer and a Segmented-array Charged-coupled-device Detector (SCD) monitors the intensities of the lines. Background and interelemental correction is used for trace element determinations.

CONFORMANCE/ NON-CONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMATIndicate
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 Criteria Yes
 - b. DFTPP Meet Criteria N/A
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 Criteria Yes
 - b. System Performance Check Compounds Meet Criteria Yes
7. Blank Contamination – If yes, List compounds and concentrations in each blank: No
 - a. VOA Fraction _____
 - b. B/N Fraction _____
 - c. Acid Fraction _____
8. Surrogate Recoveries Meet Criteria Yes

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"?

9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria No

(If not met, list those compounds and their recoveries, which fall outside the acceptable range)

 - a. VOA Fraction See ms/msd report for notes
 - b. B/N Fraction _____
 - c. Acid Fraction _____

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

Indicate
Yes, No, N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria
(If not met, list those compounds, which fall outside the acceptable range)

Yes

- a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

11. Extraction Holding Time Met

N/A

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: _____

Additional Comments:

Laboratory Manager: Sean Tardiff

Date: 10/21/10

RTA 8/26/10

000013

10354 TPH

TPHC Conformance/Non-conformance Summary Report

	Indicate Yes, No, N/A
1. Method Detection Limits provided.	<u>Yes</u>
2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank. _____ _____	<u>No</u>
3. Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
4. Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
5. IR Spectra submitted for standards, blanks and samples.	<u>N/A</u>
6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	<u>N/A</u>
7. Analysis holding time met. (If not met, list number of days exceeded for each sample). _____ _____	<u>Yes</u>

Additional comments: _____

Sean Tardiff
Laboratory Manager

10/21/10
Date

R/K 8/25/10

000014

METALS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

Project: 10354
Method: 6010B

Indicate
Yes, No, N/A

1. Initial and Continuing Calibration Verifications / Meet Criteria

✓

2. ICP Interference Check Sample Results Meet Criteria

✓

3. Serial Dilutions Meet Criteria

1035401

✓

4. Laboratory Control Samples Meet Criteria

✓

5. Preparation, Method and Calibration Blank Contamination
If yes, list compounds and concentrations in each blank

MB082310-1 Pb = 0.005 ug/L

✓

6. Spike Sample Recoveries Meet Criteria

1035401

✓

7. Duplicates Meet Criteria

1035401

✓

8. Analysis Holding Time Met

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

✓

Additional Comments

Analyst:

Kan Zander

Date:

10/16/10

Administrative

Review:

Ann Tardiff

Date:

10/21/10

000015

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 10354

Site: 812

	Date	Hold Time
Date Sampled	08/20/10	NA
Receipt/Refrigeration	08/20/10	NA

Analyses

1. Volatiles	08/25/10	14 Days
2. TPHC	08/24/10	14 Days
3. LEAD	08/24/10	6 Months

000017

VOLATILE ORGANICS

000018

**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461**

Definition of Qualifiers

- U:** The compound was analyzed for but not detected.
- B:** Indicates that the compound was found in the associated method blank as well as in the sample.
- J:** Indicates an estimated value. This flag is used:
- (1) When the mass spec and retention time data indicate the presence of a compound however the result is less than the reporting limit but greater than the MDL.
 - (2) When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D:** This flag is used to identify all compounds (target or TIC) that required a dilution.
- E:** Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N:** This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

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

Data File **VA7285.D**
 Operator **ROBERTS**
 Date Acquired **25 Aug 2010 12:00 pm**

Sample Name **MB08251001**
 Field ID **METHOD 8260 8/25/10**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.436 mg/kg	1.000 mg/kg	
107131	Acrylonitrile			not detected	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.061 mg/kg	0.050 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.054 mg/kg	0.050 mg/kg	
108-88-3	Toluene			not detected	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	0.047 mg/kg	0.050 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.059 mg/kg	0.050 mg/kg	
91-20-3	Naphthalene			not detected	0.062 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

MB08251001

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: MB08251001
Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7285.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 0 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File VA7288.D
 Operator ROBERTS
 Date Acquired 25 Aug 2010 1:33 pm

Sample Name 1035401
 Field ID 812 PX-1 NORTH WALL
 Sample Multiplier 0.113

Sample Weight 10.47 g
 Percent Solids 84.4 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.493 mg/kg	1.132 mg/kg	
107131	Acrylonitrile			not detected	0.243 mg/kg	0.566 mg/kg	
75650	tert-Butyl alcohol			not detected	0.465 mg/kg	0.566 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.036 mg/kg	0.057 mg/kg	
108203	Di-isopropyl ether			not detected	0.043 mg/kg	0.057 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.118 mg/kg	0.057 mg/kg	
74-87-3	Chloromethane			not detected	0.049 mg/kg	0.057 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.057 mg/kg	0.057 mg/kg	
74-83-9	Bromomethane			not detected	0.059 mg/kg	0.057 mg/kg	
75-00-3	Chloroethane			not detected	0.050 mg/kg	0.057 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.096 mg/kg	0.057 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.087 mg/kg	0.057 mg/kg	
67-64-1	Acetone			not detected	0.093 mg/kg	0.057 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.077 mg/kg	0.057 mg/kg	
75-09-2	Methylene Chloride			not detected	0.074 mg/kg	0.057 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.067 mg/kg	0.057 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.066 mg/kg	0.057 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.037 mg/kg	0.113 mg/kg	
78-93-3	2-Butanone			not detected	0.080 mg/kg	0.057 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.066 mg/kg	0.057 mg/kg	
67-66-3	Chloroform			not detected	0.084 mg/kg	0.057 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.071 mg/kg	0.057 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.070 mg/kg	0.057 mg/kg	
71-43-2	Benzene			not detected	0.065 mg/kg	0.057 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.051 mg/kg	0.057 mg/kg	
79-01-6	Trichloroethene			not detected	0.061 mg/kg	0.057 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.066 mg/kg	0.057 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.054 mg/kg	0.057 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.069 mg/kg	0.057 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.043 mg/kg	0.057 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.061 mg/kg	0.057 mg/kg	
108-88-3	Toluene			not detected	0.080 mg/kg	0.057 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.051 mg/kg	0.057 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.058 mg/kg	0.057 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.075 mg/kg	0.057 mg/kg	
591-78-6	2-Hexanone			not detected	0.053 mg/kg	0.057 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.052 mg/kg	0.057 mg/kg	
108-90-7	Chlorobenzene			not detected	0.074 mg/kg	0.057 mg/kg	
100-41-4	Ethylbenzene			not detected	0.078 mg/kg	0.057 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.079 mg/kg	0.057 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.148 mg/kg	0.113 mg/kg	
1330-20-7	o-Xylene			not detected	0.070 mg/kg	0.057 mg/kg	
100-42-5	Styrene			not detected	0.061 mg/kg	0.057 mg/kg	
75-25-2	Bromoform			not detected	0.045 mg/kg	0.057 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.061 mg/kg	0.057 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.066 mg/kg	0.057 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.063 mg/kg	0.057 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.067 mg/kg	0.057 mg/kg	
91-20-3	Naphthalene			not detected	0.070 mg/kg	0.057 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PX-1 N. WALL

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: 1035401
Sample wt/vol: 10.5 (g/ml) G Lab File ID: VA7288.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 15.6 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File VA7289.D
 Operator ROBERTS
 Date Acquired 25 Aug 2010 2:03 pm

Sample Name 1035402
 Field ID 812 PX-2 SOUTH WALL
 Sample Multiplier 0.100

Sample Weight 12.25 g
 Percent Solids 82.0 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.434 mg/kg	0.996 mg/kg	
107131	Acrylonitrile			not detected	0.214 mg/kg	0.498 mg/kg	
75650	tert-Butyl alcohol			not detected	0.409 mg/kg	0.498 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.061 mg/kg	0.050 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.054 mg/kg	0.050 mg/kg	
108-88-3	Toluene			not detected	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	0.047 mg/kg	0.050 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.130 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.059 mg/kg	0.050 mg/kg	
91-20-3	Naphthalene			not detected	0.062 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PX-2 S. WALL

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: 1035402
Sample wt/vol: 12.3 (g/ml) G Lab File ID: VA7289.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 18 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KGNumber TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File VA7290.D
 Operator ROBERTS
 Date Acquired 25 Aug 2010 2:34 pm

Sample Name 1035403
 Field ID 812 PX-3 EAST WALL
 Sample Multiplier 0.121

Sample Weight 10.36 g
 Percent Solids 80.1 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.525 mg/kg	1.205 mg/kg	
107131	Acrylonitrile			not detected	0.259 mg/kg	0.603 mg/kg	
75650	tert-Butyl alcohol			not detected	0.495 mg/kg	0.603 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.039 mg/kg	0.060 mg/kg	
108203	Di-isopropyl ether			not detected	0.046 mg/kg	0.060 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.125 mg/kg	0.060 mg/kg	
74-87-3	Chloromethane			not detected	0.052 mg/kg	0.060 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.060 mg/kg	0.060 mg/kg	
74-83-9	Bromomethane			not detected	0.063 mg/kg	0.060 mg/kg	
75-00-3	Chloroethane			not detected	0.053 mg/kg	0.060 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.102 mg/kg	0.060 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.093 mg/kg	0.060 mg/kg	
67-64-1	Acetone			not detected	0.099 mg/kg	0.060 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.082 mg/kg	0.060 mg/kg	
75-09-2	Methylene Chloride			not detected	0.078 mg/kg	0.060 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.071 mg/kg	0.060 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.070 mg/kg	0.060 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.040 mg/kg	0.121 mg/kg	
78-93-3	2-Butanone			not detected	0.086 mg/kg	0.060 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.070 mg/kg	0.060 mg/kg	
67-66-3	Chloroform			not detected	0.089 mg/kg	0.060 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.076 mg/kg	0.060 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.075 mg/kg	0.060 mg/kg	
71-43-2	Benzene			not detected	0.069 mg/kg	0.060 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.054 mg/kg	0.060 mg/kg	
79-01-6	Trichloroethene			not detected	0.065 mg/kg	0.060 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.070 mg/kg	0.060 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.058 mg/kg	0.060 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.074 mg/kg	0.060 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.046 mg/kg	0.060 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.065 mg/kg	0.060 mg/kg	
108-88-3	Toluene			not detected	0.086 mg/kg	0.060 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.054 mg/kg	0.060 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.061 mg/kg	0.060 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.080 mg/kg	0.060 mg/kg	
591-78-6	2-Hexanone			not detected	0.057 mg/kg	0.060 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.055 mg/kg	0.060 mg/kg	
108-90-7	Chlorobenzene			not detected	0.078 mg/kg	0.060 mg/kg	
100-41-4	Ethylbenzene			not detected	0.083 mg/kg	0.060 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.084 mg/kg	0.060 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.158 mg/kg	0.121 mg/kg	
1330-20-7	o-Xylene			not detected	0.075 mg/kg	0.060 mg/kg	
100-42-5	Styrene			not detected	0.065 mg/kg	0.060 mg/kg	
75-25-2	Bromoform			not detected	0.048 mg/kg	0.060 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.065 mg/kg	0.060 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.070 mg/kg	0.060 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.067 mg/kg	0.060 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.071 mg/kg	0.060 mg/kg	
91-20-3	Naphthalene			not detected	0.075 mg/kg	0.060 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PX-3 E. WALL

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: 1035403
Sample wt/vol: 10.4 (g/ml) G Lab File ID: VA7290.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 19.9 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File VA7291.D
 Operator ROBERTS
 Date Acquired 25 Aug 2010 3:05 pm

Sample Name 1035404
 Field ID 812 PX-4 WEST WALL
 Sample Multiplier 0.108

Sample Weight 11.05 g
 Percent Solids 84.0 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.470 mg/kg	1.077 mg/kg	
107131	Acrylonitrile			not detected	0.232 mg/kg	0.539 mg/kg	
75650	tert-Butyl alcohol			not detected	0.443 mg/kg	0.539 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.034 mg/kg	0.054 mg/kg	
108203	Di-isopropyl ether			not detected	0.041 mg/kg	0.054 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.112 mg/kg	0.054 mg/kg	
74-87-3	Chloromethane			not detected	0.046 mg/kg	0.054 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.054 mg/kg	0.054 mg/kg	
74-83-9	Bromomethane			not detected	0.056 mg/kg	0.054 mg/kg	
75-00-3	Chloroethane			not detected	0.047 mg/kg	0.054 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.092 mg/kg	0.054 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.083 mg/kg	0.054 mg/kg	
67-64-1	Acetone			not detected	0.088 mg/kg	0.054 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.073 mg/kg	0.054 mg/kg	
75-09-2	Methylene Chloride			not detected	0.070 mg/kg	0.054 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.064 mg/kg	0.054 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.062 mg/kg	0.054 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.036 mg/kg	0.108 mg/kg	
78-93-3	2-Butanone			not detected	0.076 mg/kg	0.054 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.062 mg/kg	0.054 mg/kg	
67-66-3	Chloroform			not detected	0.080 mg/kg	0.054 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.068 mg/kg	0.054 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.067 mg/kg	0.054 mg/kg	
71-43-2	Benzene			not detected	0.061 mg/kg	0.054 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.048 mg/kg	0.054 mg/kg	
79-01-6	Trichloroethene			not detected	0.058 mg/kg	0.054 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.062 mg/kg	0.054 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.052 mg/kg	0.054 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.066 mg/kg	0.054 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.041 mg/kg	0.054 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.058 mg/kg	0.054 mg/kg	
108-88-3	Toluene			not detected	0.076 mg/kg	0.054 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.048 mg/kg	0.054 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.055 mg/kg	0.054 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.071 mg/kg	0.054 mg/kg	
591-78-6	2-Hexanone			not detected	0.051 mg/kg	0.054 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.050 mg/kg	0.054 mg/kg	
108-90-7	Chlorobenzene			not detected	0.070 mg/kg	0.054 mg/kg	
100-41-4	Ethylbenzene			not detected	0.074 mg/kg	0.054 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.075 mg/kg	0.054 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.141 mg/kg	0.108 mg/kg	
1330-20-7	o-Xylene			not detected	0.067 mg/kg	0.054 mg/kg	
100-42-5	Styrene			not detected	0.058 mg/kg	0.054 mg/kg	
75-25-2	Bromoform			not detected	0.043 mg/kg	0.054 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.058 mg/kg	0.054 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.062 mg/kg	0.054 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.060 mg/kg	0.054 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.064 mg/kg	0.054 mg/kg	
91-20-3	Naphthalene			not detected	0.067 mg/kg	0.054 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PX-4 W. WALL

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: 1035404
Sample wt/vol: 11.1 (g/ml) G Lab File ID: VA7291.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 16 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7292.D**
 Operator **ROBERTS**
 Date Acquired **25 Aug 2010 3:36 pm**

Sample Name **1035405**
 Field ID **812 PX-5 BOTTOM**
 Sample Multiplier **0.115**

Sample Weight **10.90 g**
 Percent Solids **80.1 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.499 mg/kg	1.145 mg/kg	
107131	Acrylonitrile			not detected	0.246 mg/kg	0.573 mg/kg	
75650	tert-Butyl alcohol			not detected	0.471 mg/kg	0.573 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.037 mg/kg	0.057 mg/kg	
108203	Di-isopropyl ether			not detected	0.044 mg/kg	0.057 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.119 mg/kg	0.057 mg/kg	
74-87-3	Chloromethane			not detected	0.049 mg/kg	0.057 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.057 mg/kg	0.057 mg/kg	
74-83-9	Bromomethane			not detected	0.060 mg/kg	0.057 mg/kg	
75-00-3	Chloroethane			not detected	0.050 mg/kg	0.057 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.097 mg/kg	0.057 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.088 mg/kg	0.057 mg/kg	
67-64-1	Acetone			not detected	0.094 mg/kg	0.057 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.078 mg/kg	0.057 mg/kg	
75-09-2	Methylene Chloride			not detected	0.074 mg/kg	0.057 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.068 mg/kg	0.057 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.066 mg/kg	0.057 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.038 mg/kg	0.115 mg/kg	
78-93-3	2-Butanone			not detected	0.081 mg/kg	0.057 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.066 mg/kg	0.057 mg/kg	
67-66-3	Chloroform			not detected	0.085 mg/kg	0.057 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.072 mg/kg	0.057 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.071 mg/kg	0.057 mg/kg	
71-43-2	Benzene			not detected	0.065 mg/kg	0.057 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.052 mg/kg	0.057 mg/kg	
79-01-6	Trichloroethene			not detected	0.062 mg/kg	0.057 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.066 mg/kg	0.057 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.055 mg/kg	0.057 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.070 mg/kg	0.057 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.044 mg/kg	0.057 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.062 mg/kg	0.057 mg/kg	
108-88-3	Toluene			not detected	0.081 mg/kg	0.057 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.052 mg/kg	0.057 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.058 mg/kg	0.057 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.076 mg/kg	0.057 mg/kg	
591-78-6	2-Hexanone			not detected	0.054 mg/kg	0.057 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.053 mg/kg	0.057 mg/kg	
108-90-7	Chlorobenzene			not detected	0.074 mg/kg	0.057 mg/kg	
100-41-4	Ethylbenzene			not detected	0.079 mg/kg	0.057 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.080 mg/kg	0.057 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.150 mg/kg	0.115 mg/kg	
1330-20-7	o-Xylene			not detected	0.071 mg/kg	0.057 mg/kg	
100-42-5	Styrene			not detected	0.062 mg/kg	0.057 mg/kg	
75-25-2	Bromoform			not detected	0.046 mg/kg	0.057 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.062 mg/kg	0.057 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.066 mg/kg	0.057 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.064 mg/kg	0.057 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.068 mg/kg	0.057 mg/kg	
91-20-3	Naphthalene			not detected	0.071 mg/kg	0.057 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

PX-5 BOTTOM

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: 1035405
Sample wt/vol: 10.9 (g/ml) G Lab File ID: VA7292.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 19.9 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File **VA7293.D**
 Operator **ROBERTS**
 Date Acquired **25 Aug 2010 4:06 pm**

Sample Name **1035406**
 Field ID **812 PX DUPLICATE**
 Sample Multiplier **0.101**

Sample Weight **11.96 g**
 Percent Solids **82.5 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.442 mg/kg	1.013 mg/kg	
107131	Acrylonitrile			not detected	0.218 mg/kg	0.507 mg/kg	
75650	tert-Butyl alcohol			not detected	0.417 mg/kg	0.507 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.051 mg/kg	
108203	Di-isopropyl ether			not detected	0.039 mg/kg	0.051 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.105 mg/kg	0.051 mg/kg	
74-87-3	Chloromethane			not detected	0.044 mg/kg	0.051 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.051 mg/kg	0.051 mg/kg	
74-83-9	Bromomethane			not detected	0.053 mg/kg	0.051 mg/kg	
75-00-3	Chloroethane			not detected	0.045 mg/kg	0.051 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.086 mg/kg	0.051 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.078 mg/kg	0.051 mg/kg	
67-64-1	Acetone			not detected	0.083 mg/kg	0.051 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.069 mg/kg	0.051 mg/kg	
75-09-2	Methylene Chloride			not detected	0.066 mg/kg	0.051 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.060 mg/kg	0.051 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.059 mg/kg	0.051 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.101 mg/kg	
78-93-3	2-Butanone			not detected	0.072 mg/kg	0.051 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.059 mg/kg	0.051 mg/kg	
67-66-3	Chloroform			not detected	0.075 mg/kg	0.051 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.064 mg/kg	0.051 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.063 mg/kg	0.051 mg/kg	
71-43-2	Benzene			not detected	0.058 mg/kg	0.051 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.046 mg/kg	0.051 mg/kg	
79-01-6	Trichloroethene			not detected	0.055 mg/kg	0.051 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.059 mg/kg	0.051 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.049 mg/kg	0.051 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.062 mg/kg	0.051 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.039 mg/kg	0.051 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.055 mg/kg	0.051 mg/kg	
108-88-3	Toluene			not detected	0.072 mg/kg	0.051 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.046 mg/kg	0.051 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.052 mg/kg	0.051 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.067 mg/kg	0.051 mg/kg	
591-78-6	2-Hexanone			not detected	0.048 mg/kg	0.051 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.047 mg/kg	0.051 mg/kg	
108-90-7	Chlorobenzene			not detected	0.066 mg/kg	0.051 mg/kg	
100-41-4	Ethylbenzene			not detected	0.070 mg/kg	0.051 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.071 mg/kg	0.051 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.133 mg/kg	0.101 mg/kg	
1330-20-7	o-Xylene			not detected	0.063 mg/kg	0.051 mg/kg	
100-42-5	Styrene			not detected	0.055 mg/kg	0.051 mg/kg	
75-25-2	Bromoform			not detected	0.041 mg/kg	0.051 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.055 mg/kg	0.051 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.059 mg/kg	0.051 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.057 mg/kg	0.051 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.060 mg/kg	0.051 mg/kg	
91-20-3	Naphthalene			not detected	0.063 mg/kg	0.051 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DUPLICATE

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: 1035406
Sample wt/vol: 12.0 (g/ml) G Lab File ID: VA7293.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 17.5 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File VA7296.D
 Operator ROBERTS
 Date Acquired 25 Aug 2010 5:39 pm

Sample Name 1035407
 Field ID 812 DISPENSER
 Sample Multiplier 0.110

Sample Weight 10.73 g
 Percent Solids 84.8 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.479 mg/kg	1.099 mg/kg	
107131	Acrylonitrile			not detected	0.236 mg/kg	0.550 mg/kg	
75650	tert-Butyl alcohol			not detected	0.452 mg/kg	0.550 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.035 mg/kg	0.055 mg/kg	
108203	Di-isopropyl ether			not detected	0.042 mg/kg	0.055 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.114 mg/kg	0.055 mg/kg	
74-87-3	Chloromethane			not detected	0.047 mg/kg	0.055 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.055 mg/kg	0.055 mg/kg	
74-83-9	Bromomethane			not detected	0.057 mg/kg	0.055 mg/kg	
75-00-3	Chloroethane			not detected	0.048 mg/kg	0.055 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.093 mg/kg	0.055 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.085 mg/kg	0.055 mg/kg	
67-64-1	Acetone			not detected	0.090 mg/kg	0.055 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.075 mg/kg	0.055 mg/kg	
75-09-2	Methylene Chloride			not detected	0.071 mg/kg	0.055 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.065 mg/kg	0.055 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.064 mg/kg	0.055 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.036 mg/kg	0.110 mg/kg	
78-93-3	2-Butanone			not detected	0.078 mg/kg	0.055 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.064 mg/kg	0.055 mg/kg	
67-66-3	Chloroform			not detected	0.081 mg/kg	0.055 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.069 mg/kg	0.055 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.068 mg/kg	0.055 mg/kg	
71-43-2	Benzene			not detected	0.063 mg/kg	0.055 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.049 mg/kg	0.055 mg/kg	
79-01-6	Trichloroethene			not detected	0.059 mg/kg	0.055 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.064 mg/kg	0.055 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.053 mg/kg	0.055 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.067 mg/kg	0.055 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.042 mg/kg	0.055 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.059 mg/kg	0.055 mg/kg	
108-88-3	Toluene			not detected	0.078 mg/kg	0.055 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.049 mg/kg	0.055 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.056 mg/kg	0.055 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.073 mg/kg	0.055 mg/kg	
591-78-6	2-Hexanone			not detected	0.052 mg/kg	0.055 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.051 mg/kg	0.055 mg/kg	
108-90-7	Chlorobenzene			not detected	0.071 mg/kg	0.055 mg/kg	
100-41-4	Ethylbenzene			not detected	0.076 mg/kg	0.055 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.077 mg/kg	0.055 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.144 mg/kg	0.110 mg/kg	
1330-20-7	o-Xylene			not detected	0.068 mg/kg	0.055 mg/kg	
100-42-5	Styrene			not detected	0.059 mg/kg	0.055 mg/kg	
75-25-2	Bromoform			not detected	0.044 mg/kg	0.055 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.059 mg/kg	0.055 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.064 mg/kg	0.055 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.062 mg/kg	0.055 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.065 mg/kg	0.055 mg/kg	
91-20-3	Naphthalene	24.55	3086932	12.76 mg/kg	0.068 mg/kg	0.055 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

DISPENSER

Lab Name: FMETL Contract: _____

Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354

Matrix: (soil/water) SOIL Lab Sample ID: 1035407

Sample wt/vol: 10.7 (g/ml) G Lab File ID: VA7296.D

Level: (low/med) MED Date Received: 8/20/2010

% Moisture: not dec. 15.2 Date Analyzed: 8/25/2010

GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KGNumber TICs found: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Branched	15.09	31000	J
2.	Alkane: Branched	16.80	49000	J
3.	Alkane: Branched	17.14	33000	J
4.	Alkane: Cyclic	17.25	35000	J
5.	Alkane: Cyclic	17.40	30000	J
6.	Alkane: Branched	17.80	39000	J
7.	C3 alkyl benzene	18.52	38000	J
8.	C3 alkyl benzene	18.68	44000	J
9.	C4 alkyl benzene	20.70	58000	J
10.	C4 alkyl benzene	21.45	37000	J
11.	C4 alkyl benzene	22.08	39000	J
12.	1H-Indene-dihydro-methyl-	23.01	32000	J
13.	C4 alkyl benzene	23.28	43000	J
14.	1H-Indene-dihydro-methyl-	23.35	33000	J
15.	1H-Indene-dihydro-dimethyl-	23.89	38000	J

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

Data File VA7287.D
 Operator ROBERTS
 Date Acquired 25 Aug 2010 1:02 pm

Sample Name 1035408
 Field ID TRIP BLANK
 Sample Multiplier 0.100

Sample Weight 10.00 g
 Percent Solids 100.0 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.436 mg/kg	1.000 mg/kg	
107131	Acrylonitrile			not detected	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.061 mg/kg	0.050 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.054 mg/kg	0.050 mg/kg	
108-88-3	Toluene			not detected	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	0.047 mg/kg	0.050 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.059 mg/kg	0.050 mg/kg	
91-20-3	Naphthalene			not detected	0.062 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

B = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

TRIP BLANK

Lab Name: FMETL Contract: _____
Lab Code: 13461 Case No.: MW SAS No.: _____ SDG No.: 10354
Matrix: (soil/water) SOIL Lab Sample ID: 1035408
Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7287.D
Level: (low/med) MED Date Received: 8/20/2010
% Moisture: not dec. 0 Date Analyzed: 8/25/2010
GC Column: RTX-VM ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

TPHC

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

Client: U.S. Army
 DPW. SELFM-PW-EV
 Bldg. 173
 Ft. Monmouth, NJ 07703

Project #: 10-179124
Location: BDLG. 812
ECP:
Work Order:

Analysis: OQA-QAM-025
Matrix:
Inst. ID: GC TPHC INST. #1
Column Type: RTX-5, 0.32mm ID, 30 m
Injection Vol.: 1 uL

Date Received: 20-Aug-10
Date Extracted: 24-Aug-10
Extraction Method: Shake
Analyst: Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Data	Qualifiers
MB08241001	MB08241001	1.00	15.00	100.00	23	333	not detected		
LCS08241001	LCS08241001	1.00	15.00	100.00	23	333	961.84		
1035401	812 PX-1 NORTH WALL	1.00	15.13	84.4	27	392	not detected		
1035402	812 PX-2 SOUTH WALL	1.00	15.08	82.0	28	404	not detected		
1035403	812 PX-3 EAST WALL	1.00	15.32	80.1	29	407	not detected		
1035404	812 PX-4 WEST WALL	1.00	15.30	84.0	27	389	not detected		
1035405	812 PX-5 BOTTOM	1.00	15.13	80.1	29	413	not detected		
1035406	812 DUPLICATE	1.00	15.43	82.5	27	393	not detected		
1035407	812 DISPENSER	1.00	15.01	84.8	27	393	2945.84		

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Result exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Result from dilution

ND = not detected

000077

LEAD

000106

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 10354
Sample Received: NA
Sample Matrix: Aqueous
Sample Prepared: 08/23/10

Site: Bldg. 812

Field ID: Method Blank

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/L)

Element	Date of Analysis	Result (mg/L)	R.L. (mg/L)	MDL (mg/L)
Lead	08/24/10	.005	0.005	0.0026

ND = Not Detected, NLE = No Limit Established,
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & R.L.

000107

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1035401
Sample Received: 08/20/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-PX1-NorthWall

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	08/24/10	9.73	400	1.08	0.561

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000108

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1035402
Sample Received: 08/20/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-PX2-SouthWall

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	08/24/10	9.28	400	1.15	0.600

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000109

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1035403
Sample Received: 08/20/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-PX3-EastWall

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	08/24/10	8.88	400	1.09	0.565

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000110

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1035404
Sample Received: 08/20/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-PX4-WestWall

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	08/24/10	6.41	400	1.11	0.575

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000111

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1035405
Sample Received: 08/20/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-PX5-Bottom

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	08/24/10	7.49	400	1.14	0.594

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000112

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1035406
Sample Received: 08/20/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: Duplicate

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	08/24/10	8.18	400	1.14	0.591

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000113

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1035407
Sample Received: 08/20/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: Dispenser

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	08/24/10	19.9	400	1.10	0.570

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000114

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 data 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.

✓
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✓

Laboratory Manager or Environmental Consultant's Signature

Date: 10/21/10

Kevin Tardell

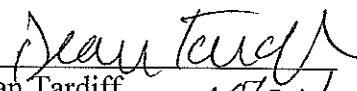
Laboratory Certification # 13461

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

000122

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.


Dean Tardiff
Laboratory Manager 10/21/10

000123

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



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION Fort Monmouth, New Jersey PROJECT: 10-179124

Bldg. /812

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
812-P1 (Piping)+0'	1037501	Soil	01-Sept-10 11:10	09/01/10
812-P2 (Piping)+15'	1037502	Soil	01-Sept-10 11:30	09/01/10
812-P3 (Piping)+55'	1037503	Soil	01-Sept-10 13:00	09/01/10
812-P4 (Piping)+70'	1037504	Soil	01-Sept-10 13:22	09/01/10
812-P5 (Piping)+85'	1037505	Soil	01-Sept-10 13:45	09/01/10
812-P6 (Piping)+100'	1037506	Soil	01-Sept-10 14:00	09/01/10
812-P7 (Piping)+115'	1037507	Soil	01-Sept-10 14:15	09/01/10
812-P8 (Piping)+130'	1037508	Soil	01-Sept-10 14:30	09/01/10
812-P9 (Piping)+145'	1037509	Soil	01-Sept-10 14:45	09/01/10
812-P10 (Piping)+160'	1037510	Soil	01-Sept-10 15:00	09/01/10
812-Duplicate	1037511	Soil	01-Sept-10 13:22	09/01/10
Trip Blank	1037512	Methanol	01-Sept-10	09/01/10

ANALYSIS: FORT MONMOUTH ENVIRONMENTAL TESTING LAB VOA+15, TPHC, TOTAL LEAD %SOLIDS


Dean Tardiff/Date: 10/18/10
Laboratory Manager

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CHAIN OF CUSTODY

000001



Fort Monmouth Environmental Testing Laboratory

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

Tel (732)532-6352 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: CHUCK APPLEBY		Project No: 10-179124		Analysis Parameters								Comments:		
Phone #: X 26292		Location: BLO812		TPH	% solids	VOT+15	Pb	Pb	Pb	Pb	Pb			Pb
() DERA () OMA (X) Other: BRAC														
Samplers Name / Company: FRANK ACCORSI / TVS				Sample #									Remarks / Preservation Method	
Work Order #	Sample Location	Date	Time	Type	bottles									
10375 01	812-P1 PIPING 0'	9-1-10	1110	SOIL	2	X	X	X	X		0	3-3.5	6885	ICE
02	812-P2 PIPING +15'		1130			X	X	X	X		0	3-3.5	6886	
03	812-P3 " + 55'		1300			X	X	X	X		0	3-3.5	6887	
04	812-P4 " + 70'		1322			X	X	X	X		0	2.5-3	6888	
05	812-P5 " + 85'		1345			X	X	X	X		0	2.5-3	6889	
06	812-P6 " + 100'		1400			X	X	X	X		0	2.5-3	6890	
07	812-P7 " + 115'		1415			X	X	X	X		0	2.5-3	6893	
08	812-P8 " + 130'		1430			X	X	X	X		0	2.5-3	6891	
09	812-P9 " + 145'		1445			X	X	X	X		0	2.5-3	6892	
10	812-P10 " + 160'		1500			X	X	X	X		0	2.5-3	6895	
11	812-DUPLICATE		1322			X	X	X	X		0	2.5-3	6896	
12	TRIP BLANK		-	AB.	1			X			-	-	6897	
Relinquished by (signature): Frank Accorsi		Date/Time: 9-1-10 1515		Received by (signature): [Signature]		Relinquished by (signature):		Date/Time:		Received by (signature):				
Relinquished by (signature):		Date/Time:		Received by (signature):		Relinquished by (signature):		Date/Time:		Received by (signature):				
Report Type: () Full, (X) Reduced, () Standard, () Screen / non-certified, () EDD						Remarks:								
Turnaround time: () Standard 3 wks, (X) Rush 2 wks, () ASAP Verbal ____ Hrs.														

0445

SAMPLE RECEIPT FORM

Date Received: 9-1-10

Work Order ID#: 10375

Site/Proj. Name: Bldg. 812

Cooler Temp (°C): 4.5°C

Received By: J. Venquna
(Print name)

Sign: J. Venquna

Check the appropriate box

1. Did the samples come in a cooler?	<u>yes</u>	no	n/a
2. Were samples rec'd in good condition?	<u>yes</u>	no	
3. Was the chain of custody filled out correctly and legibly?	<u>yes</u>	no	
4. Was the chain of custody signed in the appropriate place?	<u>yes</u>	no	
5. Did the labels agree with the chain of custody?	<u>yes</u>	no	
6. Were the correct containers/preservatives used?	<u>yes</u>	no	
7. Was a sufficient amount of sample supplied?	<u>yes</u>	no	
8. Were air bubbles present in VOA vials?	<u>yes</u>	no	<u>n/a</u>
9. Were samples received on ice?	<u>yes</u>	no	
10. Were analyze-immediately tests perform within 15 minutes	<u>yes</u>	no	<u>n/a</u>

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments: _____

000003

GPS POINTS

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 812 - Former Fueling Dispenser Island Piping

SOIL SAMPLING GPS POSITIONS & COORDINATES

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

(IN US SURVEY FEET)

SAMPLE POINTS

<u>POSITION/DESCRIPTION</u>	<u>Y COORDINATE (NORTHING)</u>	<u>X COORDINATE (EASTING)</u>
812 P1 PIPING 0FT.	538143.095	620815.54
812 P2 PIPING 15FT.	538134.171	620808.671
812 P3 PIPING 55FT.	538094.106	620783.439
812 P4 PIPING 70FT.	538081.889	620777.78
812 P5 PIPING 85FT.	538069.125	620769.187
812 P6 PIPING 100FT.	538054.986	620761.381
812 P7 PIPING 115FT.	538042.374	620753.72
812 P8 PIPING 130FT.	538028.986	620745.202
812 P9 PIPING 145FT.	538016.572	620737.542
812 P10 PIPING 160FT.	538001.545	620728.926

000005

FIELD DUPLICATE

000006

Field Duplicate Identification

Lab ID: 10375

Site: Bldg. 812

The Field Duplicate was performed on 812-P4 (Piping) +70 (1037504.)

000007

METHOD SUMMARY

Method Summary

EPA SW-846 Method 8260

Gas Chromatographic Determination of Volatiles in Methanol

A 10-gram volume of soil is combined with 25-ml of Methanol and surrogates in the field. Internal standards are added and the sample is placed on a purge and trap concentrator. The sample is purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

NJDEP Method OQA-QAM-025 02/08

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml 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 1-ml auto-sampler 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 moisture, sample weight and concentration.

EPA SW-846 Method 6010B, 3rd Edition Base Manual with Final Updates I, II, IIA, IIB and III: ICP RCRA Metals

Perkin Elmer OPTIMA 3000 DV

The method measures element-emitted light by optical spectrometry. Samples are nebulized and the resulting aerosol is transported to the plasma torch. Radio frequency inductively coupled plasma produces element-specific atomic-line emission spectra. The spectra are dispersed by a grating spectrometer and a Segmented-array Charged-coupled-device Detector (SCD) monitors the intensities of the lines. Background and interelemental correction is used for trace element determinations.

CONFORMANCE/ NON-CONFORMANCE SUMMARY

10375 VOA

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	Indicate Yes, No, N/A
1. Chromatograms labeled/Compounds identified (Field samples and method blanks)	<u>Yes</u>
2. Retention times for chromatograms provided	<u>Yes</u>
3. GC/MS Tune Specifications	
a. BFB Meet Criteria	<u>Yes</u>
b. DFTPP Meet Criteria	<u>N/A</u>
4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series	<u>Yes</u>
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	<u>Yes</u>
6. GC/MS Calibration requirements	
a. Calibration Check Compounds Meet Criteria	<u>Yes</u>
b. System Performance Check Compounds Meet Criteria	<u>Yes</u>
7. Blank Contamination – If yes, List compounds and concentrations in each blank:	<u>No</u>
a. VOA Fraction _____	
b. B/N Fraction _____	
c. Acid Fraction _____	
8. Surrogate Recoveries Meet Criteria	<u>Yes</u>
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"?	
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range)	<u>No</u>
a. VOA Fraction <u>See mrl/msd report for notes</u>	
b. B/N Fraction _____	
c. Acid Fraction _____	

000012

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 range)

Yes

- a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

11. Extraction Holding Time Met

N/A

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: _____

Additional Comments:

Laboratory Manager: DeauTard

Date: 10/18/10

RAH 9/9/10

000012

TPHC Conformance/Non-conformance Summary Report

	Indicate Yes, No, N/A
1. Method Detection Limits provided.	<u>Yes</u>
2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank. _____ _____	<u>No</u>
3. Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
4. Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
5. IR Spectra submitted for standards, blanks and samples.	<u>N/A</u>
6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	<u>N/A</u>
7. Analysis holding time met. (If not met, list number of days exceeded for each sample). _____ _____	<u>Yes</u>
Additional comments: _____ _____ _____	

Laboratory Manager

Date

METALS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

Project: 3120th 10375
Method: 0010B

Indicate
Yes, No, N/A

1.	Initial and Continuing Calibration Verifications Meet Criteria	<u>✓</u>
2.	ICP Interference Check Sample Results Meet Criteria	<u>✓</u>
3.	Serial Dilutions Meet Criteria <u>1037501</u>	<u>✓</u>
4.	Laboratory Control Samples Meet Criteria	<u>✓</u>
5.	Preparation, Method and Calibration Blank Contamination If yes, list compounds and concentrations in each blank <u>0.044 mg/L</u>	<u>No</u>
6.	Spike Sample Recoveries Meet Criteria <u>1037501</u>	<u>✓</u>
7.	Duplicates Meet Criteria <u>1037501</u>	<u>✓</u>
8.	Analysis Holding Time Met If not met, list number of days exceeded for each sample	<u>✓</u>

Additional Comments

Analyst: Akash Sandhu Date: 10/9/10
Administrative Review: Deen Tardif Date: 10/18/10

000015

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 10375

Site: 812

	Date	Hold Time
Date Sampled	09/01/10	NA
Receipt/Refrigeration	09/01/10	NA

Analyses

1. Volatiles	09/02/10	14 Days
2. TPHC	09/07/10	14 Days
3. LEAD	09/07/10	6 Months

000017

VOLATILE ORGANICS

**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461**

Definition of Qualifiers

- U:** The compound was analyzed for but not detected.
- B:** Indicates that the compound was found in the associated method blank as well as in the sample.
- J:** Indicates an estimated value. This flag is used:
- (1) When the mass spec and retention time data indicate the presence of a compound however the result is less than the reporting limit but greater than the MDL.
 - (2) When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D:** This flag is used to identify all compounds (target or TIC) that required a dilution.
- E:** Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N:** This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7348.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 2:24 pm**

Sample Name **MB09021001**
 Field ID **METHOD 8260 9/2/10**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.436 mg/kg	0.500 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	4	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	25	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	220	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	70000	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	2	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.061 mg/kg	0.100 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.054 mg/kg	0.100 mg/kg	
108-88-3	Toluene			not detected	6300	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.047 mg/kg	0.100 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	90	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	81	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.059 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQLs and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

MB09021001

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: MB09021001
Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7348.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 0 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7363.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 10:05 pm**

Sample Name **1037512**
 Field ID **812 TRIP BLANK**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.436 mg/kg	0.500 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	4	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	25	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	220	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	70000	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	2	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.061 mg/kg	0.100 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.054 mg/kg	0.100 mg/kg	
108-88-3	Toluene			not detected	6300	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.047 mg/kg	0.100 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	90	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	81	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.059 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

TRIP BLANK

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037512
Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7363.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 0 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KGNumber TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7350.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 3:25 pm**

Sample Name **1037501**
 Field ID **812-P1 PIPING 0'**
 Sample Multiplier **0.110**

Sample Weight **11.01 g**
 Percent Solids **82.5 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.480 mg/kg	0.550 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.237 mg/kg	0.550 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.452 mg/kg	0.550 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.035 mg/kg	0.055 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.042 mg/kg	0.055 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.114 mg/kg	0.055 mg/kg	
74-87-3	Chloromethane			not detected	4	0.047 mg/kg	0.055 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.055 mg/kg	0.055 mg/kg	
74-83-9	Bromomethane			not detected	25	0.057 mg/kg	0.055 mg/kg	
75-00-3	Chloroethane			not detected	220	0.048 mg/kg	0.055 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.094 mg/kg	0.055 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.085 mg/kg	0.055 mg/kg	
67-64-1	Acetone			not detected	70000	0.090 mg/kg	0.055 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.075 mg/kg	0.055 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.072 mg/kg	0.055 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.065 mg/kg	0.055 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.064 mg/kg	0.055 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.036 mg/kg	0.110 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.078 mg/kg	0.055 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.064 mg/kg	0.055 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.081 mg/kg	0.055 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.069 mg/kg	0.055 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.068 mg/kg	0.055 mg/kg	
71-43-2	Benzene			not detected	2	0.063 mg/kg	0.055 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.050 mg/kg	0.055 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.059 mg/kg	0.055 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.064 mg/kg	0.055 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.053 mg/kg	0.055 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.067 mg/kg	0.110 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.042 mg/kg	0.055 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.059 mg/kg	0.110 mg/kg	
108-88-3	Toluene			not detected	6300	0.078 mg/kg	0.055 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.050 mg/kg	0.055 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.056 mg/kg	0.055 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.073 mg/kg	0.055 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.052 mg/kg	0.110 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.051 mg/kg	0.055 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.072 mg/kg	0.055 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.076 mg/kg	0.055 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.077 mg/kg	0.055 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.144 mg/kg	0.110 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.068 mg/kg	0.055 mg/kg	
100-42-5	Styrene			not detected	90	0.059 mg/kg	0.055 mg/kg	
75-25-2	Bromoform			not detected	81	0.044 mg/kg	0.055 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.059 mg/kg	0.055 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.064 mg/kg	0.055 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.062 mg/kg	0.055 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.065 mg/kg	0.055 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812-P1 PIPING 0'

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037501
Sample wt/vol: 11.0 (g/ml) G Lab File ID: VA7350.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 17.5 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7351.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 3:56 pm**

Sample Name **1037502**
 Field ID **812-P2 PIPING +15'**
 Sample Multiplier **0.105**

Sample Weight **11.17 g**
 Percent Solids **85.3 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.458 mg/kg	0.525 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.226 mg/kg	0.525 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.431 mg/kg	0.525 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.034 mg/kg	0.052 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.040 mg/kg	0.052 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.109 mg/kg	0.052 mg/kg	
74-87-3	Chloromethane			not detected	4	0.045 mg/kg	0.052 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.052 mg/kg	0.052 mg/kg	
74-83-9	Bromomethane			not detected	25	0.055 mg/kg	0.052 mg/kg	
75-00-3	Chloroethane			not detected	220	0.046 mg/kg	0.052 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.089 mg/kg	0.052 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.081 mg/kg	0.052 mg/kg	
67-64-1	Acetone			not detected	70000	0.086 mg/kg	0.052 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.071 mg/kg	0.052 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.068 mg/kg	0.052 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.062 mg/kg	0.052 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.061 mg/kg	0.052 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.035 mg/kg	0.105 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.075 mg/kg	0.052 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.061 mg/kg	0.052 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.078 mg/kg	0.052 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.066 mg/kg	0.052 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.065 mg/kg	0.052 mg/kg	
71-43-2	Benzene			not detected	2	0.060 mg/kg	0.052 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.047 mg/kg	0.052 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.057 mg/kg	0.052 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.061 mg/kg	0.052 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.050 mg/kg	0.052 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.064 mg/kg	0.105 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.040 mg/kg	0.052 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.057 mg/kg	0.105 mg/kg	
108-88-3	Toluene			not detected	6300	0.075 mg/kg	0.052 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.047 mg/kg	0.052 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.054 mg/kg	0.052 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.069 mg/kg	0.052 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.049 mg/kg	0.105 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.048 mg/kg	0.052 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.068 mg/kg	0.052 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.072 mg/kg	0.052 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.073 mg/kg	0.052 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.137 mg/kg	0.105 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.065 mg/kg	0.052 mg/kg	
100-42-5	Styrene			not detected	90	0.057 mg/kg	0.052 mg/kg	
75-25-2	Bromoform			not detected	81	0.042 mg/kg	0.052 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.057 mg/kg	0.052 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.061 mg/kg	0.052 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.059 mg/kg	0.052 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.062 mg/kg	0.052 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-P2 PIPING +15

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037502
Sample wt/vol: 11.2 (g/ml) G Lab File ID: VA7351.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 14.7 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 2 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Cyclic	18.54	600	J
2.	Alkane: Cyclic	18.91	420	J

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7352.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 4:27 pm**

Sample Name **1037503**
 Field ID **812-P3 PIPING +55'**
 Sample Multiplier **0.096**

Sample Weight **11.76 g**
 Percent Solids **88.7 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.418 mg/kg	0.479 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.206 mg/kg	0.479 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.394 mg/kg	0.479 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.031 mg/kg	0.048 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.036 mg/kg	0.048 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.100 mg/kg	0.048 mg/kg	
74-87-3	Chloromethane			not detected	4	0.041 mg/kg	0.048 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.048 mg/kg	0.048 mg/kg	
74-83-9	Bromomethane			not detected	25	0.050 mg/kg	0.048 mg/kg	
75-00-3	Chloroethane			not detected	220	0.042 mg/kg	0.048 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.081 mg/kg	0.048 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.074 mg/kg	0.048 mg/kg	
67-64-1	Acetone			not detected	70000	0.079 mg/kg	0.048 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.065 mg/kg	0.048 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.062 mg/kg	0.048 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.057 mg/kg	0.048 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.056 mg/kg	0.048 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.032 mg/kg	0.096 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.068 mg/kg	0.048 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.056 mg/kg	0.048 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.071 mg/kg	0.048 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.060 mg/kg	0.048 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.059 mg/kg	0.048 mg/kg	
71-43-2	Benzene			not detected	2	0.055 mg/kg	0.048 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.043 mg/kg	0.048 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.052 mg/kg	0.048 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.056 mg/kg	0.048 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.046 mg/kg	0.048 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.058 mg/kg	0.096 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.036 mg/kg	0.048 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.052 mg/kg	0.096 mg/kg	
108-88-3	Toluene			not detected	6300	0.068 mg/kg	0.048 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.043 mg/kg	0.048 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.049 mg/kg	0.048 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.063 mg/kg	0.048 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.045 mg/kg	0.096 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.044 mg/kg	0.048 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.062 mg/kg	0.048 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.066 mg/kg	0.048 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.067 mg/kg	0.048 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.126 mg/kg	0.096 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.059 mg/kg	0.048 mg/kg	
100-42-5	Styrene			not detected	90	0.052 mg/kg	0.048 mg/kg	
75-25-2	Bromoform			not detected	81	0.038 mg/kg	0.048 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.052 mg/kg	0.048 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.056 mg/kg	0.048 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.054 mg/kg	0.048 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.057 mg/kg	0.048 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

112-P2 PIPING +55

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037503
Sample wt/vol: 11.8 (g/ml) G Lab File ID: VA7352.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 11.3 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File **VA7353.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 4:58 pm**

Sample Name **1037504**
 Field ID **812-P4 PIPING +70'**
 Sample Multiplier **0.100**

Sample Weight **11.53 g**
 Percent Solids **86.5 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.437 mg/kg	0.501 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.216 mg/kg	0.501 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.412 mg/kg	0.501 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	NLB	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	4	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	25	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	220	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	70000	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLB	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	2	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.061 mg/kg	0.100 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.054 mg/kg	0.100 mg/kg	
108-88-3	Toluene			not detected	6300	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	NLB	0.047 mg/kg	0.100 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	90	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	81	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.059 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQLs and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLB = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-P4 PIPING +70

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037504
Sample wt/vol: 11.5 (g/ml) G Lab File ID: VA7353.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 13.5 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File VA7354.D
Operator ROBERTS
Date Acquired 2 Sep 2010 5:28 pm

Sample Name 1037505
Field ID 812-P5 PIPING +85'
Sample Multiplier 0.095

Sample Weight 12.03 g
Percent Solids 87.8 %
Methanol extract volume 25 ml
Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.413 mg/kg	0.473 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.204 mg/kg	0.473 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.389 mg/kg	0.473 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.030 mg/kg	0.047 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.036 mg/kg	0.047 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.098 mg/kg	0.047 mg/kg	
74-87-3	Chloromethane			not detected	4	0.041 mg/kg	0.047 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.047 mg/kg	0.047 mg/kg	
74-83-9	Bromomethane			not detected	25	0.049 mg/kg	0.047 mg/kg	
75-00-3	Chloroethane			not detected	220	0.042 mg/kg	0.047 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.080 mg/kg	0.047 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.073 mg/kg	0.047 mg/kg	
67-64-1	Acetone			not detected	70000	0.078 mg/kg	0.047 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.064 mg/kg	0.047 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.062 mg/kg	0.047 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.056 mg/kg	0.047 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.055 mg/kg	0.047 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.031 mg/kg	0.095 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.067 mg/kg	0.047 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.055 mg/kg	0.047 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.070 mg/kg	0.047 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.060 mg/kg	0.047 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.059 mg/kg	0.047 mg/kg	
71-43-2	Benzene			not detected	2	0.054 mg/kg	0.047 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.043 mg/kg	0.047 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.051 mg/kg	0.047 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.055 mg/kg	0.047 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.045 mg/kg	0.047 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.058 mg/kg	0.095 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.036 mg/kg	0.047 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.051 mg/kg	0.095 mg/kg	
108-88-3	Toluene			not detected	6300	0.067 mg/kg	0.047 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.043 mg/kg	0.047 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.048 mg/kg	0.047 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.062 mg/kg	0.047 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.044 mg/kg	0.095 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.044 mg/kg	0.047 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.062 mg/kg	0.047 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.065 mg/kg	0.047 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.066 mg/kg	0.047 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.124 mg/kg	0.095 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.059 mg/kg	0.047 mg/kg	
100-42-5	Styrene			not detected	90	0.051 mg/kg	0.047 mg/kg	
75-25-2	Bromoform			not detected	81	0.038 mg/kg	0.047 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.051 mg/kg	0.047 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.055 mg/kg	0.047 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.053 mg/kg	0.047 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.056 mg/kg	0.047 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

112-P5 PIPING +85

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037505
Sample wt/vol: 12.0 (g/ml) G Lab File ID: VA7354.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 12.2 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File VA7355.D
 Operator ROBERTS
 Date Acquired 2 Sep 2010 5:59 pm

Sample Name 1037506
 Field ID 812-P6 PIPING +100'
 Sample Multiplier 0.104

Sample Weight 10.89 g
 Percent Solids 88.5 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.452 mg/kg	0.519 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.223 mg/kg	0.519 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.426 mg/kg	0.519 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.033 mg/kg	0.052 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.039 mg/kg	0.052 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.108 mg/kg	0.052 mg/kg	
74-87-3	Chloromethane			not detected	4	0.045 mg/kg	0.052 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.052 mg/kg	0.052 mg/kg	
74-83-9	Bromomethane			not detected	25	0.054 mg/kg	0.052 mg/kg	
75-00-3	Chloroethane			not detected	220	0.046 mg/kg	0.052 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.088 mg/kg	0.052 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.080 mg/kg	0.052 mg/kg	
67-64-1	Acetone			not detected	70000	0.085 mg/kg	0.052 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.071 mg/kg	0.052 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.067 mg/kg	0.052 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.061 mg/kg	0.052 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.060 mg/kg	0.052 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.034 mg/kg	0.104 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.074 mg/kg	0.052 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.060 mg/kg	0.052 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.077 mg/kg	0.052 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.065 mg/kg	0.052 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.064 mg/kg	0.052 mg/kg	
71-43-2	Benzene			not detected	2	0.059 mg/kg	0.052 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.047 mg/kg	0.052 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.056 mg/kg	0.052 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.060 mg/kg	0.052 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.050 mg/kg	0.052 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.063 mg/kg	0.104 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.039 mg/kg	0.052 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.056 mg/kg	0.104 mg/kg	
108-88-3	Toluene			not detected	6300	0.074 mg/kg	0.052 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.047 mg/kg	0.052 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.053 mg/kg	0.052 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.068 mg/kg	0.052 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.049 mg/kg	0.104 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.048 mg/kg	0.052 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.067 mg/kg	0.052 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.072 mg/kg	0.052 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.073 mg/kg	0.052 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.136 mg/kg	0.104 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.064 mg/kg	0.052 mg/kg	
100-42-5	Styrene			not detected	90	0.056 mg/kg	0.052 mg/kg	
75-25-2	Bromoform			not detected	81	0.042 mg/kg	0.052 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.056 mg/kg	0.052 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.060 mg/kg	0.052 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.058 mg/kg	0.052 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.061 mg/kg	0.052 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-P6 PIPING +10'

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037506
Sample wt/vol: 10.9 (g/ml) G Lab File ID: VA7355.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 11.5 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7356.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 6:30 pm**

Sample Name **1037507**
 Field ID **812-P7 PIPING +115'**
 Sample Multiplier **0.104**

Sample Weight **10.64 g**
 Percent Solids **90.4 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.453 mg/kg	0.520 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.224 mg/kg	0.520 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.427 mg/kg	0.520 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.033 mg/kg	0.052 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.040 mg/kg	0.052 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.108 mg/kg	0.052 mg/kg	
74-87-3	Chloromethane			not detected	4	0.045 mg/kg	0.052 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.052 mg/kg	0.052 mg/kg	
74-83-9	Bromomethane			not detected	25	0.054 mg/kg	0.052 mg/kg	
75-00-3	Chloroethane			not detected	220	0.046 mg/kg	0.052 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.088 mg/kg	0.052 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.080 mg/kg	0.052 mg/kg	
67-64-1	Acetone			not detected	70000	0.085 mg/kg	0.052 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.071 mg/kg	0.052 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.068 mg/kg	0.052 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.061 mg/kg	0.052 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.060 mg/kg	0.052 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.034 mg/kg	0.104 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.074 mg/kg	0.052 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.060 mg/kg	0.052 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.077 mg/kg	0.052 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.065 mg/kg	0.052 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.064 mg/kg	0.052 mg/kg	
71-43-2	Benzene			not detected	2	0.059 mg/kg	0.052 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.047 mg/kg	0.052 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.056 mg/kg	0.052 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.060 mg/kg	0.052 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.050 mg/kg	0.052 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.063 mg/kg	0.104 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.040 mg/kg	0.052 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.056 mg/kg	0.104 mg/kg	
108-88-3	Toluene			not detected	6300	0.074 mg/kg	0.052 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.047 mg/kg	0.052 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.053 mg/kg	0.052 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.069 mg/kg	0.052 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.049 mg/kg	0.104 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.048 mg/kg	0.052 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.068 mg/kg	0.052 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.072 mg/kg	0.052 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.073 mg/kg	0.052 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.136 mg/kg	0.104 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.064 mg/kg	0.052 mg/kg	
100-42-5	Styrene			not detected	90	0.056 mg/kg	0.052 mg/kg	
75-25-2	Bromoform			not detected	81	0.042 mg/kg	0.052 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.056 mg/kg	0.052 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.060 mg/kg	0.052 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.058 mg/kg	0.052 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.061 mg/kg	0.052 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-P7 PIPING +11'

Lab Name: FMETL NJDEP # 13461

Project: _____ Case No.: MW Location: _____ SDG No.: 10375

Matrix: (soil/water) SOIL Lab Sample ID: 1037507

Sample wt/vol: 10.6 (g/ml) G Lab File ID: VA7356.D

Level: (low/med) MED Date Received: 9/1/2010

% Moisture: not dec. 9.6 Date Analyzed: 9/2/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KGNumber TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7359.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 8:02 pm**

Sample Name **1037508**
 Field ID **812-P8 PIPING +130'**
 Sample Multiplier **0.113**

Sample Weight **9.62 g**
 Percent Solids **91.8 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.494 mg/kg	0.566 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.243 mg/kg	0.566 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.465 mg/kg	0.566 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.036 mg/kg	0.057 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.043 mg/kg	0.057 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.118 mg/kg	0.057 mg/kg	
74-87-3	Chloromethane			not detected	4	0.049 mg/kg	0.057 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.057 mg/kg	0.057 mg/kg	
74-83-9	Bromomethane			not detected	25	0.059 mg/kg	0.057 mg/kg	
75-00-3	Chloroethane			not detected	220	0.050 mg/kg	0.057 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.096 mg/kg	0.057 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.087 mg/kg	0.057 mg/kg	
67-64-1	Acetone			not detected	70000	0.093 mg/kg	0.057 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.077 mg/kg	0.057 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.074 mg/kg	0.057 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.067 mg/kg	0.057 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.066 mg/kg	0.057 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.037 mg/kg	0.113 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.080 mg/kg	0.057 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.066 mg/kg	0.057 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.084 mg/kg	0.057 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.071 mg/kg	0.057 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.070 mg/kg	0.057 mg/kg	
71-43-2	Benzene			not detected	2	0.065 mg/kg	0.057 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.051 mg/kg	0.057 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.061 mg/kg	0.057 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.066 mg/kg	0.057 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.054 mg/kg	0.057 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.069 mg/kg	0.113 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.043 mg/kg	0.057 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.061 mg/kg	0.113 mg/kg	
108-88-3	Toluene			not detected	6300	0.080 mg/kg	0.057 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.051 mg/kg	0.057 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.058 mg/kg	0.057 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.075 mg/kg	0.057 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.053 mg/kg	0.113 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.052 mg/kg	0.057 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.074 mg/kg	0.057 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.078 mg/kg	0.057 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.079 mg/kg	0.057 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.148 mg/kg	0.113 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.070 mg/kg	0.057 mg/kg	
100-42-5	Styrene			not detected	90	0.061 mg/kg	0.057 mg/kg	
75-25-2	Bromoform			not detected	81	0.045 mg/kg	0.057 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.061 mg/kg	0.057 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.066 mg/kg	0.057 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.063 mg/kg	0.057 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.067 mg/kg	0.057 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-P8 PIPING +13'

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037508
Sample wt/vol: 9.6 (g/ml) G Lab File ID: VA7359.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 8.2 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File VA7360.D
Operator ROBERTS
Date Acquired 2 Sep 2010 8:33 pm

Sample Name 1037509
Field ID 812-P9 PIPING +145'
Sample Multiplier 0.118

Sample Weight 9.11 g
Percent Solids 92.7 %
Methanol extract volume 25 ml
Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg) ^a	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.516 mg/kg	0.592 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.255 mg/kg	0.592 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.487 mg/kg	0.592 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.038 mg/kg	0.059 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.045 mg/kg	0.059 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.123 mg/kg	0.059 mg/kg	
74-87-3	Chloromethane			not detected	4	0.051 mg/kg	0.059 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.059 mg/kg	0.059 mg/kg	
74-83-9	Bromomethane			not detected	25	0.062 mg/kg	0.059 mg/kg	
75-00-3	Chloroethane			not detected	220	0.052 mg/kg	0.059 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23600	0.101 mg/kg	0.059 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.091 mg/kg	0.059 mg/kg	
67-64-1	Acetone			not detected	70000	0.097 mg/kg	0.059 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.081 mg/kg	0.059 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.077 mg/kg	0.059 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.070 mg/kg	0.059 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.069 mg/kg	0.059 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.039 mg/kg	0.118 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.084 mg/kg	0.059 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.069 mg/kg	0.059 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.088 mg/kg	0.059 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.075 mg/kg	0.059 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.073 mg/kg	0.059 mg/kg	
71-43-2	Benzene			not detected	2	0.067 mg/kg	0.059 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.053 mg/kg	0.059 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.064 mg/kg	0.059 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.069 mg/kg	0.059 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.057 mg/kg	0.059 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.072 mg/kg	0.118 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.045 mg/kg	0.059 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.064 mg/kg	0.118 mg/kg	
108-88-3	Toluene			not detected	6300	0.084 mg/kg	0.059 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.053 mg/kg	0.059 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.060 mg/kg	0.059 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.078 mg/kg	0.059 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.056 mg/kg	0.118 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.054 mg/kg	0.059 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.077 mg/kg	0.059 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.082 mg/kg	0.059 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.083 mg/kg	0.059 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.155 mg/kg	0.118 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.073 mg/kg	0.059 mg/kg	
100-42-5	Styrene			not detected	90	0.064 mg/kg	0.059 mg/kg	
75-25-2	Bromoform			not detected	81	0.047 mg/kg	0.059 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.064 mg/kg	0.059 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.069 mg/kg	0.059 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.066 mg/kg	0.059 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.070 mg/kg	0.059 mg/kg	

^aResults between MDL and RL are estimated values

^aHigher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-P9 PIPING +14'

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037509
Sample wt/vol: 9.1 (g/ml) G Lab File ID: VA7360.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 7.3 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7361.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 9:04 pm**

Sample Name **1037510**
 Field ID **812-P9 PIPING +160'**
 Sample Multiplier **0.095**

Sample Weight **11.75 g**
 Percent Solids **89.6 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.414 mg/kg	0.475 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.204 mg/kg	0.475 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.390 mg/kg	0.475 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.030 mg/kg	0.047 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.036 mg/kg	0.047 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.099 mg/kg	0.047 mg/kg	
74-87-3	Chloromethane			not detected	4	0.041 mg/kg	0.047 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.047 mg/kg	0.047 mg/kg	
74-83-9	Bromomethane			not detected	25	0.049 mg/kg	0.047 mg/kg	
75-00-3	Chloroethane			not detected	220	0.042 mg/kg	0.047 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.081 mg/kg	0.047 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.073 mg/kg	0.047 mg/kg	
67-64-1	Acetone			not detected	70000	0.078 mg/kg	0.047 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.065 mg/kg	0.047 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.062 mg/kg	0.047 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.056 mg/kg	0.047 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.055 mg/kg	0.047 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.031 mg/kg	0.095 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.067 mg/kg	0.047 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.055 mg/kg	0.047 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.070 mg/kg	0.047 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.060 mg/kg	0.047 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.059 mg/kg	0.047 mg/kg	
71-43-2	Benzene			not detected	2	0.054 mg/kg	0.047 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.043 mg/kg	0.047 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.051 mg/kg	0.047 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.055 mg/kg	0.047 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.046 mg/kg	0.047 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.058 mg/kg	0.095 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.036 mg/kg	0.047 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.051 mg/kg	0.095 mg/kg	
108-88-3	Toluene			not detected	6300	0.067 mg/kg	0.047 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.043 mg/kg	0.047 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.048 mg/kg	0.047 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.063 mg/kg	0.047 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.045 mg/kg	0.095 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.044 mg/kg	0.047 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.062 mg/kg	0.047 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.066 mg/kg	0.047 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.066 mg/kg	0.047 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.124 mg/kg	0.095 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.059 mg/kg	0.047 mg/kg	
100-42-5	Styrene			not detected	90	0.051 mg/kg	0.047 mg/kg	
75-25-2	Bromoform			not detected	81	0.038 mg/kg	0.047 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.051 mg/kg	0.047 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.055 mg/kg	0.047 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.053 mg/kg	0.047 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.056 mg/kg	0.047 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C.07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-P2 PIPING +160

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037510
Sample wt/vol: 11.8 (g/ml) G Lab File ID: VA7361.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 10.4 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File **VA7362.D**
 Operator **ROBERTS**
 Date Acquired **2 Sep 2010 9:35 pm**

Sample Name **1037511**
 Field ID **812 DUPLICATE**
 Sample Multiplier **0.092**

Sample Weight **12.50 g**
 Percent Solids **87.3 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory Level (mg/kg)*	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.5	0.400 mg/kg	0.458 mg/kg	
107131	Acrylonitrile			not detected	0.9	0.197 mg/kg	0.458 mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.377 mg/kg	0.458 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.029 mg/kg	0.046 mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.035 mg/kg	0.046 mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.095 mg/kg	0.046 mg/kg	
74-87-3	Chloromethane			not detected	4	0.039 mg/kg	0.046 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.046 mg/kg	0.046 mg/kg	
74-83-9	Bromomethane			not detected	25	0.048 mg/kg	0.046 mg/kg	
75-00-3	Chloroethane			not detected	220	0.040 mg/kg	0.046 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.078 mg/kg	0.046 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.071 mg/kg	0.046 mg/kg	
67-64-1	Acetone			not detected	70000	0.075 mg/kg	0.046 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.062 mg/kg	0.046 mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.060 mg/kg	0.046 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.054 mg/kg	0.046 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.053 mg/kg	0.046 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.030 mg/kg	0.092 mg/kg	
78-93-3	2-Butanone			not detected	3100	0.065 mg/kg	0.046 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.053 mg/kg	0.046 mg/kg	
67-66-3	Chloroform			not detected	0.6	0.068 mg/kg	0.046 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.058 mg/kg	0.046 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.057 mg/kg	0.046 mg/kg	
71-43-2	Benzene			not detected	2	0.052 mg/kg	0.046 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.041 mg/kg	0.046 mg/kg	
79-01-6	Trichloroethene			not detected	7	0.049 mg/kg	0.046 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.053 mg/kg	0.046 mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.044 mg/kg	0.046 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.056 mg/kg	0.092 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.035 mg/kg	0.046 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.049 mg/kg	0.092 mg/kg	
108-88-3	Toluene			not detected	6300	0.065 mg/kg	0.046 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.041 mg/kg	0.046 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.047 mg/kg	0.046 mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.060 mg/kg	0.046 mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.043 mg/kg	0.092 mg/kg	
126-48-1	Dibromochloromethane			not detected	3.0	0.042 mg/kg	0.046 mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.060 mg/kg	0.046 mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.063 mg/kg	0.046 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.064 mg/kg	0.046 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.120 mg/kg	0.092 mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.057 mg/kg	0.046 mg/kg	
100-42-5	Styrene			not detected	90	0.049 mg/kg	0.046 mg/kg	
75-25-2	Bromoform			not detected	81	0.037 mg/kg	0.046 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.049 mg/kg	0.046 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.053 mg/kg	0.046 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.051 mg/kg	0.046 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.054 mg/kg	0.046 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812 DUPLICATE

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10375
Matrix: (soil/water) SOIL Lab Sample ID: 1037511
Sample wt/vol: 12.5 (g/ml) G Lab File ID: VA7362.D
Level: (low/med) MED Date Received: 9/1/2010
% Moisture: not dec. 12.7 Date Analyzed: 9/2/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

Number TICs found: 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

TPHC

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

Client: U.S. Army
DPW. SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Project #: 10-179124
Location: BLDG. 812
ECP:
Work Order:

Analysis: OQA-QAM-025
Matrix:
Inst. ID: GC TPHC INST. #1
Column Type: RTX-5, 0.32mm ID, 30 m
Injection Vol.: 1 uL

Date Received: 1-Sep-10
Date Extracted: 7-Sep-10
Extraction Method: Shake
Analyst: Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Data	Qualifiers
MB09071001	MB09071001	1.00	15.00	100.00	23	333	not detected		
LCS09071001	LCS09071001	1.00	15.00	100.00	23	333	1132.77		
1037501	812-P1 PIPING 0'	1.00	15.35	82.5	28	395	not detected		
1037502	812-P2 PIPING +15'	1.00	15.04	85.3	27	390	not detected		
1037503	812-P3 PIPING +55'	1.00	15.19	88.7	26	371	not detected		
1037504	812-P4 PIPING +70'	1.00	15.05	86.5	27	384	not detected		
1037505	812-P5 PIPING +85'	1.00	15.21	87.8	26	374	not detected		
1037506	812-P6 PIPING +100'	1.00	15.04	88.5	26	376	not detected		
1037507	812-P7 PIPING +115'	1.00	15.20	90.4	25	364	not detected		
1037508	812-P8 PIPING +130'	1.00	15.26	91.8	25	357	not detected		
1037509	812-P9 PIPING +145'	1.00	15.14	92.7	25	356	not detected		
1037510	812-P10 PIPING +160'	1.00	15.15	89.6	26	368	not detected		
1037511	812 DUPLICATE	1.00	15.10	87.3	27	379	not detected		

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Result exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Result from dilution

ND = not detected

000000
1090060

LEAD (SOIL)

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 10375
Sample Received: NA
Sample Matrix: Aqueous
Sample Prepared: 09/03/10

Site: Bldg. 812

Field ID: Method Blank

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/L)

Element	Date of Analysis	Result (mg/L)	R.L. (mg/L)	MDL (mg/L)
Lead	09/07/10	0.044	0.005	0.0026

ND = Not Detected, NLE = No Limit Established,
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & R.L

000076

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037501
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P1, Piping 0'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	21.7	400	1.13	0.589

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000077

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037502
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P2, Piping+15'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	23.1	400	1.04	0.542

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000078

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037503
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P3, Piping+55'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	10.7	400	1.04	0.542

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000079

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037504
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P4, Piping+70'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	11.9	400	1.03	0.537

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000080

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037505
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P5, Piping+85'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	11.3	400	1.10	0.571

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000081

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037506
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P6, Piping+100'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	6.44	400	1.03	0.537

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000082

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037507
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P7, Piping+115'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	10.2	400	1.07	0.550

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000083

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037508
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P8, Piping+130'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	3.80	400	0.940	0.490

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000084

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037509
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P9, Piping+145'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	6.11	400	0.950	0.500

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000085

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037510
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-P10, Piping+160'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	8.58	400	1.08	0.560

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000086

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037511
Sample Received: 09/01/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812-Duplicate

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/07/10	9.53	400	0.990	0.520

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L

000087

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 data 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.

✓
✓
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✓
✓
✓
✓
✓

Laboratory Manager or Environmental Consultant's Signature

Date: 10/18/10

Sean Tandy

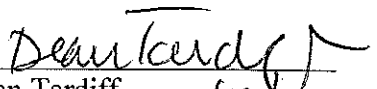
Laboratory Certification # 13461

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

000095

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.


Dean Tardiff
Laboratory Manager 10/18/10

000096

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



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: 10-179124

Bldg. /812

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
812-P11 (Piping)+175'	1037801	Soil	08-Sept-10 14:00	09/08/10
812-P12 (Piping)+190'	1037802	Soil	08-Sept-10 14:20	09/08/10
812-P12A (Piping)+205'	1037803	Soil	08-Sept-10 14:50	09/08/10
812-P13 (Piping)+205'	1037804	Soil	08-Sept-10 14:30	09/08/10
812-Duplicate	1037805	Soil	08-Sept-10 14:50	09/08/10
Trip Blank	1037806	Methanol	08-Sept-10	09/08/10

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL TESTING LAB
VOA+15, TPHC, TOTAL LEAD
%SOLIDS

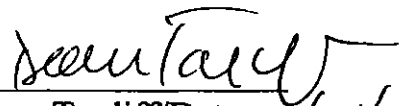

Dean Tardiff/Date: 10/21/10
Laboratory Manager

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CHAIN OF CUSTODY

000001



Fort Monmouth Environmental Testing Laboratory

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

Tel (732)532-6352 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil

NJDEP Certification #13461

Chain of Custody Record

Customer: CHUCK APPLEBY		Project No: 10-179124		Analysis Parameters										Comments:	
Phone #: X26292		Location: BLDG. 812		TPH	LEAD	% SOLIDS	VOC + 15	Pb	Pb (PPM)	DEPTH (FT)	VOC #				
() DERA () OMA (X) Other: ECP		Samplers Name / Company: FRANK ACCORSI / TVS										Sample #	Remarks / Preservation Method		
Work Order #	Sample Location	Date	Time	Type	bottles										
12378 01	812-P11, PIPING+175'	9-8-10	1400	SOIL	2	X	X	X	X	0	335	6898	ICE		
02	812-P12, PIPING+190'		1420			X	X	X	X	5	335	6899			
03	812-P12A, " +205'		1450			X	X	X	X	145	455	6900	(HOT)		
04	812-P13, " +205'		1430			X	X	X	X	0	354	6901			
05	812-DUPLICATE		1450			X	X	X	X	160	455	6902	(HOT)		
06	TRIP BLANK		-	AQ	1				X	-	-	6903			
Relinquished by (signature): Frank Accorsi Date/Time: 9-8-10 1600 Received by (signature): [Signature] Relinquished by (signature): Date/Time: Received by (signature):															
Relinquished by (signature): Date/Time: Received by (signature): Relinquished by (signature): Date/Time: Received by (signature):															
Report Type: () Full, (X) Reduced, () Standard, () Screen / non-certified, () EDD Remarks:															
Turnaround time: () Standard 3 wks, (X) Rush 3 Wks, () ASAP Verbal 3 Hrs.															

DAYS

SAMPLE RECEIPT FORM

Date Received: 9-8-10

Work Order ID#: 10378

Site/Proj. Name: Blk 812

Cooler Temp (°C): 3.5°C

Received By: J. Thompson
(Print name)

Sign: [Signature]

Check the appropriate box

1. Did the samples come in a cooler?	yes	no	n/a
2. Were samples rec'd in good condition?	yes	no	
3. Was the chain of custody filled out correctly and legibly?	yes	no	
4. Was the chain of custody signed in the appropriate place?	yes	no	
5. Did the labels agree with the chain of custody?	yes	no	
6. Were the correct containers/preservatives used?	yes	no	
7. Was a sufficient amount of sample supplied?	yes	no	
8. Were air bubbles present in VOA vials?	yes	no	n/a
9. Were samples received on ice?	yes	no	
10. Were analyze-immediately tests perform within 15 minutes	yes	no	n/a

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments: _____

000003

GPS POINTS

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 812 - Former Fueling Dispenser Island Piping

SOIL SAMPLING GPS POSITIONS & COORDINATES

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

(IN US SURVEY FEET)

SAMPLE POINTS

<u>POSITION/DESCRIPTION</u>	<u>Y COORDINATE (NORTHING)</u>	<u>X COORDINATE (EASTING)</u>
812 P11 PIPING PLUS 175FT.	537990.89	620720.714
812 P12 PIPING PLUS 190FT.	537974.515	620720.232
812 P12A PIPING PLUS 200FT.	537967.916	620720.2
812 P13 PIPING PLUS 205FT	537955.29	620720.125
812 P14 PIPING PLUS 220FT.	537943.397	620712.114
812 P15 PIPING PLUS 235FT.	537932.116	620706.397
812 P16 PIPING PLUS 250FT.	537919.907	620698.961
812 P17 PIPING PLUS 265FT.	537927.025	620687.488

000005

METHOD SUMMARY

Method Summary

EPA SW-846 Method 8260

Gas Chromatographic Determination of Volatiles in Methanol

A 10-gram volume of soil is combined with 25-ml of Methanol and surrogates in the field. Internal standards are added and the sample is placed on a purge and trap concentrator. The sample is purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

NJDEP Method OQA-QAM-025 02/08

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml 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 1-ml auto-sampler 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 moisture, sample weight and concentration.

000007

EPA SW-846 Method 6010B, 3rd Edition Base Manual with Final Updates I, II, IIA, IIB and III: ICP RCRA Metals

Perkin Elmer OPTIMA 3000 DV

The method measures element-emitted light by optical spectrometry. Samples are nebulized and the resulting aerosol is transported to the plasma torch. Radio frequency inductively coupled plasma produces element-specific atomic-line emission spectra. The spectra are dispersed by a grating spectrometer and a Segmented-array Charged-coupled-device Detector (SCD) monitors the intensities of the lines. Background and interelemental correction is used for trace element determinations.

FIELD DUPLICATE

000009

Field Duplicate Identification

Lab ID: 10378

Site: Bldg. 812

The Field Duplicate was performed on 812-P12A +205 (1037803.)

000010

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)	<u>Yes</u>
2. Retention times for chromatograms provided	<u>Yes</u>
3. GC/MS Tune Specifications	
a. BFB Meet Criteria	<u>Yes</u>
b. DF1TPP Meet Criteria	<u>N/A</u>
4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series	<u>Yes</u>
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	<u>Yes</u>
6. GC/MS Calibration requirements	
a. Calibration Check Compounds Meet Criteria	<u>Yes</u>
b. System Performance Check Compounds Meet Criteria	<u>Yes</u>
7. Blank Contamination – If yes, List compounds and concentrations in each blank:	<u>No</u>
a. VOA Fraction _____	
b. B/N Fraction _____	
c. Acid Fraction _____	
8. Surrogate Recoveries Meet Criteria	<u>Yes</u>
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"?	
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range)	<u>No</u>
a. VOA Fraction <u>See ms/msd report for notes</u>	
b. B/N Fraction _____	
c. Acid Fraction _____	

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

Indicate
Yes, No, N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria
(If not met, list those compounds, which fall outside the acceptable range)

Yes

- a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

11. Extraction Holding Time Met

N/A

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: _____

Additional Comments:

Laboratory Manager: Sean Tardif

Date: 10/21/10

WJH 9/13/10

000013

TPHC Conformance/Non-conformance Summary Report

	Indicate Yes, No, N/A
1. Method Detection Limits provided.	<u>Yes</u>
2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank. _____	<u>No</u>
3. Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____	<u>Yes</u>
4. Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). <u>MSD recoveries meet criteria</u> <u>Sample duplicate approx. one half amount of 1037803</u>	<u>Yes</u>
5. IR Spectra submitted for standards, blanks and samples.	<u>N/A</u>
6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	<u>N/A</u>
7. Analysis holding time met. (If not met, list number of days exceeded for each sample). _____	<u>Yes</u>

Additional comments: _____

 Laboratory Manager

 Date

hjt 9/10/10

METALS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

Project: 10378
Method: 6010 B

Indicate
Yes, No, N/A

1. Initial and Continuing Calibration Verifications ~~Meet~~ Criteria

✓

2. ICP Interference Check Sample Results Meet Criteria

✓

3. Serial Dilutions Meet Criteria

1037801

✓

4. Laboratory Control Samples Meet Criteria

✓

5. Preparation, Method and Calibration Blank Contamination
If yes, list compounds and concentrations in each blank

MSB 090910-8 Pb = 0.010 mg/L

No

6. Spike Sample Recoveries Meet Criteria

1037801

✓

7. Duplicates Meet Criteria

1037801

✓

8. Analysis Holding Time Met
If not met, list number of days exceeded for each sample

✓

Additional Comments

Analyst: Kausandhi
Administrative
Review: Sean Little

Date: 10/16/10

Date: 10/21/10

000015

LABORATORY CHRONICLE

000016

Laboratory Chronicle

Lab ID: 10378

Site: 812

	Date	Hold Time
Date Sampled	09/08/10	NA
Receipt/Refrigeration	09/08/10	NA

Analyses

1. Volatiles	09/10/10	14 Days
2. TPHC	09/09/10	14 Days
3. LEAD	09/13/10	6 Months

000017

VOLATILE ORGANICS

000018

**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461**

Definition of Qualifiers

- U:** The compound was analyzed for but not detected.
- B:** Indicates that the compound was found in the associated method blank as well as in the sample.
- J:** Indicates an estimated value. This flag is used:
- (1)** When the mass spec and retention time data indicate the presence of a compound however the result is less than the reporting limit but greater than the MDL.
 - (2)** When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D:** This flag is used to identify all compounds (target or TIC) that required a dilution.
- E:** Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N:** This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

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

Data File **VA7392.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 10:28 am**

Sample Name **MB09101001**
 Field ID **METHOD 8260 9/10/10**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.436 mg/kg	1.000 mg/kg	
107131	Acrylonitrile			not detected	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.061 mg/kg	0.050 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.054 mg/kg	0.050 mg/kg	
108-88-3	Toluene			not detected	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	0.047 mg/kg	0.050 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.059 mg/kg	0.050 mg/kg	
91-20-3	Naphthalene			not detected	0.062 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

MB09101001

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10378
Matrix: (soil/water) SOIL Lab Sample ID: MB09101001
Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7392.D
Level: (low/med) MED Date Received: 9/8/2010
% Moisture: not dec. 0 Date Analyzed: 9/10/2010
GC Column: Rtx-VMS ID 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST CONC	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7398.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 1:37 pm**

Sample Name **1037801**
 Field ID **812-P11 PIPING +175'**
 Sample Multiplier **0.100**

Sample Weight **11.50 g**
 Percent Solids **87.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.436 mg/kg	1.000 mg/kg	
107131	Acrylonitrile			not detected	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.061 mg/kg	0.050 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.054 mg/kg	0.050 mg/kg	
108-88-3	Toluene			not detected	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	0.047 mg/kg	0.050 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoforn			not detected	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.059 mg/kg	0.050 mg/kg	
91-20-3	Naphthalene			not detected	0.062 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N J A C 7 9 C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M D L

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812-P11 PIP+175'

Lab Name: FMETL NJDEP # 13461

Project: _____ Case No.: MW Location: _____ SDG No.: 10378

Matrix: (soil/water) SOIL Lab Sample ID: 1037801

Sample wt/vol: 11.5 (g/ml) G Lab File ID: VA7398.D

Level (low/med) MED Date Received: 9/8/2010

% Moisture, not dec. 13 Date Analyzed: 9/10/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7399.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 2:07 pm**

Sample Name **1037802**
 Field ID **812-P12 PIPING +190'**
 Sample Multiplier **0.097**

Sample Weight **11.59 g**
 Percent Solids **88.5 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.425 mg/kg	0.975 mg/kg	
107131	Acrylonitrile			not detected	0.210 mg/kg	0.487 mg/kg	
75650	tert-Butyl alcohol			not detected	0.401 mg/kg	0.487 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.031 mg/kg	0.049 mg/kg	
108203	Di-isopropyl ether			not detected	0.037 mg/kg	0.049 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.101 mg/kg	0.049 mg/kg	
74-87-3	Chloromethane			not detected	0.042 mg/kg	0.049 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.049 mg/kg	0.049 mg/kg	
74-83-9	Bromomethane			not detected	0.051 mg/kg	0.049 mg/kg	
75-00-3	Chloroethane			not detected	0.043 mg/kg	0.049 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.083 mg/kg	0.049 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.075 mg/kg	0.049 mg/kg	
67-64-1	Acetone			not detected	0.080 mg/kg	0.049 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.066 mg/kg	0.049 mg/kg	
75-09-2	Methylene Chloride			not detected	0.063 mg/kg	0.049 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.058 mg/kg	0.049 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.057 mg/kg	0.049 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.032 mg/kg	0.097 mg/kg	
78-93-3	2-Butanone			not detected	0.069 mg/kg	0.049 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.057 mg/kg	0.049 mg/kg	
67-66-3	Chloroform			not detected	0.072 mg/kg	0.049 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.061 mg/kg	0.049 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.060 mg/kg	0.049 mg/kg	
71-43-2	Benzene			not detected	0.056 mg/kg	0.049 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.044 mg/kg	0.049 mg/kg	
79-01-6	Trichloroethene			not detected	0.053 mg/kg	0.049 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.057 mg/kg	0.049 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.047 mg/kg	0.049 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.059 mg/kg	0.049 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.037 mg/kg	0.049 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.053 mg/kg	0.049 mg/kg	
108-88-3	Toluene			not detected	0.069 mg/kg	0.049 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.044 mg/kg	0.049 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.050 mg/kg	0.049 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.064 mg/kg	0.049 mg/kg	
591-78-6	2-Hexanone			not detected	0.046 mg/kg	0.049 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.045 mg/kg	0.049 mg/kg	
108-90-7	Chlorobenzene			not detected	0.063 mg/kg	0.049 mg/kg	
100-41-4	Ethylbenzene			not detected	0.067 mg/kg	0.049 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.068 mg/kg	0.049 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.128 mg/kg	0.097 mg/kg	
1330-20-7	o-Xylene			not detected	0.060 mg/kg	0.049 mg/kg	
100-42-5	Styrene			not detected	0.053 mg/kg	0.049 mg/kg	
75-25-2	Bromoform			not detected	0.039 mg/kg	0.049 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.053 mg/kg	0.049 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.057 mg/kg	0.049 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.055 mg/kg	0.049 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.058 mg/kg	0.049 mg/kg	
91-20-3	Naphthalene			not detected	0.060 mg/kg	0.049 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812-P12 PIP +190'

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No. MW Location: _____ SDG No 10378
Matrix: (soil/water) SOIL Lab Sample ID: 1037802
Sample wt/vol. 11.6 (g/ml) G Lab File ID. VA7399.D
Level: (low/med) MED Date Received: 9/8/2010
% Moisture not dec. 11.5 Date Analyzed: 9/10/2010
GC Column: Rtx-VMS ID 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File **VA7394 D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 11:34 am**

Sample Name **1037803**
 Field ID **812-P12A PIPING +205'**
 Sample Multiplier **0.112**

Sample Weight **10.87 g**
 Percent Solids **81.9 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.490 mg/kg	1.123 mg/kg	
107131	Acrylonitrile			not detected	0.242 mg/kg	0.562 mg/kg	
75650	tert-Butyl alcohol			not detected	0.462 mg/kg	0.562 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.036 mg/kg	0.056 mg/kg	
108203	Di-isopropyl ether			not detected	0.043 mg/kg	0.056 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.117 mg/kg	0.056 mg/kg	
74-87-3	Chloromethane			not detected	0.048 mg/kg	0.056 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.056 mg/kg	0.056 mg/kg	
74-83-9	Bromomethane			not detected	0.058 mg/kg	0.056 mg/kg	
75-00-3	Chloroethane			not detected	0.049 mg/kg	0.056 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.095 mg/kg	0.056 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.086 mg/kg	0.056 mg/kg	
67-64-1	Acetone			not detected	0.092 mg/kg	0.056 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.076 mg/kg	0.056 mg/kg	
75-09-2	Methylene Chloride			not detected	0.073 mg/kg	0.056 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.066 mg/kg	0.056 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.065 mg/kg	0.056 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.037 mg/kg	0.112 mg/kg	
78-93-3	2-Butanone			not detected	0.080 mg/kg	0.056 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.065 mg/kg	0.056 mg/kg	
67-66-3	Chloroform			not detected	0.083 mg/kg	0.056 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.071 mg/kg	0.056 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.070 mg/kg	0.056 mg/kg	
71-43-2	Benzene			not detected	0.064 mg/kg	0.056 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.051 mg/kg	0.056 mg/kg	
79-01-6	Trichloroethene			not detected	0.061 mg/kg	0.056 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.065 mg/kg	0.056 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.054 mg/kg	0.056 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.069 mg/kg	0.056 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.043 mg/kg	0.056 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.061 mg/kg	0.056 mg/kg	
108-88-3	Toluene			not detected	0.080 mg/kg	0.056 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.051 mg/kg	0.056 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.057 mg/kg	0.056 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.074 mg/kg	0.056 mg/kg	
591-78-6	2-Hexanone			not detected	0.053 mg/kg	0.056 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.052 mg/kg	0.056 mg/kg	
108-90-7	Chlorobenzene			not detected	0.073 mg/kg	0.056 mg/kg	
100-41-4	Ethylbenzene	15.80	13046707	31.86 mg/kg	0.078 mg/kg	0.056 mg/kg	E
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.079 mg/kg	0.056 mg/kg	
1330-20-7	m+p-Xylenes	16.01	4136468	23.26 mg/kg	0.147 mg/kg	0.112 mg/kg	E
1330-20-7	o-Xylene	16.85	189002	0.56 mg/kg	0.070 mg/kg	0.056 mg/kg	
100-42-5	Styrene			not detected	0.061 mg/kg	0.056 mg/kg	
75-25-2	Bromoform			not detected	0.045 mg/kg	0.056 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.061 mg/kg	0.056 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.065 mg/kg	0.056 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.063 mg/kg	0.056 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.066 mg/kg	0.056 mg/kg	
91-20-3	Naphthalene	24.54	11624080	40.99 mg/kg	0.070 mg/kg	0.056 mg/kg	E

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7406.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 5:43 pm**

Sample Name **1037803 10x**
 Field ID **812-PI2A PIPING +205'**
 Sample Multiplier **1.123**

Sample Weight **10.87 g**
 Percent Solids **81.9 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **0.125 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	4 897 mg/kg	11 233 mg/kg	
107131	Acrylonitrile			not detected	2 415 mg/kg	5 616 mg/kg	
75650	tert-Butyl alcohol			not detected	4 617 mg/kg	5 616 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0 359 mg/kg	0 562 mg/kg	
108203	Di-isopropyl ether			not detected	0 427 mg/kg	0 562 mg/kg	
75718	Dichlorodifluoromethane			not detected	1 168 mg/kg	0 562 mg/kg	
74-87-3	Chloromethane			not detected	0 483 mg/kg	0 562 mg/kg	
75-01-4	Vinyl Chloride			not detected	0 562 mg/kg	0 562 mg/kg	
74-83-9	Bromomethane			not detected	0 584 mg/kg	0 562 mg/kg	
75-00-3	Chloroethane			not detected	0 494 mg/kg	0 562 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0 955 mg/kg	0 562 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0 865 mg/kg	0 562 mg/kg	
67-64-1	Acetone			not detected	0 921 mg/kg	0 562 mg/kg	
75-15-0	Carbon Disulfide			not detected	0 764 mg/kg	0 562 mg/kg	
75-09-2	Methylene Chloride			not detected	0 730 mg/kg	0 562 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0 663 mg/kg	0 562 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0 652 mg/kg	0 562 mg/kg	
108-05-4	Vinyl Acetate			not detected	0 371 mg/kg	1 123 mg/kg	
78-93-3	2-Butanone			not detected	0 798 mg/kg	0 562 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0 652 mg/kg	0 562 mg/kg	
67-66-3	Chloroform			not detected	0 831 mg/kg	0 562 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0 708 mg/kg	0 562 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0 696 mg/kg	0 562 mg/kg	
71-43-2	Benzene			not detected	0 640 mg/kg	0 562 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0 505 mg/kg	0 562 mg/kg	
79-01-6	Trichloroethene			not detected	0 607 mg/kg	0 562 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0 652 mg/kg	0 562 mg/kg	
75-27-4	Bromodichloromethane			not detected	0 539 mg/kg	0 562 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0 685 mg/kg	0 562 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0 427 mg/kg	0 562 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0 607 mg/kg	0 562 mg/kg	
108-88-3	Toluene			not detected	0 798 mg/kg	0 562 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0 505 mg/kg	0 562 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0 573 mg/kg	0 562 mg/kg	
127-18-4	Tetrachloroethene			not detected	0 741 mg/kg	0 562 mg/kg	
591-78-6	2-Hexanone			not detected	0 528 mg/kg	0 562 mg/kg	
126-48-1	Dibromochloromethane			not detected	0 517 mg/kg	0 562 mg/kg	
108-90-7	Chlorobenzene			not detected	0 730 mg/kg	0 562 mg/kg	
100-41-4	Ethylbenzene	15 81	1524691	30 01 mg/kg	0 775 mg/kg	0 562 mg/kg	D
630-20-6	1,1,1,2-tetrachloroethane			not detected	0 786 mg/kg	0 562 mg/kg	
1330-20-7	m+p-Xylenes	16 02	493104	22 36 mg/kg	1 471 mg/kg	1 123 mg/kg	D
1330-20-7	o-Xylene	16 86	25434	0 60 mg/kg	0 696 mg/kg	0 562 mg/kg	D J
100-42-5	Styrene			not detected	0 607 mg/kg	0 562 mg/kg	
75-25-2	Bromoform			not detected	0 449 mg/kg	0 562 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0 607 mg/kg	0 562 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0 652 mg/kg	0 562 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0 629 mg/kg	0 562 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0 663 mg/kg	0 562 mg/kg	
91-20-3	Naphthalene	24 55	1360699	38 69 mg/kg	0 696 mg/kg	0 562 mg/kg	D

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N J A C 7 9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R L and M D L

MDL = Method Detection Limit

NLE = No Limit Established

R T = Retention Time

R L = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

312-P12A PIP+205

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No: MW Location: _____ SDG No.: 10378
Matrix: (soil/water) SOIL Lab Sample ID: 1037803
Sample wt/vol: 10.9 (g/ml) G Lab File ID: VA7394 D
Level: (low/med) MED Date Received: 9/8/2010
% Moisture: not dec. 18.1 Date Analyzed: 9/10/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST CONC.	Q

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

Data File **VA7400.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 2:38 pm**

Sample Name **1037804**
 Field ID **812-P13-PIPING +205'**
 Sample Multiplier **0.104**

Sample Weight **10.95 g**
 Percent Solids **88.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.452 mg/kg	1.038 mg/kg	
107131	Acrylonitrile			not detected	0.223 mg/kg	0.519 mg/kg	
75650	tert-Butyl alcohol			not detected	0.427 mg/kg	0.519 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.033 mg/kg	0.052 mg/kg	
108203	Di-isopropyl ether			not detected	0.039 mg/kg	0.052 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.108 mg/kg	0.052 mg/kg	
74-87-3	Chloromethane			not detected	0.045 mg/kg	0.052 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.052 mg/kg	0.052 mg/kg	
74-83-9	Bromomethane			not detected	0.054 mg/kg	0.052 mg/kg	
75-00-3	Chloroethane			not detected	0.046 mg/kg	0.052 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.088 mg/kg	0.052 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.080 mg/kg	0.052 mg/kg	
67-64-1	Acetone			not detected	0.085 mg/kg	0.052 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.071 mg/kg	0.052 mg/kg	
75-09-2	Methylene Chloride			not detected	0.067 mg/kg	0.052 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.061 mg/kg	0.052 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.060 mg/kg	0.052 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.034 mg/kg	0.104 mg/kg	
78-93-3	2-Butanone			not detected	0.074 mg/kg	0.052 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.060 mg/kg	0.052 mg/kg	
67-66-3	Chloroform			not detected	0.077 mg/kg	0.052 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.065 mg/kg	0.052 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.064 mg/kg	0.052 mg/kg	
71-43-2	Benzene			not detected	0.059 mg/kg	0.052 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.047 mg/kg	0.052 mg/kg	
79-01-6	Trichloroethene			not detected	0.056 mg/kg	0.052 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.060 mg/kg	0.052 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.050 mg/kg	0.052 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.063 mg/kg	0.052 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.039 mg/kg	0.052 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.056 mg/kg	0.052 mg/kg	
108-88-3	Toluene			not detected	0.074 mg/kg	0.052 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.047 mg/kg	0.052 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.053 mg/kg	0.052 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.068 mg/kg	0.052 mg/kg	
591-78-6	2-Hexanone			not detected	0.049 mg/kg	0.052 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.048 mg/kg	0.052 mg/kg	
108-90-7	Chlorobenzene			not detected	0.067 mg/kg	0.052 mg/kg	
100-41-4	Ethylbenzene			not detected	0.072 mg/kg	0.052 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.073 mg/kg	0.052 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.136 mg/kg	0.104 mg/kg	
1330-20-7	o-Xylene			not detected	0.064 mg/kg	0.052 mg/kg	
100-42-5	Styrene			not detected	0.056 mg/kg	0.052 mg/kg	
75-25-2	Bromoform			not detected	0.042 mg/kg	0.052 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.056 mg/kg	0.052 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.060 mg/kg	0.052 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.058 mg/kg	0.052 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.061 mg/kg	0.052 mg/kg	
91-20-3	Naphthalene			not detected	0.064 mg/kg	0.052 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

812-P13 PIP+205'

Lab Name: FMETL NJDEP # 13461

Project _____ Case No. MW Location: _____ SDG No.: 10378

Matrix: (soil/water) SOIL Lab Sample ID: 1037804

Sample wt/vol. 11.0 (g/ml) G Lab File ID: VA7400 D

Level (low/med) MED Date Received 9/8/2010

% Moisture: not dec. 12 Date Analyzed 9/10/2010

GC Column Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST CONC.	Q

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

Data File **VA7396.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 12:35 pm**

Sample Name **1037805**
 Field ID **812 DUPLICATE**
 Sample Multiplier **0.112**

Sample Weight **10.94 g**
 Percent Solids **81.7 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.488 mg/kg	1.119 mg/kg	
107131	Acrylonitrile			not detected	0.241 mg/kg	0.559 mg/kg	
75650	tert-Butyl alcohol			not detected	0.460 mg/kg	0.559 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.036 mg/kg	0.056 mg/kg	
108203	Di-isopropyl ether			not detected	0.043 mg/kg	0.056 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.116 mg/kg	0.056 mg/kg	
74-87-3	Chloromethane			not detected	0.048 mg/kg	0.056 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.056 mg/kg	0.056 mg/kg	
74-83-9	Bromomethane			not detected	0.058 mg/kg	0.056 mg/kg	
75-00-3	Chloroethane			not detected	0.049 mg/kg	0.056 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.095 mg/kg	0.056 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.086 mg/kg	0.056 mg/kg	
67-64-1	Acetone			not detected	0.092 mg/kg	0.056 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.076 mg/kg	0.056 mg/kg	
75-09-2	Methylene Chloride			not detected	0.073 mg/kg	0.056 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.066 mg/kg	0.056 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.065 mg/kg	0.056 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.037 mg/kg	0.112 mg/kg	
78-93-3	2-Butanone			not detected	0.079 mg/kg	0.056 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.065 mg/kg	0.056 mg/kg	
67-66-3	Chloroform			not detected	0.083 mg/kg	0.056 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.070 mg/kg	0.056 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.069 mg/kg	0.056 mg/kg	
71-43-2	Benzene			not detected	0.064 mg/kg	0.056 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.050 mg/kg	0.056 mg/kg	
79-01-6	Trichloroethene			not detected	0.060 mg/kg	0.056 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.065 mg/kg	0.056 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.054 mg/kg	0.056 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.068 mg/kg	0.056 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.043 mg/kg	0.056 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.060 mg/kg	0.056 mg/kg	
108-88-3	Toluene			not detected	0.079 mg/kg	0.056 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.050 mg/kg	0.056 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.057 mg/kg	0.056 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.074 mg/kg	0.056 mg/kg	
591-78-6	2-Hexanone			not detected	0.053 mg/kg	0.056 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.051 mg/kg	0.056 mg/kg	
108-90-7	Chlorobenzene			not detected	0.073 mg/kg	0.056 mg/kg	
100-41-4	Ethylbenzene	15.80	6143286	12.57 mg/kg	0.077 mg/kg	0.056 mg/kg	E
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.078 mg/kg	0.056 mg/kg	
1330-20-7	m+p-Xylenes	16.00	1924390	9.07 mg/kg	0.147 mg/kg	0.112 mg/kg	
1330-20-7	o-Xylene	16.84	94926	0.23 mg/kg	0.069 mg/kg	0.056 mg/kg	
100-42-5	Styrene			not detected	0.060 mg/kg	0.056 mg/kg	
75-25-2	Bromoform			not detected	0.045 mg/kg	0.056 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.060 mg/kg	0.056 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.065 mg/kg	0.056 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.063 mg/kg	0.056 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.066 mg/kg	0.056 mg/kg	
91-20-3	Naphthalene	24.54	5251729	15.52 mg/kg	0.069 mg/kg	0.056 mg/kg	E

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N J A C 7 9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L

MDL = Method Detection Limit

NLB = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7404.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 4:41 pm**

Sample Name **1037805 10x**
 Field ID **812 DUPLICATE**
 Sample Multiplier **1.119**

Sample Weight **10.94 g**
 Percent Solids **81.7 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **0.125 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	4 878 mg/kg	11 188 mg/kg	
107131	Acrylonitrile			not detected	2 405 mg/kg	5 594 mg/kg	
75650	tert-Butyl alcohol			not detected	4 598 mg/kg	5 594 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0 358 mg/kg	0 559 mg/kg	
108203	Di-isopropyl ether			not detected	0 425 mg/kg	0 559 mg/kg	
75718	Dichlorodifluoromethane			not detected	1 164 mg/kg	0 559 mg/kg	
74-87-3	Chloromethane			not detected	0 481 mg/kg	0 559 mg/kg	
75-01-4	Vinyl Chloride			not detected	0 559 mg/kg	0 559 mg/kg	
74-83-9	Bromomethane			not detected	0 582 mg/kg	0 559 mg/kg	
75-00-3	Chloroethane			not detected	0 492 mg/kg	0 559 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0 951 mg/kg	0 559 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0 861 mg/kg	0 559 mg/kg	
67-64-1	Acetone			not detected	0 917 mg/kg	0 559 mg/kg	
75-15-0	Carbon Disulfide			not detected	0 761 mg/kg	0 559 mg/kg	
75-09-2	Methylene Chloride			not detected	0 727 mg/kg	0 559 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0 660 mg/kg	0 559 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0 649 mg/kg	0 559 mg/kg	
108-05-4	Vinyl Acetate			not detected	0 369 mg/kg	1 119 mg/kg	
78-93-3	2-Butanone			not detected	0 794 mg/kg	0 559 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0 649 mg/kg	0 559 mg/kg	
67-66-3	Chloroform			not detected	0 828 mg/kg	0 559 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0 705 mg/kg	0 559 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0 694 mg/kg	0 559 mg/kg	
71-43-2	Benzene			not detected	0 638 mg/kg	0 559 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0 503 mg/kg	0 559 mg/kg	
79-01-6	Trichloroethene			not detected	0 604 mg/kg	0 559 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0 649 mg/kg	0 559 mg/kg	
75-27-4	Bromodichloromethane			not detected	0 537 mg/kg	0 559 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0 682 mg/kg	0 559 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0 425 mg/kg	0 559 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0 604 mg/kg	0 559 mg/kg	
108-88-3	Toluene			not detected	0 794 mg/kg	0 559 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0 503 mg/kg	0 559 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0 571 mg/kg	0 559 mg/kg	
127-18-4	Tetrachloroethene			not detected	0 738 mg/kg	0 559 mg/kg	
591-78-6	2-Hexanone			not detected	0 526 mg/kg	0 559 mg/kg	
126-48-1	Dibromochloromethane			not detected	0 515 mg/kg	0 559 mg/kg	
108-90-7	Chlorobenzene			not detected	0 727 mg/kg	0 559 mg/kg	
100-41-4	Ethylbenzene	15 81	495558	9 38 mg/kg	0 772 mg/kg	0 559 mg/kg	D
630-20-6	1,1,1,2-tetrachloroethane			not detected	0 783 mg/kg	0 559 mg/kg	
1330-20-7	m+p-Xylenes	16 01	157873	6 89 mg/kg	1 466 mg/kg	1 119 mg/kg	D
1330-20-7	o-Xylene			not detected	0 694 mg/kg	0 559 mg/kg	
100-42-5	Styrene			not detected	0 604 mg/kg	0 559 mg/kg	
75-25-2	Bromoform			not detected	0 448 mg/kg	0 559 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0 604 mg/kg	0 559 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0 649 mg/kg	0 559 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0 627 mg/kg	0 559 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0 660 mg/kg	0 559 mg/kg	
91-20-3	Naphthalene	24 54	541970	14 82 mg/kg	0 694 mg/kg	0 559 mg/kg	D

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N J A C 7 9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M D L

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

DUPLICATE

Lab Name: FMETL NJDEP # 13461

Project: _____ Case No.: MW Location: _____ SDG No.: 10378

Matrix: (soil/water) SOIL Lab Sample ID: 1037805

Sample wt/vol. 10.9 (g/ml) G Lab File ID. VA7396.D

Level: (low/med) MED Date Received 9/8/2010

% Moisture: not dec. 18.3 Date Analyzed: 9/10/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 15 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1	Alkane: Branched	12.36	24000	J
2	Alkane: Cyclic	13.08	32000	J
3	Alkane: Cyclic	14.60	31000	J
4	Alkane: Branched	14.87	44000	J
5	Alkane: Branched	15.08	39000	J
6	Alkane: Cyclic	17.23	24000	J
7	C3 alkyl benzene	17.54	32000	J
8	C3 alkyl benzene	18.50	61000	J
9	C3 alkyl benzene	18.56	29000	J
10	C3 alkyl benzene	18.67	58000	J
11	C3 alkyl benzene	19.43	110000	J
12	C3 alkyl benzene	20.27	32000	J
13	C4 alkyl benzene	20.68	62000	J
14	C4 alkyl benzene	21.44	26000	J
15	1H-Indene-dihydro-methyl-	23.34	27000	J

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7401.D**
 Operator **ROBERTS**
 Date Acquired **10 Sep 2010 3:09 pm**

Sample Name **1037806**
 Field ID **TRIP BLANK**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.436 mg/kg	1.000 mg/kg	
107131	Acrylonitrile			not detected	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.061 mg/kg	0.050 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.054 mg/kg	0.050 mg/kg	
108-88-3	Toluene			not detected	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	0.047 mg/kg	0.050 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.059 mg/kg	0.050 mg/kg	
91-20-3	Naphthalene			not detected	0.062 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N J A C 7 9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M D L

MDL = Method Detection Limit

NLE = No Limit Established

R T = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

TRIP BLANK

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No _____ MW _____ Location: _____ SDG No 10378
Matrix: (soil/water) SOIL Lab Sample ID: 1037806
Sample wt/vol. 10.0 (g/ml) G Lab File ID: VA7401.D
Level: (low/med) MED Date Received: 9/8/2010
% Moisture: not dec. 0 Date Analyzed: 9/10/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST CONC	Q

TPHC

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

Client: U S. Army
 DPW SELFM-PW-EV
 Bldg 173
 Ft. Monmouth, NJ 07703

Project #: 10-179124
Location: BLDG. 812
ECP:
Work Order:

Analysis: OQA-QAM-025
Matrix:
Inst. ID: GC TPHC INST. #1
Column Type: RTX-5, 0.32mm ID, 30 m
Injection Vol.: 1 uL

Date Received: 8-Sep-10
Date Extracted: 9-Sep-10
Extraction Method: Shake
Analyst: Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Data	Qualifiers
MB09091001	MB09091001	1.00	15.00	100.00	23	333	not detected		
LCS09091001	LCS09091001	1.00	15.00	100.00	23	333	1146.97		
1037801	812-P11 PIPING +175'	1.00	15.12	87.0	27	380	not detected		
1037802	812-P12 PIPING +190'	1.00	15.09	88.5	26	374	not detected		
1037803	812-P12A PIPING +205'	1.00	15.26	81.9	28	400	1229.77		
1037804	812-P13 PIPING +205'	1.00	15.07	88.0	26	377	not detected		
1037805	812 DUPLICATE	1.00	15.05	81.7	28	407	540.54		

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Result exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Result from dilution

ND = not detected

000050

LEAD

000080

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 10378
Sample Received: NA
Sample Matrix: Aqueous
Sample Prepared: 09/09/10

Site: Bldg. 812

Field ID: Method Blank

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/L)

Element	Date of Analysis	Result (mg/L)	R.L. (mg/L)	MDL (mg/L)
Lead	09/13/10	0.010	0.005	0.0026

ND = Not Detected, NLE = No Limit Established,
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & R.L.

000081

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037801
Sample Received: 09/08/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P11, Piping +175'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/13/10	9.16	400	1.11	0.579

ND = Not Detected, NLE = No Limit Established,
*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & R.L.

000082

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037802
Sample Received: 09/08/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P12, Piping +190'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/13/10	7.27	400	0.990	0.516

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000083

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037803
Sample Received: 09/08/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P12A, Piping +205'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/13/10	15.5	400	1.13	0.589

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000084

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037804
Sample Received: 09/08/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P13, Piping +205'

----- Method of Analysis: E.P.A SW-846, Method 6010B -----

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/13/10	9.58	400	1.00	0.520

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000085

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1037805
Sample Received: 09/08/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/Duplicate

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/13/10	15.7	400	1.16	0.601

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000086

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 data 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.

✓
✓
✓
✓
✓
✓
✓
✓
✓
✓
✓

Laboratory Manager or Environmental Consultant's Signature

Date: 10/21/10

[Handwritten Signature]

Laboratory Certification # 13461

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

000094

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.


Dean Tardiff 10/21/10
Laboratory Manager

000095

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



ANALYTICAL DATA REPORT
Fort Monmouth Environmental Laboratory
ENVIRONMENTAL DIVISION
Fort Monmouth, New Jersey
PROJECT: 10-179124

Bldg. /812

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
812-P14 (Pipe)+220'	1039101	Soil	14-Sept-10 13:50	09/14/10
812-P15 (Pipe)+235'	1039102	Soil	14-Sept-10 15:45	09/14/10
812-P16 (Pipe)+250'	1039103	Soil	14-Sept-10 14:20	09/14/10
812-P17 (Pipe)+265'	1039104	Soil	14-Sept-10 14:40	09/14/10
812-Duplicate	1039105	Soil	14-Sept-10 15:45	09/14/10
Trip Blank	1039106	Methanol	14-Sept-10	09/14/10

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL TESTING LAB
VOA+15, TPHC, TOTAL LEAD
%SOLIDS

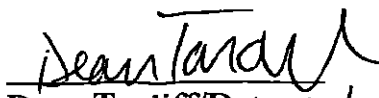

Dean Tardiff/Date: 10/20/10
Laboratory Manager

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CHAIN OF CUSTODY

000001

Tel (732)532-6352 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil

Chain of Custody Record

0000002

SAMPLE RECEIPT FORM

Date Received: 9-14-10

Work Order ID#: 10341

Site/Proj. Name: Blay 8/2

Cooler Temp (°C): 5.0°C

Received By: J. Vennum
(Print name)

Sign: [Signature]

Check the appropriate box

1. Did the samples come in a cooler?	yes	no	n/a
2. Were samples rec'd in good condition?	yes	no	
3. Was the chain of custody filled out correctly and legibly?	yes	no	
4. Was the chain of custody signed in the appropriate place?	yes	no	
5. Did the labels agree with the chain of custody?	yes	no	
6. Were the correct containers/preservatives used?	yes	no	
7. Was a sufficient amount of sample supplied?	yes	no	
8. Were air bubbles present in VOA vials?	yes	no	n/a
9. Were samples received on ice?	yes	no	
10. Were analyze-immediately tests perform within 15 minutes	yes	no	n/a

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments: _____

GPS POINTS

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 812 - Former Fueling Dispenser Island Piping

SOIL SAMPLING GPS POSITIONS & COORDINATES

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

(IN US SURVEY FEET)

SAMPLE POINTS

<u>POSITION/DESCRIPTION</u>	<u>Y COORDINATE (NORTHING)</u>	<u>X COORDINATE (EASTING)</u>
812 P11 PIPING PLUS 175FT.	537990.89	620720.714
812 P12 PIPING PLUS 190FT.	537974.515	620720.232
812 P12A PIPING PLUS 200FT.	537967.916	620720.2
812 P13 PIPING PLUS 205FT	537955.29	620720.125
812 P14 PIPING PLUS 220FT.	537943.397	620712.114
812 P15 PIPING PLUS 235FT.	537932.116	620706.397
812 P16 PIPING PLUS 250FT.	537919.907	620698.961
812 P17 PIPING PLUS 265FT.	537927.025	620687.488

000005

FIELD DUPLICATE

000006

Field Duplicate Identification

Lab ID: 10391

Site: Bldg. 812

The Field Duplicate was performed on 812-P15 +235 (1039102.)

000007

METHOD SUMMARY

Method Summary

EPA SW-846 Method 8260

Gas Chromatographic Determination of Volatiles in Methanol

A 10-gram volume of soil is combined with 25-ml of Methanol and surrogates in the field. Internal standards are added and the sample is placed on a purge and trap concentrator. The sample is purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

NJDEP Method OQA-QAM-025 02/08

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml 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 1-ml auto-sampler 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 moisture, sample weight and concentration.

EPA SW-846 Method 6010B, 3rd Edition Base Manual with Final Updates I, II, IIA, IIB and III: ICP RCRA Metals

Perkin Elmer OPTIMA 3000 DV

The method measures element-emitted light by optical spectrometry. Samples are nebulized and the resulting aerosol is transported to the plasma torch. Radio frequency inductively coupled plasma produces element-specific atomic-line emission spectra. The spectra are dispersed by a grating spectrometer and a Segmented-array Charged-coupled-device Detector (SCD) monitors the intensities of the lines. Background and interelemental correction is used for trace element determinations.

CONFORMANCE/ NON-CONFORMANCE SUMMARY

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMATIndicate
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 Criteria Yes
 - b. DFTPP Meet Criteria N/A
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 Criteria Yes
 - b. System Performance Check Compounds Meet Criteria Yes
7. Blank Contamination – If yes, List compounds and concentrations in each blank: No
 - a. VOA Fraction _____
 - b. B/N Fraction _____
 - c. Acid Fraction _____
8. Surrogate Recoveries Meet Criteria Yes

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"? _____
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria No
(If not met, list those compounds and their recoveries, which fall outside the acceptable range)
 - a. VOA Fraction See mslmsd report for notes
 - b. B/N Fraction _____
 - c. Acid Fraction _____

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

Indicate
Yes, No, N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria
(If not met, list those compounds, which fall outside the acceptable range)

Yes

- a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

11. Extraction Holding Time Met

N/A

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: _____

Additional Comments:

Laboratory Manager: _____

Date: _____

Dean Pence 10/20/10
HA 9/16/10

000013

TPHC Conformance/Non-conformance Summary Report

	Indicate Yes, No, N/A
1. Method Detection Limits provided.	<u>Yes</u>
2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank. _____ _____	<u>No</u>
3. Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
4. Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
5. IR Spectra submitted for standards, blanks and samples.	<u>N/A</u>
6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	<u>N/A</u>
7. Analysis holding time met. (If not met, list number of days exceeded for each sample). _____ _____	<u>Yes</u>

Additional comments: _____

Laboratory Manager

Date

 9/16/10

10/20/10

METALS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY REPORT

Project: 10391
Method: 6010B

Indicate
Yes, No, N/A

1. Initial and Continuing Calibration Verifications ~~Meet~~ Criteria

2. ICP Interference Check Sample Results Meet Criteria

3. Serial Dilutions Meet Criteria 1039101

4. Laboratory Control Samples Meet Criteria

5. Preparation, Method and Calibration Blank Contamination
If yes, list compounds and concentrations in each blank
MB 091510-1 Pb = 0.019 mg/L

6. Spike Sample Recoveries Meet Criteria 1039101

7. Duplicates Meet Criteria 1039101

8. Analysis Holding Time Met
If not met, list number of days exceeded for each sample

✓

✓

✓

✓

No

✓

✓

✓

Additional Comments BS + MS-MSD spiked
with 0.50 ml of TAC spk instead
1.0 ml

Analyst: A. Sandhu Date: 10/16/10
Administrative Review: Deantary Date: 10/20/10

000015

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 10391

Site: 812

	Date	Hold Time
Date Sampled	09/14/10	NA
Receipt/Refrigeration	09/14/10	NA

Analyses

1. Volatiles	09/15/10	14 Days
2. TPHC	09/15/10	14 Days
3. LEAD	09/15/10	6 Months

000017

VOLATILE ORGANICS

**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461**

Definition of Qualifiers

- U:** The compound was analyzed for but not detected.
- B:** Indicates that the compound was found in the associated method blank as well as in the sample.
- J:** Indicates an estimated value. This flag is used:
- (1)** When the mass spec and retention time data indicate the presence of a compound however the result is less than the reporting limit but greater than the MDL.
 - (2)** When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D:** This flag is used to identify all compounds (target or TIC) that required a dilution.
- E:** Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N:** This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

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

Data File **VA7440.D**
 Operator **ROBERTS**
 Date Acquired **15 Sep 2010 3:41 pm**

Sample Name **MB09151001**
 Field ID **METHOD 8260 9/15/10**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.436 mg/kg	1.000 mg/kg	
107131	Acrylonitrile			not detected	0.215 mg/kg	0.500 mg/kg	
75650	tert-Butyl alcohol			not detected	0.411 mg/kg	0.500 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.032 mg/kg	0.050 mg/kg	
108203	Di-isopropyl ether			not detected	0.038 mg/kg	0.050 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.104 mg/kg	0.050 mg/kg	
74-87-3	Chloromethane			not detected	0.043 mg/kg	0.050 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.050 mg/kg	0.050 mg/kg	
74-83-9	Bromomethane			not detected	0.052 mg/kg	0.050 mg/kg	
75-00-3	Chloroethane			not detected	0.044 mg/kg	0.050 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.085 mg/kg	0.050 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.077 mg/kg	0.050 mg/kg	
67-64-1	Acetone			not detected	0.082 mg/kg	0.050 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.068 mg/kg	0.050 mg/kg	
75-09-2	Methylene Chloride			not detected	0.065 mg/kg	0.050 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.059 mg/kg	0.050 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.058 mg/kg	0.050 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.033 mg/kg	0.100 mg/kg	
78-93-3	2-Butanone			not detected	0.071 mg/kg	0.050 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.058 mg/kg	0.050 mg/kg	
67-66-3	Chloroform			not detected	0.074 mg/kg	0.050 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.063 mg/kg	0.050 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.062 mg/kg	0.050 mg/kg	
71-43-2	Benzene			not detected	0.057 mg/kg	0.050 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.045 mg/kg	0.050 mg/kg	
79-01-6	Trichloroethene			not detected	0.054 mg/kg	0.050 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.058 mg/kg	0.050 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.048 mg/kg	0.050 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.061 mg/kg	0.050 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.038 mg/kg	0.050 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.054 mg/kg	0.050 mg/kg	
108-88-3	Toluene			not detected	0.071 mg/kg	0.050 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.045 mg/kg	0.050 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.051 mg/kg	0.050 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.066 mg/kg	0.050 mg/kg	
591-78-6	2-Hexanone			not detected	0.047 mg/kg	0.050 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.046 mg/kg	0.050 mg/kg	
108-90-7	Chlorobenzene			not detected	0.065 mg/kg	0.050 mg/kg	
100-41-4	Ethylbenzene			not detected	0.069 mg/kg	0.050 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.070 mg/kg	0.050 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.131 mg/kg	0.100 mg/kg	
1330-20-7	o-Xylene			not detected	0.062 mg/kg	0.050 mg/kg	
100-42-5	Styrene			not detected	0.054 mg/kg	0.050 mg/kg	
75-25-2	Bromoform			not detected	0.040 mg/kg	0.050 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.054 mg/kg	0.050 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.058 mg/kg	0.050 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.056 mg/kg	0.050 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.059 mg/kg	0.050 mg/kg	
91-20-3	Naphthalene			not detected	0.062 mg/kg	0.050 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

MB09151001

Lab Name: FMETL NJDEP # 13461

Project: _____ Case No.: MW Location: BLDG SDG No: 10391

Matrix. (soil/water) SOIL Lab Sample ID MB09151001

Sample wt/vol. 10.0 (g/ml) G Lab File ID: VA7440.D

Level: (low/med) MED Date Received 9/14/2010

% Moisture, not dec. 0 Date Analyzed 9/15/2010

GC Column: Rtx-VMS ID 0.25 (mm) Dilution Factor 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS

Number TICs found 0 (ug/L or ug/Kg) UG/KG

CAS NO	COMPOUND NAME	RT	EST CONC	Q

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

Data File **VA7443.D**
 Operator **ROBERTS**
 Date Acquired **15 Sep 2010 5:31 pm**

Sample Name **1039101**
 Field ID **812-P14 PIPE +220'**
 Sample Multiplier **0.110**

Sample Weight **10.69 g**
 Percent Solids **84.9 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.480 mg/kg	1.102 mg/kg	
107131	Acrylonitrile			not detected	0.237 mg/kg	0.551 mg/kg	
75650	tert-Butyl alcohol			not detected	0.453 mg/kg	0.551 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.035 mg/kg	0.055 mg/kg	
108203	Di-isopropyl ether			not detected	0.042 mg/kg	0.055 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.115 mg/kg	0.055 mg/kg	
74-87-3	Chloromethane			not detected	0.047 mg/kg	0.055 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.055 mg/kg	0.055 mg/kg	
74-83-9	Bromomethane			not detected	0.057 mg/kg	0.055 mg/kg	
75-00-3	Chloroethane			not detected	0.048 mg/kg	0.055 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.094 mg/kg	0.055 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.085 mg/kg	0.055 mg/kg	
67-64-1	Acetone			not detected	0.090 mg/kg	0.055 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.075 mg/kg	0.055 mg/kg	
75-09-2	Methylene Chloride			not detected	0.072 mg/kg	0.055 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.065 mg/kg	0.055 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.064 mg/kg	0.055 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.036 mg/kg	0.110 mg/kg	
78-93-3	2-Butanone			not detected	0.078 mg/kg	0.055 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.064 mg/kg	0.055 mg/kg	
67-66-3	Chloroform			not detected	0.082 mg/kg	0.055 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.069 mg/kg	0.055 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.068 mg/kg	0.055 mg/kg	
71-43-2	Benzene			not detected	0.063 mg/kg	0.055 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.050 mg/kg	0.055 mg/kg	
79-01-6	Trichloroethene			not detected	0.059 mg/kg	0.055 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.064 mg/kg	0.055 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.053 mg/kg	0.055 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.067 mg/kg	0.055 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.042 mg/kg	0.055 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.059 mg/kg	0.055 mg/kg	
108-88-3	Toluene			not detected	0.078 mg/kg	0.055 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.050 mg/kg	0.055 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.056 mg/kg	0.055 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.073 mg/kg	0.055 mg/kg	
591-78-6	2-Hexanone			not detected	0.052 mg/kg	0.055 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.051 mg/kg	0.055 mg/kg	
108-90-7	Chlorobenzene			not detected	0.072 mg/kg	0.055 mg/kg	
100-41-4	Ethylbenzene			not detected	0.076 mg/kg	0.055 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.077 mg/kg	0.055 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.144 mg/kg	0.110 mg/kg	
1330-20-7	o-Xylene			not detected	0.068 mg/kg	0.055 mg/kg	
100-42-5	Styrene			not detected	0.059 mg/kg	0.055 mg/kg	
75-25-2	Bromoform			not detected	0.044 mg/kg	0.055 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.059 mg/kg	0.055 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.064 mg/kg	0.055 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.062 mg/kg	0.055 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.065 mg/kg	0.055 mg/kg	
91-20-3	Naphthalene			not detected	0.068 mg/kg	0.055 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

312 P14 PIPE+220

Lab Name. FMETL NJDEP # 13461
Project: _____ Case No.: MW Location BLDG SDG No. 10391
Matrix: (soil/water) SOIL Lab Sample ID: 1039101
Sample wt/vol: 10.7 (g/ml) G Lab File ID: VA7443.D
Level: (low/med) MED Date Received 9/14/2010
% Moisture: not dec. 15.1 Date Analyzed: 9/15/2010
GC Column Rtx-VMS ID: 0.25 (mm) Dilution Factor 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS.

Number TICs found. 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7446.D**
 Operator **ROBERTS**
 Date Acquired **15 Sep 2010 7:04 pm**

Sample Name **1039102**
 Field ID **812-P15 PIPE +235***
 Sample Multiplier **0.123**

Sample Weight **10.03 g**
 Percent Solids **80.8 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **125 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.538 mg/kg	1.234 mg/kg	
107131	Acrylonitrile			not detected	0.265 mg/kg	0.617 mg/kg	
75650	tert-Butyl alcohol			not detected	0.507 mg/kg	0.617 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.039 mg/kg	0.062 mg/kg	
108203	Di-isopropyl ether			not detected	0.047 mg/kg	0.062 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.128 mg/kg	0.062 mg/kg	
74-87-3	Chloromethane			not detected	0.053 mg/kg	0.062 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.062 mg/kg	0.062 mg/kg	
74-83-9	Bromomethane			not detected	0.064 mg/kg	0.062 mg/kg	
75-00-3	Chloroethane			not detected	0.054 mg/kg	0.062 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.105 mg/kg	0.062 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.095 mg/kg	0.062 mg/kg	
67-64-1	Acetone			not detected	0.101 mg/kg	0.062 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.084 mg/kg	0.062 mg/kg	
75-09-2	Methylene Chloride			not detected	0.080 mg/kg	0.062 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.073 mg/kg	0.062 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.072 mg/kg	0.062 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.041 mg/kg	0.123 mg/kg	
78-93-3	2-Butanone			not detected	0.088 mg/kg	0.062 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.072 mg/kg	0.062 mg/kg	
67-66-3	Chloroform			not detected	0.091 mg/kg	0.062 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.078 mg/kg	0.062 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.077 mg/kg	0.062 mg/kg	
71-43-2	Benzene	10.58	44981	0.15 mg/kg	0.070 mg/kg	0.062 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.056 mg/kg	0.062 mg/kg	
79-01-6	Trichloroethene			not detected	0.067 mg/kg	0.062 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.072 mg/kg	0.062 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.059 mg/kg	0.062 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.075 mg/kg	0.062 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.047 mg/kg	0.062 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.067 mg/kg	0.062 mg/kg	
108-88-3	Toluene	13.33	1522764	4.55 mg/kg	0.088 mg/kg	0.062 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.056 mg/kg	0.062 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.063 mg/kg	0.062 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.081 mg/kg	0.062 mg/kg	
591-78-6	2-Hexanone			not detected	0.058 mg/kg	0.062 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.057 mg/kg	0.062 mg/kg	
108-90-7	Chlorobenzene			not detected	0.080 mg/kg	0.062 mg/kg	
100-41-4	Ethylbenzene	15.81	2165765	5.79 mg/kg	0.085 mg/kg	0.062 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.086 mg/kg	0.062 mg/kg	
1330-20-7	m+p-Xylenes	16.01	3873316	23.47 mg/kg	0.162 mg/kg	0.123 mg/kg	
1330-20-7	o-Xylene	16.86	2681504	8.45 mg/kg	0.077 mg/kg	0.062 mg/kg	
100-42-5	Styrene			not detected	0.067 mg/kg	0.062 mg/kg	
75-25-2	Bromoform			not detected	0.049 mg/kg	0.062 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.067 mg/kg	0.062 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.072 mg/kg	0.062 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.069 mg/kg	0.062 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.073 mg/kg	0.062 mg/kg	
91-20-3	Naphthalene	24.55	1115194	3.97 mg/kg	0.077 mg/kg	0.062 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N J A C 7 9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

RL = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

312-P15 PIPE+235

Lab Name: FMETL NJDEP # 13461

Project: _____ Case No.: MW Location: BLDG SDG No.: 10391

Matrix (soil/water) SOIL Lab Sample ID 1039102

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7446.D

Level (low/med) MED Date Received 9/14/2010

% Moisture: not dec 19.2 Date Analyzed: 9/15/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS

Number TICs found 15 (ug/L or ug/Kg) UG/KG

CAS NO	COMPOUND NAME	RT	EST CONC.	Q
1	Alkane: Branched	10.14	5900	J
2	Alkane: Branched	10.70	6600	J
3	Alkane: Cyclic	11.70	8800	J
4	Alkane: Branched	12.38	7500	J
5	Alkane: Cyclic	13.10	8500	J
6	Alkane: Branched	14.87	5800	J
7	Alkane: Branched	15.10	5900	J
8	C3 alkyl benzene	17.55	6100	J
9	Alkane: Straight-Chain	18.47	7800	J
10	C3 alkyl benzene	18.51	15000	J
11	C3 alkyl benzene	18.57	6100	J
12	C3 alkyl benzene	18.68	9600	J
13	C3 alkyl benzene	19.43	20000	J
14	C3 alkyl benzene	20.28	5700	J
15	C4 alkyl benzene	20.70	15000	J

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7444.D**
 Operator **ROBERTS**
 Date Acquired **15 Sep 2010 6:02 pm**

Sample Name **1039103**
 Field ID **812-P16 PIPE +250'**
 Sample Multiplier **0.106**

Sample Weight **11.19 g**
 Percent Solids **84.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.464 mg/kg	1.064 mg/kg	
107131	Acrylonitrile			not detected	0.229 mg/kg	0.532 mg/kg	
75650	tert-Butyl alcohol			not detected	0.437 mg/kg	0.532 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.034 mg/kg	0.053 mg/kg	
108203	Di-isopropyl ether			not detected	0.040 mg/kg	0.053 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.111 mg/kg	0.053 mg/kg	
74-87-3	Chloromethane			not detected	0.046 mg/kg	0.053 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.053 mg/kg	0.053 mg/kg	
74-83-9	Bromomethane			not detected	0.055 mg/kg	0.053 mg/kg	
75-00-3	Chloroethane			not detected	0.047 mg/kg	0.053 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.090 mg/kg	0.053 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.082 mg/kg	0.053 mg/kg	
67-64-1	Acetone			not detected	0.087 mg/kg	0.053 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.072 mg/kg	0.053 mg/kg	
75-09-2	Methylene Chloride			not detected	0.069 mg/kg	0.053 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.063 mg/kg	0.053 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.062 mg/kg	0.053 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.035 mg/kg	0.106 mg/kg	
78-93-3	2-Butanone			not detected	0.076 mg/kg	0.053 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.062 mg/kg	0.053 mg/kg	
67-66-3	Chloroform			not detected	0.079 mg/kg	0.053 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.067 mg/kg	0.053 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.066 mg/kg	0.053 mg/kg	
71-43-2	Benzene			not detected	0.061 mg/kg	0.053 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.048 mg/kg	0.053 mg/kg	
79-01-6	Trichloroethene			not detected	0.057 mg/kg	0.053 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.062 mg/kg	0.053 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.051 mg/kg	0.053 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.065 mg/kg	0.053 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.040 mg/kg	0.053 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.057 mg/kg	0.053 mg/kg	
108-88-3	Toluene			not detected	0.076 mg/kg	0.053 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.048 mg/kg	0.053 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.054 mg/kg	0.053 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.070 mg/kg	0.053 mg/kg	
591-78-6	2-Hexanone			not detected	0.050 mg/kg	0.053 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.049 mg/kg	0.053 mg/kg	
108-90-7	Chlorobenzene			not detected	0.069 mg/kg	0.053 mg/kg	
100-41-4	Ethylbenzene			not detected	0.073 mg/kg	0.053 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.074 mg/kg	0.053 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.139 mg/kg	0.106 mg/kg	
1330-20-7	o-Xylene			not detected	0.066 mg/kg	0.053 mg/kg	
100-42-5	Styrene			not detected	0.057 mg/kg	0.053 mg/kg	
75-25-2	Bromoform			not detected	0.043 mg/kg	0.053 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.057 mg/kg	0.053 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.062 mg/kg	0.053 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.060 mg/kg	0.053 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.063 mg/kg	0.053 mg/kg	
91-20-3	Naphthalene			not detected	0.066 mg/kg	0.053 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

312 P16 PIPE+250

Lab Name. FMETL NJDEP # 13461

Project: _____ Case No.. MW Location BLDG SDG No.. 10391

Matrix (soil/water) SOIL Lab Sample ID: 1039103

Sample wt/vol. 11.2 (g/ml) G Lab File ID: VA7444.D

Level (low/med) MED Date Received: 9/14/2010

% Moisture not dec 16 Date Analyzed 9/15/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 10

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

Number TICs found 0

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File **VA7445.D**
 Operator **ROBERTS**
 Date Acquired **15 Sep 2010 6:33 pm**

Sample Name **1039104**
 Field ID **812-P17 PIPE +265'**
 Sample Multiplier **0.104**

Sample Weight **11.29 g**
 Percent Solids **84.9 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.455 mg/kg	1.043 mg/kg	
107131	Acrylonitrile			not detected	0.224 mg/kg	0.522 mg/kg	
75650	tert-Butyl alcohol			not detected	0.429 mg/kg	0.522 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.033 mg/kg	0.052 mg/kg	
108203	Di-isopropyl ether			not detected	0.040 mg/kg	0.052 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.109 mg/kg	0.052 mg/kg	
74-87-3	Chloromethane			not detected	0.045 mg/kg	0.052 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.052 mg/kg	0.052 mg/kg	
74-83-9	Bromomethane			not detected	0.054 mg/kg	0.052 mg/kg	
75-00-3	Chloroethane			not detected	0.046 mg/kg	0.052 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.089 mg/kg	0.052 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.080 mg/kg	0.052 mg/kg	
67-64-1	Acetone			not detected	0.086 mg/kg	0.052 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.071 mg/kg	0.052 mg/kg	
75-09-2	Methylene Chloride			not detected	0.068 mg/kg	0.052 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.062 mg/kg	0.052 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.061 mg/kg	0.052 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.034 mg/kg	0.104 mg/kg	
78-93-3	2-Butanone			not detected	0.074 mg/kg	0.052 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.061 mg/kg	0.052 mg/kg	
67-66-3	Chloroform			not detected	0.077 mg/kg	0.052 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.066 mg/kg	0.052 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.065 mg/kg	0.052 mg/kg	
71-43-2	Benzene			not detected	0.059 mg/kg	0.052 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.047 mg/kg	0.052 mg/kg	
79-01-6	Trichloroethene			not detected	0.056 mg/kg	0.052 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.061 mg/kg	0.052 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.050 mg/kg	0.052 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.064 mg/kg	0.052 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.040 mg/kg	0.052 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.056 mg/kg	0.052 mg/kg	
108-88-3	Toluene			not detected	0.074 mg/kg	0.052 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.047 mg/kg	0.052 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.053 mg/kg	0.052 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.069 mg/kg	0.052 mg/kg	
591-78-6	2-Hexanone			not detected	0.049 mg/kg	0.052 mg/kg	
126-48-1	Dibromochloromethane			not detected	0.048 mg/kg	0.052 mg/kg	
108-90-7	Chlorobenzene			not detected	0.068 mg/kg	0.052 mg/kg	
100-41-4	Ethylbenzene			not detected	0.072 mg/kg	0.052 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.073 mg/kg	0.052 mg/kg	
1330-20-7	m+p-Xylenes			not detected	0.137 mg/kg	0.104 mg/kg	
1330-20-7	o-Xylene			not detected	0.065 mg/kg	0.052 mg/kg	
100-42-5	Styrene			not detected	0.056 mg/kg	0.052 mg/kg	
75-25-2	Bromoform			not detected	0.042 mg/kg	0.052 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.056 mg/kg	0.052 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.061 mg/kg	0.052 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.058 mg/kg	0.052 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.062 mg/kg	0.052 mg/kg	
91-20-3	Naphthalene			not detected	0.065 mg/kg	0.052 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID

312-P17 PIPE+265

Lab Name FMETL NJDEP # 13461

Project: _____ Case No. MW Location: BLDG SDG No. 10391

Matrix: (soil/water) SOIL Lab Sample ID: 1039104

Sample wt/vol: 11.3 (g/ml) G Lab File ID: VA7445 D

Level: (low/med) MED Date Received: 9/14/2010

% Moisture: not dec. 15.1 Date Analyzed: 9/15/2010

GC Column Rtx-VMS ID. 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO	COMPOUND NAME	RT	EST CONC	Q

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

Data File **VA7447.D**
 Operator **ROBERTS**
 Date Acquired **15 Sep 2010 7:34 pm**

Sample Name **1039105**
 Field ID **812 DUPLICATE**
 Sample Multiplier **0.112**

Sample Weight **11.10 g**
 Percent Solids **80.5 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	MDL	RL	Qualifiers
107028	Acrolein			not detected	0.488 mg/kg	1.119 mg/kg	
107131	Acrylonitrile			not detected	0.241 mg/kg	0.560 mg/kg	
75650	tert-Butyl alcohol			not detected	0.460 mg/kg	0.560 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	0.036 mg/kg	0.056 mg/kg	
108203	Di-isopropyl ether			not detected	0.043 mg/kg	0.056 mg/kg	
75718	Dichlorodifluoromethane			not detected	0.116 mg/kg	0.056 mg/kg	
74-87-3	Chloromethane			not detected	0.048 mg/kg	0.056 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.056 mg/kg	0.056 mg/kg	
74-83-9	Bromomethane			not detected	0.058 mg/kg	0.056 mg/kg	
75-00-3	Chloroethane			not detected	0.049 mg/kg	0.056 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	0.095 mg/kg	0.056 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	0.086 mg/kg	0.056 mg/kg	
67-64-1	Acetone			not detected	0.092 mg/kg	0.056 mg/kg	
75-15-0	Carbon Disulfide			not detected	0.076 mg/kg	0.056 mg/kg	
75-09-2	Methylene Chloride			not detected	0.073 mg/kg	0.056 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	0.066 mg/kg	0.056 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	0.065 mg/kg	0.056 mg/kg	
108-05-4	Vinyl Acetate			not detected	0.037 mg/kg	0.112 mg/kg	
78-93-3	2-Butanone			not detected	0.079 mg/kg	0.056 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	0.065 mg/kg	0.056 mg/kg	
67-66-3	Chloroform			not detected	0.083 mg/kg	0.056 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	0.071 mg/kg	0.056 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.069 mg/kg	0.056 mg/kg	
71-43-2	Benzene	10.59	19946	0.05 mg/kg	0.064 mg/kg	0.056 mg/kg	J
107-06-2	1,2-Dichloroethane			not detected	0.050 mg/kg	0.056 mg/kg	
79-01-6	Trichloroethene			not detected	0.060 mg/kg	0.056 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	0.065 mg/kg	0.056 mg/kg	
75-27-4	Bromodichloromethane			not detected	0.054 mg/kg	0.056 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	0.068 mg/kg	0.056 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	0.043 mg/kg	0.056 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	0.060 mg/kg	0.056 mg/kg	
108-88-3	Toluene	13.32	345007	0.82 mg/kg	0.079 mg/kg	0.056 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	0.050 mg/kg	0.056 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	0.057 mg/kg	0.056 mg/kg	
127-18-4	Tetrachloroethene			not detected	0.074 mg/kg	0.056 mg/kg	
591-78-6	2-Hexanone			not detected	0.053 mg/kg	0.056 mg/kg	
126-48-1	Di-bromochloromethane			not detected	0.051 mg/kg	0.056 mg/kg	
108-90-7	Chlorobenzene			not detected	0.073 mg/kg	0.056 mg/kg	
100-41-4	Ethylbenzene	15.81	411605	0.91 mg/kg	0.077 mg/kg	0.056 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	0.078 mg/kg	0.056 mg/kg	
1330-20-7	m+p-Xylenes	16.01	738752	3.69 mg/kg	0.147 mg/kg	0.112 mg/kg	
1330-20-7	o-Xylene	16.86	543845	1.41 mg/kg	0.069 mg/kg	0.056 mg/kg	
100-42-5	Styrene			not detected	0.060 mg/kg	0.056 mg/kg	
75-25-2	Bromoform			not detected	0.045 mg/kg	0.056 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	0.060 mg/kg	0.056 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	0.065 mg/kg	0.056 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	0.063 mg/kg	0.056 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	0.066 mg/kg	0.056 mg/kg	
91-20-3	Naphthalene	24.55	267998	0.79 mg/kg	0.069 mg/kg	0.056 mg/kg	

*Results between MDL and RL are estimated values

*Higher of PQL's and Ground Water Quality Criteria as per N.J.A.C. 7:9C 07Nov2005

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between RL and MDL

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

RL = Reporting Limit

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

312-P15 PIPE+235

Lab Name: FMETL NJDEP # 13461

Project: _____ Case No. MW Location: BLDG SDG No 10391

Matrix: (soil/water) SOIL Lab Sample ID 1039102

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7446.D

Level: (low/med) MED Date Received: 9/14/2010

% Moisture: not dec 19.2 Date Analyzed: 9/15/2010

GC Column Rtx-VMS ID: 0.25 (mm) Dilution Factor 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 15 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC	Q
1.	Alkane: Branched	10.14	5900	J
2.	Alkane: Branched	10.70	6600	J
3.	Alkane: Cyclic	11.70	8800	J
4.	Alkane: Branched	12.38	7500	J
5.	Alkane: Cyclic	13.10	8500	J
6.	Alkane: Branched	14.87	5800	J
7.	Alkane: Branched	15.10	5900	J
8.	C3 alkyl benzene	17.55	6100	J
9.	Alkane: Straight-Chain	18.47	7800	J
10.	C3 alkyl benzene	18.51	15000	J
11.	C3 alkyl benzene	18.57	6100	J
12.	C3 alkyl benzene	18.68	9600	J
13.	C3 alkyl benzene	19.43	20000	J
14.	C3 alkyl benzene	20.28	5700	J
15.	C4 alkyl benzene	20.70	15000	J

TPHC

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

Client: U.S. Army
 DPW. SELFM-PW-EV
 Bldg 173
 Ft Monmouth, NJ 07703

Project #: 10-179124
Location: BLDG 812
ECP:
Work Order:

Analysis: OQA-QAM-025
Matrix:
Inst. ID: GC TPHC INST #1
Column Type: RTX-5, 0.32mm ID, 30 m
Injection Vol.: 1 uL

Date Received: 14-Sep-10
Date Extracted: 15-Sep-10
Extraction Method: Shake
Analyst: Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Data	Qualifiers
MB09151001	MB09151001	1.00	15.00	100.00	23	333	not detected		
LCS09151001	LCS09151001	1.00	15.00	100.00	23	333	1172.03		
1039101	812-P14 PIPE +220'	1.00	15.16	84.9	27	388	not detected		
1039102	812-P15 PIPE +235'	1.00	15.28	80.8	28	405	not detected		
1039103	812-P16 PIPE +250'	1.00	15.13	84.0	28	393	not detected		
1039104	812-P17 PIPE +265'	1.00	15.12	84.9	27	390	not detected		
1039105	812 DUPLICATE	1.00	15.13	80.5	29	411	not detected		

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Result exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Result from dilution

ND = not detected

000047

LEAD (SOIL)

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 10391
Sample Received: NA
Sample Matrix: Aqueous
Sample Prepared: 09/15/10

Site: Bldg. 812

Field ID: Method Blank

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/L)

Element	Date of Analysis	Result (mg/L)	R.L. (mg/L)	MDL (mg/L)
Lead	09/15/10	0.019	0.005	0.0026

ND = Not Detected, NLE = No Limit Established,
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & R.L.

000056

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1039101
Sample Received: 09/14/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P14, Pipe +220'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/15/10	16.8	400	0.930	0.480

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000057

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1039102
Sample Received: 09/14/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P15, Pipe +235'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/15/10	9.31	400	0.980	0.510

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000058

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1039103
Sample Received: 09/14/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P16, Pipe +250'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/15/10	10.5	400	0.880	0.460

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000059

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1039104
Sample Received 09/14/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/P17, Pipe +265'

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/15/10	16.8	400	0.850	0.440

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000060

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1039105
Sample Received: 09/15/10
Sample Matrix: Soil

Site: Bldg. 812

Field ID: 812/Duplicate

Method of Analysis: E.P.A SW-846, Method 6010B

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	09/15/10	9.69	400	0.940	0.490

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D June 2, 2008

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000061

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 data 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.	☒

Laboratory Manager or Environmental Consultant's Signature

Date: 10/20/10

[Handwritten Signature]

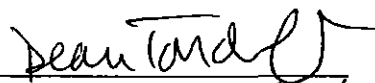
Laboratory Certification # 13461

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

000069

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.


Dean Tardiff
Laboratory Manager 10/20/11

000070

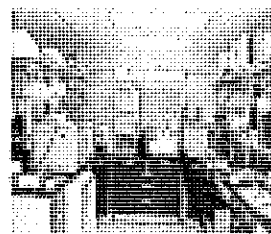
FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

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

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461



ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION Fort Monmouth, New Jersey PROJECT: 10-179124

Bldg. /812

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
812-PX1 NE Wall	1045101	Soil	21-Oct-10 09:50	10/21/10
812-PX2 SE Wall	1045102	Soil	21-Oct-10 10:50	10/21/10
812-PX3 SW Wall	1045103	Soil	21-Oct-10 13:00	10/21/10
812-PX4 Bottom	1045104	Soil	21-Oct-10 14:00	10/21/10
812-Duplicate	1045105	Soil	21-Oct-10 13:00	10/21/10
812-Composite	1045106	Soil	21-Oct-10 14:20	10/21/10
Trip Blank	1045107	Methanol	21-Oct-10	10/21/10

ANALYSIS:
FORT MONMOUTH ENVIRONMENTAL TESTING LAB
VOA+15, TPHC, TOTAL LEAD
%SOLIDS


Dean Tardiff/Date: 10/29/10
Laboratory Manager

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CHAIN OF CUSTODY

000001



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

Tel (732)532-6352 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil

NJDEP Certification #13461

Chain of Custody Record

[illegible]

SAMPLE RECEIPT FORM

Date Received: 10-21-10

Work Order ID#: 10451

Site/Proj. Name: Bldg 812

Cooler Temp (°C): 4.5°C

Received By: J. Versquera
(Print name)

Sign: [Signature]

Check the appropriate box

1. Did the samples come in a cooler?	<u>yes</u>	no	n/a
2. Were samples rec'd in good condition?	<u>yes</u>	no	
3. Was the chain of custody filled out correctly and legibly?	<u>yes</u>	no	
4. Was the chain of custody signed in the appropriate place?	<u>yes</u>	no	
5. Did the labels agree with the chain of custody?	<u>yes</u>	no	
6. Were the correct containers/preservatives used?	<u>yes</u>	no	
7. Was a sufficient amount of sample supplied?	<u>yes</u>	no	
8. Were air bubbles present in VOA vials?	<u>yes</u>	no	<u>n/a</u>
9. Were samples received on ice?	<u>yes</u>	no	
10. Were analyze-immediately tests perform within 15 minutes	<u>yes</u>	no	<u>n/a</u>

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments: _____

000003

GPS POINTS

000004

U.S. ARMY - FT. MONMOUTH, NJ

BUILDING 812 - Former Fueling Dispenser Tank Area

SOIL SAMPLING GPS POSITIONS & COORDINATES

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

(IN US SURVEY FEET)

SAMPLE POINTS

<u>POSITION/DESCRIPTION</u>	<u>Y COORDINATE (NORTHING)</u>	<u>X COORDINATE (EASTING)</u>
812 PX1 NE SIDEWALL	537967.263	620693.729
812 PX2 SE SIDEWALL	537948.783	620709.701
812 PX3 SW SIDEWALL	537945.838	620681.331
812 PX4 BOTTOM	537953.921	620695.622
812-PX5 NE WALL	537967.605	620719.08

000005

FIELD DUPLICATE

000006

Field Duplicate Identification

Lab ID: 10451

Site: Bldg. 812

The Field Duplicate was performed on 812-PX3/SW Wall (1045103.)

000007

METHOD SUMMARY

000008

Method Summary

EPA SW-846 Method 8260

Gas Chromatographic Determination of Volatiles in Methanol

A 10-gram volume of soil is combined with 25-ml of Methanol and surrogates in the field. Internal standards are added and the sample is placed on a purge and trap concentrator. The sample is purged and desorbed into a GC/MS system. Volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

EPA SW-846 Method 8270

Gas Chromatographic Determination of Semi-volatiles in Soil

Surrogates are added to a 10-gram soil sample that has been dried with sodium sulfate. The sample is then extracted using a Soxhlet extractor. The extract is concentrated to 1 ml. Internal standards are added and the sample is injected into a GC/MS system. Semi-volatiles are identified and quantitated. The final concentration is calculated using soil weight, percent moisture and concentration.

NJDEP Method OQA-QAM-025 02/08

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml 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 1-ml auto-sampler 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 moisture, sample weight and concentration.

000009

CONFORMANCE/ NON-CONFORMANCE SUMMARY

000010

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMATIndicate
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 Criteria Yes
 - b. DFTPP Meet Criteria N/A
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 Criteria Yes
 - b. System Performance Check Compounds Meet Criteria Yes
7. Blank Contamination – If yes, List compounds and concentrations in each blank: No
 - a. VOA Fraction _____
 - b. B/N Fraction _____
 - c. Acid Fraction _____
8. Surrogate Recoveries Meet Criteria Yes

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"?
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria No
(If not met, list those compounds and their recoveries, which fall outside the acceptable range)
 - a. VOA Fraction See ms/msd report for notes
 - b. B/N Fraction _____
 - c. Acid Fraction _____

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

Indicate
Yes, No, N/A

10. Internal Standard Area/Retention Time Shift Meet Criteria
(If not met, list those compounds, which fall outside the acceptable range)

Yes

- a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

11. Extraction Holding Time Met

N/A

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: _____

Additional Comments:

Laboratory Manager: Seem Tany

Date: 10/29/10

Ant J

10/25/10

000012

10451 TPHC

TPHC Conformance/Non-conformance Summary Report

	Indicate Yes, No, N/A
1. Method Detection Limits provided.	<u>Yes</u>
2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank. _____ _____	<u>No</u>
3. Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
4. Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
5. IR Spectra submitted for standards, blanks and samples.	<u>N/A</u>
6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	<u>N/A</u>
7. Analysis holding time met. (If not met, list number of days exceeded for each sample). _____ _____	<u>Yes</u>

Additional comments: _____

Laboratory Manager

Date

Deem Terry
10/25/10

000013

**FLAA/GFAA ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY
REPORT**

Lab ID: 10451
Method: 3112B
SW846 7420

Indicate
Yes, No, N/A

1.	Initial Calibration has a correlation coefficient of 0.995 or higher	-----✓-----
2.	Initial and Continuing Calibration Verifications Meet Criteria _____ _____	-----✓-----
3.	Laboratory Control Samples Meet Criteria _____ _____	-----✓-----
4.	Preparation, Method and Calibration Blank Contamination If yes, list compounds and concentrations in each blank _____ _____ _____	-----✓-----
5.	Spike Sample Recoveries Meet Criteria <u>1045101</u> _____ _____	-----✓-----
6.	Duplicates Meet Criteria <u>1045101</u> _____ _____	-----✓-----
7.	Analysis Holding Time Met If not met, list number of days exceeded for each sample _____ _____	-----✓-----
8.	Over range samples are diluted within the calibration. List samples that exceed high standard and are flagged with an "E" (estimate). _____ _____ _____	-----N/A-----

Additional Comments _____

Laboratory Manager: _____

Sam Tence

Date: _____

10/29/10

000014

LABORATORY CHRONICLE

000015

Laboratory Chronicle

Lab ID: 10451

Site: 812

	Date	Hold Time
Date Sampled	10/21/10	NA
Receipt/Refrigeration	10/21/10	NA

Analyses

1. Volatiles	10/22/10	14 Days
2. TPHC	10/22/10	14 Days
3. LEAD	10/22/10	6 Months

000016

VOLATILE ORGANICS

000017

**US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461**

Definition of Qualifiers

- U:** The compound was analyzed for but not detected.
- B:** Indicates that the compound was found in the associated method blank as well as in the sample.
- J:** Indicates an estimated value. This flag is used:
- (1)** When the mass spec and retention time data indicate the presence of a compound however the result is less than the reporting limit but greater than the MDL.
 - (2)** When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D:** This flag is used to identify all compounds (target or TIC) that required a dilution.
- E:** Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N:** This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

000018

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

Data File **VA7875.D**
 Operator **ROBERTS**
 Date Acquired **22 Oct 2010 4:31 pm**

Sample Name **MB10221001**
 Field ID **METHOD 8260 10/22/10**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL		Qualifiers
					Level (mg/kg)*					
107028	Acrolein			not detected	0.5	0.436	mg/kg	1,000	mg/kg	
107131	Acrylonitrile			not detected	0.9	0.215	mg/kg	1,000	mg/kg	
75650	tert-Butyl alcohol			not detected	1400	0.411	mg/kg	1,000	mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110	0.032	mg/kg	0.100	mg/kg	
108203	Di-isopropyl ether			not detected	NLE	0.038	mg/kg	0.100	mg/kg	
75718	Dichlorodifluoromethane			not detected	490	0.104	mg/kg	0.104	mg/kg	
74-87-3	Chloromethane			not detected	4	0.043	mg/kg	0.100	mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7	0.050	mg/kg	0.100	mg/kg	
74-83-9	Bromomethane			not detected	25	0.052	mg/kg	0.100	mg/kg	
75-00-3	Chloroethane			not detected	220	0.044	mg/kg	0.100	mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000	0.085	mg/kg	0.100	mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11	0.077	mg/kg	0.100	mg/kg	
67-64-1	Acetone			not detected	70000	0.082	mg/kg	0.100	mg/kg	
75-15-0	Carbon Disulfide			not detected	7800	0.068	mg/kg	0.100	mg/kg	
75-09-2	Methylene Chloride			not detected	34	0.065	mg/kg	0.100	mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.059	mg/kg	0.100	mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8	0.058	mg/kg	0.100	mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE	0.033	mg/kg	0.100	mg/kg	
78-93-3	2-Butanone			not detected	3100	0.071	mg/kg	0.100	mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.058	mg/kg	0.100	mg/kg	
67-66-3	Chloroform			not detected	0.6	0.074	mg/kg	0.100	mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290	0.063	mg/kg	0.100	mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6	0.062	mg/kg	0.100	mg/kg	
71-43-2	Benzene			not detected	2	0.057	mg/kg	0.100	mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9	0.045	mg/kg	0.100	mg/kg	
79-01-6	Trichloroethene			not detected	7	0.054	mg/kg	0.100	mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2	0.058	mg/kg	0.100	mg/kg	
75-27-4	Bromodichloromethane			not detected	1	0.048	mg/kg	0.100	mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.061	mg/kg	0.100	mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.038	mg/kg	0.100	mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.054	mg/kg	0.100	mg/kg	
108-88-3	Toluene			not detected	6300	0.071	mg/kg	0.100	mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.045	mg/kg	0.100	mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2	0.051	mg/kg	0.100	mg/kg	
127-18-4	Tetrachloroethene			not detected	2	0.066	mg/kg	0.100	mg/kg	
591-78-6	2-Hexanone			not detected	NLE	0.047	mg/kg	0.100	mg/kg	
126-48-1	Dibromochloromethane			not detected	3	0.046	mg/kg	0.100	mg/kg	
108-90-7	Chlorobenzene			not detected	510	0.065	mg/kg	0.100	mg/kg	
100-41-4	Ethylbenzene			not detected	7800	0.069	mg/kg	0.100	mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.070	mg/kg	0.100	mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200	0.131	mg/kg	0.200	mg/kg	
1330-20-7	o-Xylene			not detected	1200	0.062	mg/kg	0.100	mg/kg	
100-42-5	Styrene			not detected	90	0.054	mg/kg	0.100	mg/kg	
75-25-2	Bromoform			not detected	81	0.040	mg/kg	0.100	mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.054	mg/kg	0.100	mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.058	mg/kg	0.100	mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5	0.056	mg/kg	0.100	mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.059	mg/kg	0.100	mg/kg	
91-20-3	Naphthalene			not detected	6	0.062	mg/kg	0.100	mg/kg	

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

MB10221001

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10451
Matrix: (soil/water) SOIL Lab Sample ID: MB10221001
Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7875.D
Level: (low/med) MED Date Received: 10/21/2010
% Moisture: not dec. 0 Date Analyzed: 10/22/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File **VA7877.D**
 Operator **ROBERTS**
 Date Acquired **22 Oct 2010 5:33 pm**

Sample Name **1045101**
 Field ID **812 PX-1 NE WALL**
 Sample Multiplier **0.113**

Sample Weight **10.92 g**
 Percent Solids **80.7 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5	0.495	mg/kg	1.135	mg/kg
107131	Acrylonitrile			not detected	0.9	0.244	mg/kg	1.135	mg/kg
75650	tert-Butyl alcohol			not detected	1400	0.466	mg/kg	1.135	mg/kg
1634044	Methyl-tert-Butyl ether			not detected	110	0.036	mg/kg	0.113	mg/kg
108203	Di-isopropyl ether			not detected	NLE	0.043	mg/kg	0.113	mg/kg
75718	Dichlorodifluoromethane			not detected	490	0.118	mg/kg	0.118	mg/kg
74-87-3	Chloromethane			not detected	4	0.049	mg/kg	0.113	mg/kg
75-01-4	Vinyl Chloride			not detected	0.7	0.057	mg/kg	0.113	mg/kg
74-83-9	Bromomethane			not detected	25	0.059	mg/kg	0.113	mg/kg
75-00-3	Chloroethane			not detected	220	0.050	mg/kg	0.113	mg/kg
75-69-4	Trichlorofluoromethane			not detected	23000	0.096	mg/kg	0.113	mg/kg
75-35-4	1,1-Dichloroethene			not detected	11	0.087	mg/kg	0.113	mg/kg
67-64-1	Acetone			not detected	70000	0.093	mg/kg	0.113	mg/kg
75-15-0	Carbon Disulfide			not detected	7800	0.077	mg/kg	0.113	mg/kg
75-09-2	Methylene Chloride			not detected	34	0.074	mg/kg	0.113	mg/kg
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.067	mg/kg	0.113	mg/kg
75-35-3	1,1-Dichloroethane			not detected	8	0.066	mg/kg	0.113	mg/kg
108-05-4	Vinyl Acetate			not detected	NLE	0.037	mg/kg	0.113	mg/kg
78-93-3	2-Butanone			not detected	3100	0.081	mg/kg	0.113	mg/kg
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.066	mg/kg	0.113	mg/kg
67-66-3	Chloroform			not detected	0.6	0.084	mg/kg	0.113	mg/kg
75-55-6	1,1,1-Trichloroethane			not detected	290	0.071	mg/kg	0.113	mg/kg
56-23-5	Carbon Tetrachloride			not detected	0.6	0.070	mg/kg	0.113	mg/kg
71-43-2	Benzene			not detected	2	0.065	mg/kg	0.113	mg/kg
107-06-2	1,2-Dichloroethane			not detected	0.9	0.051	mg/kg	0.113	mg/kg
79-01-6	Trichloroethene			not detected	7	0.061	mg/kg	0.113	mg/kg
78-87-5	1,2-Dichloropropane			not detected	2	0.066	mg/kg	0.113	mg/kg
75-27-4	Bromodichloromethane			not detected	1	0.054	mg/kg	0.113	mg/kg
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.069	mg/kg	0.113	mg/kg
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.043	mg/kg	0.113	mg/kg
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.061	mg/kg	0.113	mg/kg
108-88-3	Toluene			not detected	6300	0.081	mg/kg	0.113	mg/kg
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.051	mg/kg	0.113	mg/kg
79-00-5	1,1,2-Trichloroethane			not detected	2	0.058	mg/kg	0.113	mg/kg
127-18-4	Tetrachloroethene			not detected	2	0.075	mg/kg	0.113	mg/kg
591-78-6	2-Hexanone			not detected	NLE	0.053	mg/kg	0.113	mg/kg
126-48-1	Dibromochloromethane			not detected	3	0.052	mg/kg	0.113	mg/kg
108-90-7	Chlorobenzene			not detected	510	0.074	mg/kg	0.113	mg/kg
100-41-4	Ethylbenzene			not detected	7800	0.078	mg/kg	0.113	mg/kg
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.079	mg/kg	0.113	mg/kg
1330-20-7	m+p-Xylenes			not detected	1200	0.149	mg/kg	0.227	mg/kg
1330-20-7	o-Xylene			not detected	1200	0.070	mg/kg	0.113	mg/kg
100-42-5	Styrene			not detected	90	0.061	mg/kg	0.113	mg/kg
75-25-2	Bromoform			not detected	81	0.045	mg/kg	0.113	mg/kg
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.061	mg/kg	0.113	mg/kg
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.066	mg/kg	0.113	mg/kg
106-46-7	1,4-Dichlorobenzene			not detected	5	0.064	mg/kg	0.113	mg/kg
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.067	mg/kg	0.113	mg/kg
91-20-3	Naphthalene			not detected	6	0.070	mg/kg	0.113	mg/kg

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank
 E = Value above linear range
 D = Value from dilution
 PQL = Practical Quantitation Limit
 J = Estimated value, concentration lies between R.L. and M.D.L.

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

312-PX1 NE WALL

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10451
Matrix: (soil/water) SOIL Lab Sample ID: 1045101
Sample wt/vol: 10.9 (g/ml) G Lab File ID: VA7877.D
Level: (low/med) MED Date Received: 10/21/2010
% Moisture: not dec. 19.3 Date Analyzed: 10/22/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File **VA7878.D**
 Operator **ROBERTS**
 Date Acquired **22 Oct 2010 6:04 pm**

Sample Name **1045102**
 Field ID **812 PX-2 SE WALL**
 Sample Multiplier **0.112**

Sample Weight **10.79 g**
 Percent Solids **82.6 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5	0.489	mg/kg	1.122	mg/kg
107131	Acrylonitrile			not detected	0.9	0.241	mg/kg	1.122	mg/kg
75650	tert-Butyl alcohol			not detected	1400	0.461	mg/kg	1.122	mg/kg
1634044	Methyl-tert-Butyl ether			not detected	110	0.036	mg/kg	0.112	mg/kg
108203	Di-isopropyl ether			not detected	NLE	0.043	mg/kg	0.112	mg/kg
75718	Dichlorodifluoromethane			not detected	490	0.117	mg/kg	0.117	mg/kg
74-87-3	Chloromethane			not detected	4	0.048	mg/kg	0.112	mg/kg
75-01-4	Vinyl Chloride			not detected	0.7	0.056	mg/kg	0.112	mg/kg
74-83-9	Bromomethane			not detected	25	0.058	mg/kg	0.112	mg/kg
75-00-3	Chloroethane			not detected	220	0.049	mg/kg	0.112	mg/kg
75-69-4	Trichlorofluoromethane			not detected	23000	0.095	mg/kg	0.112	mg/kg
75-35-4	1,1-Dichloroethene			not detected	11	0.086	mg/kg	0.112	mg/kg
67-64-1	Acetone			not detected	70000	0.092	mg/kg	0.112	mg/kg
75-15-0	Carbon Disulfide			not detected	7800	0.076	mg/kg	0.112	mg/kg
75-09-2	Methylene Chloride			not detected	34	0.073	mg/kg	0.112	mg/kg
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.066	mg/kg	0.112	mg/kg
75-35-3	1,1-Dichloroethane			not detected	8	0.065	mg/kg	0.112	mg/kg
108-05-4	Vinyl Acetate			not detected	NLE	0.037	mg/kg	0.112	mg/kg
78-93-3	2-Butanone			not detected	3100	0.080	mg/kg	0.112	mg/kg
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.065	mg/kg	0.112	mg/kg
67-66-3	Chloroform			not detected	0.6	0.083	mg/kg	0.112	mg/kg
75-55-6	1,1,1-Trichloroethane			not detected	290	0.071	mg/kg	0.112	mg/kg
56-23-5	Carbon Tetrachloride			not detected	0.6	0.070	mg/kg	0.112	mg/kg
71-43-2	Benzene			not detected	2	0.064	mg/kg	0.112	mg/kg
107-06-2	1,2-Dichloroethane			not detected	0.9	0.050	mg/kg	0.112	mg/kg
79-01-6	Trichloroethene			not detected	7	0.061	mg/kg	0.112	mg/kg
78-87-5	1,2-Dichloropropane			not detected	2	0.065	mg/kg	0.112	mg/kg
75-27-4	Bromodichloromethane			not detected	1	0.054	mg/kg	0.112	mg/kg
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.068	mg/kg	0.112	mg/kg
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.043	mg/kg	0.112	mg/kg
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.061	mg/kg	0.112	mg/kg
108-88-3	Toluene			not detected	6300	0.080	mg/kg	0.112	mg/kg
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.050	mg/kg	0.112	mg/kg
79-00-5	1,1,2-Trichloroethane			not detected	2	0.057	mg/kg	0.112	mg/kg
127-18-4	Tetrachloroethene			not detected	2	0.074	mg/kg	0.112	mg/kg
591-78-6	2-Hexanone			not detected	NLE	0.053	mg/kg	0.112	mg/kg
126-48-1	Dibromochloromethane			not detected	3	0.052	mg/kg	0.112	mg/kg
108-90-7	Chlorobenzene			not detected	510	0.073	mg/kg	0.112	mg/kg
100-41-4	Ethylbenzene			not detected	7800	0.077	mg/kg	0.112	mg/kg
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.079	mg/kg	0.112	mg/kg
1330-20-7	m+p-Xylenes			not detected	1200	0.147	mg/kg	0.224	mg/kg
1330-20-7	o-Xylene			not detected	1200	0.070	mg/kg	0.112	mg/kg
100-42-5	Styrene			not detected	90	0.061	mg/kg	0.112	mg/kg
75-25-2	Bromoform			not detected	81	0.045	mg/kg	0.112	mg/kg
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.061	mg/kg	0.112	mg/kg
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.065	mg/kg	0.112	mg/kg
106-46-7	1,4-Dichlorobenzene			not detected	5	0.063	mg/kg	0.112	mg/kg
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.066	mg/kg	0.112	mg/kg
91-20-3	Naphthalene			not detected	6	0.070	mg/kg	0.112	mg/kg

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

000023

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812-PX2 SE WALL

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10451
Matrix: (soil/water) SOIL Lab Sample ID: 1045102
Sample wt/vol: 10.8 (g/ml) G Lab File ID: VA7878.D
Level: (low/med) MED Date Received: 10/21/2010
% Moisture: not dec. 17.4 Date Analyzed: 10/22/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File **VA7879.D**
 Operator **ROBERTS**
 Date Acquired **22 Oct 2010 6:35 pm**

Sample Name **1045103**
 Field ID **812 PX-3 SW WALL**
 Sample Multiplier **0.146**

Sample Weight **8.28 g**
 Percent Solids **82.6 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5	0.637	mg/kg	1.462	mg/kg
107131	Acrylonitrile			not detected	0.9	0.314	mg/kg	1.462	mg/kg
75650	tert-Butyl alcohol			not detected	1400	0.601	mg/kg	1.462	mg/kg
1634044	Methyl-tert-Butyl ether			not detected	110	0.047	mg/kg	0.146	mg/kg
108203	Di-isopropyl ether			not detected	NLE	0.056	mg/kg	0.146	mg/kg
75718	Dichlorodifluoromethane			not detected	490	0.152	mg/kg	0.152	mg/kg
74-87-3	Chloromethane			not detected	4	0.063	mg/kg	0.146	mg/kg
75-01-4	Vinyl Chloride			not detected	0.7	0.073	mg/kg	0.146	mg/kg
74-83-9	Bromomethane			not detected	25	0.076	mg/kg	0.146	mg/kg
75-00-3	Chloroethane			not detected	220	0.064	mg/kg	0.146	mg/kg
75-69-4	Trichlorofluoromethane			not detected	23000	0.124	mg/kg	0.146	mg/kg
75-35-4	1,1-Dichloroethene			not detected	11	0.113	mg/kg	0.146	mg/kg
67-64-1	Acetone			not detected	70000	0.120	mg/kg	0.146	mg/kg
75-15-0	Carbon Disulfide			not detected	7800	0.099	mg/kg	0.146	mg/kg
75-09-2	Methylene Chloride			not detected	34	0.095	mg/kg	0.146	mg/kg
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.086	mg/kg	0.146	mg/kg
75-35-3	1,1-Dichloroethane			not detected	8	0.085	mg/kg	0.146	mg/kg
108-05-4	Vinyl Acetate			not detected	NLE	0.048	mg/kg	0.146	mg/kg
78-93-3	2-Butanone			not detected	3100	0.104	mg/kg	0.146	mg/kg
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.085	mg/kg	0.146	mg/kg
67-66-3	Chloroform			not detected	0.6	0.108	mg/kg	0.146	mg/kg
75-55-6	1,1,1-Trichloroethane			not detected	290	0.092	mg/kg	0.146	mg/kg
56-23-5	Carbon Tetrachloride			not detected	0.6	0.091	mg/kg	0.146	mg/kg
71-43-2	Benzene			not detected	2	0.083	mg/kg	0.146	mg/kg
107-06-2	1,2-Dichloroethane			not detected	0.9	0.066	mg/kg	0.146	mg/kg
79-01-6	Trichloroethene			not detected	7	0.079	mg/kg	0.146	mg/kg
78-87-5	1,2-Dichloropropane			not detected	2	0.085	mg/kg	0.146	mg/kg
75-27-4	Bromodichloromethane			not detected	1	0.070	mg/kg	0.146	mg/kg
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.089	mg/kg	0.146	mg/kg
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.056	mg/kg	0.146	mg/kg
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.079	mg/kg	0.146	mg/kg
108-88-3	Toluene			not detected	6300	0.104	mg/kg	0.146	mg/kg
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.066	mg/kg	0.146	mg/kg
79-00-5	1,1,2-Trichloroethane			not detected	2	0.075	mg/kg	0.146	mg/kg
127-18-4	Tetrachloroethene			not detected	2	0.097	mg/kg	0.146	mg/kg
591-78-6	2-Hexanone			not detected	NLE	0.069	mg/kg	0.146	mg/kg
126-48-1	Dibromochloromethane			not detected	3	0.067	mg/kg	0.146	mg/kg
108-90-7	Chlorobenzene			not detected	510	0.095	mg/kg	0.146	mg/kg
100-41-4	Ethylbenzene			not detected	7800	0.101	mg/kg	0.146	mg/kg
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.102	mg/kg	0.146	mg/kg
1330-20-7	m+p-Xylenes			not detected	1200	0.192	mg/kg	0.292	mg/kg
1330-20-7	o-Xylene			not detected	1200	0.091	mg/kg	0.146	mg/kg
100-42-5	Styrene			not detected	90	0.079	mg/kg	0.146	mg/kg
75-25-2	Bromoform			not detected	81	0.058	mg/kg	0.146	mg/kg
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.079	mg/kg	0.146	mg/kg
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.085	mg/kg	0.146	mg/kg
106-46-7	1,4-Dichlorobenzene			not detected	5	0.082	mg/kg	0.146	mg/kg
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.086	mg/kg	0.146	mg/kg
91-20-3	Naphthalene	24.54	78693	0.45 mg/kg	6	0.091	mg/kg	0.146	mg/kg

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank
 E = Value above linear range
 D = Value from dilution
 PQL = Practical Quantitation Limit
 J = Estimated value, concentration lies between R.L. and M.D.L.

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

12-PX3 SW WALL

Lab Name: FMETL NJDEP # 13461
 Project: _____ Case No.: MW Location: _____ SDG No.: 10451
 Matrix: (soil/water) SOIL Lab Sample ID: 1045103
 Sample wt/vol: 8.3 (g/ml) G Lab File ID: VA7879.D
 Level: (low/med) MED Date Received: 10/21/2010
 % Moisture: not dec. 17.4 Date Analyzed: 10/22/2010
 GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

(ug/L or ug/Kg) UG/KG

Number TICs found: 15

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Branched	7.58	4100	J
2.	Alkane: Branched	7.92	2800	J
3.	Alkane: Cyclic	9.18	3000	J
4.	Alkane: Branched	9.86	5400	J
5.	Alkane: Branched	10.03	2500	J
6.	Alkane: Branched	10.12	9600	J
7.	Alkane: Branched	10.68	2700	J
8.	Alkane: Cyclic	11.68	3200	J
9.	Alkane: Branched	12.37	3600	J
10.	Alkane: Branched	12.60	3600	J
11.	Alkane: Branched	14.86	2800	J
12.	Alkane: Branched	17.51	3200	J
13.	C4 alkyl benzene	21.43	2700	J
14.	1H-Indene-dihydro-methyl-	23.34	2800	J
15.	1H-Indene-dihydro-dimethyl-	23.87	2300	J

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

Data File **VA7880.D**
 Operator **ROBERTS**
 Date Acquired **22 Oct 2010 7:06 pm**

Sample Name **1045104**
 Field ID **812 PX-4 BOTTOM**
 Sample Multiplier **0.107**

Sample Weight **11.65 g**
 Percent Solids **80.5 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5	0.465 mg/kg	1.066 mg/kg		
107131	Acrylonitrile			not detected	0.9	0.229 mg/kg	1.066 mg/kg		
75650	tert-Butyl alcohol			not detected	1400	0.438 mg/kg	1.066 mg/kg		
1634044	Methyl-tert-Butyl ether			not detected	110	0.034 mg/kg	0.107 mg/kg		
108203	Di-isopropyl ether			not detected	NLE	0.041 mg/kg	0.107 mg/kg		
75718	Dichlorodifluoromethane			not detected	490	0.111 mg/kg	0.111 mg/kg		
74-87-3	Chloromethane			not detected	4	0.046 mg/kg	0.107 mg/kg		
75-01-4	Vinyl Chloride			not detected	0.7	0.053 mg/kg	0.107 mg/kg		
74-83-9	Bromomethane			not detected	25	0.055 mg/kg	0.107 mg/kg		
75-00-3	Chloroethane			not detected	220	0.047 mg/kg	0.107 mg/kg		
75-69-4	Trichlorofluoromethane			not detected	23000	0.091 mg/kg	0.107 mg/kg		
75-35-4	1,1-Dichloroethene			not detected	11	0.082 mg/kg	0.107 mg/kg		
67-64-1	Acetone			not detected	70000	0.087 mg/kg	0.107 mg/kg		
75-15-0	Carbon Disulfide			not detected	7800	0.073 mg/kg	0.107 mg/kg		
75-09-2	Methylene Chloride			not detected	34	0.069 mg/kg	0.107 mg/kg		
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.063 mg/kg	0.107 mg/kg		
75-35-3	1,1-Dichloroethane			not detected	8	0.062 mg/kg	0.107 mg/kg		
108-05-4	Vinyl Acetate			not detected	NLE	0.035 mg/kg	0.107 mg/kg		
78-93-3	2-Butanone			not detected	3100	0.076 mg/kg	0.107 mg/kg		
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.062 mg/kg	0.107 mg/kg		
67-66-3	Chloroform			not detected	0.6	0.079 mg/kg	0.107 mg/kg		
75-55-6	1,1,1-Trichloroethane			not detected	290	0.067 mg/kg	0.107 mg/kg		
56-23-5	Carbon Tetrachloride			not detected	0.6	0.066 mg/kg	0.107 mg/kg		
71-43-2	Benzene			not detected	2	0.061 mg/kg	0.107 mg/kg		
107-06-2	1,2-Dichloroethane			not detected	0.9	0.048 mg/kg	0.107 mg/kg		
79-01-6	Trichloroethene			not detected	7	0.058 mg/kg	0.107 mg/kg		
78-87-5	1,2-Dichloropropane			not detected	2	0.062 mg/kg	0.107 mg/kg		
75-27-4	Bromodichloromethane			not detected	1	0.051 mg/kg	0.107 mg/kg		
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.065 mg/kg	0.107 mg/kg		
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.041 mg/kg	0.107 mg/kg		
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.058 mg/kg	0.107 mg/kg		
108-88-3	Toluene			not detected	6300	0.076 mg/kg	0.107 mg/kg		
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.048 mg/kg	0.107 mg/kg		
79-00-5	1,1,2-Trichloroethane			not detected	2	0.054 mg/kg	0.107 mg/kg		
127-18-4	Tetrachloroethene			not detected	2	0.070 mg/kg	0.107 mg/kg		
591-78-6	2-Hexanone			not detected	NLE	0.050 mg/kg	0.107 mg/kg		
126-48-1	Dibromochloromethane			not detected	3	0.049 mg/kg	0.107 mg/kg		
108-90-7	Chlorobenzene			not detected	510	0.069 mg/kg	0.107 mg/kg		
100-41-4	Ethylbenzene			not detected	7800	0.074 mg/kg	0.107 mg/kg		
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.075 mg/kg	0.107 mg/kg		
1330-20-7	m+p-Xylenes			not detected	1200	0.140 mg/kg	0.213 mg/kg		
1330-20-7	o-Xylene			not detected	1200	0.066 mg/kg	0.107 mg/kg		
100-42-5	Styrene			not detected	90	0.058 mg/kg	0.107 mg/kg		
75-25-2	Bromoform			not detected	81	0.043 mg/kg	0.107 mg/kg		
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.058 mg/kg	0.107 mg/kg		
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.062 mg/kg	0.107 mg/kg		
106-46-7	1,4-Dichlorobenzene			not detected	5	0.060 mg/kg	0.107 mg/kg		
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.063 mg/kg	0.107 mg/kg		
91-20-3	Naphthalene			not detected	6	0.066 mg/kg	0.107 mg/kg		

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank
 E = Value above linear range
 D = Value from dilution
 PQL = Practical Quantitation Limit
 J = Estimated value, concentration lies between R.L. and M.D.L.

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812-PX4 BOTTOM

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10451
Matrix: (soil/water) SOIL Lab Sample ID: 1045104
Sample wt/vol: 11.7 (g/ml) G Lab File ID: VA7880.D
Level: (low/med) MED Date Received: 10/21/2010
% Moisture: not dec. 19.5 Date Analyzed: 10/22/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 6 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Branched	9.86	390	J
2.	Alkane: Branched	10.11	670	J
3.	Alkane: Branched	17.52	510	J
4.	C4 alkyl benzene	21.43	410	J
5.	1H-Indene-dihydro-methyl-	23.34	470	J
6.	1H-Indene-dihydro-dimethyl-	23.88	340	J

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

Data File **VA7881.D**
 Operator **ROBERTS**
 Date Acquired **22 Oct 2010 7:37 pm**

Sample Name **1045105**
 Field ID **812 DUPLICATE**
 Sample Multiplier **0.110**

Sample Weight **10.60 g**
 Percent Solids **85.5 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5	0.481	mg/kg	1.103	mg/kg
107131	Acrylonitrile			not detected	0.9	0.237	mg/kg	1.103	mg/kg
75650	tert-Butyl alcohol			not detected	1400	0.453	mg/kg	1.103	mg/kg
1634044	Methyl-tert-Butyl ether			not detected	110	0.035	mg/kg	0.110	mg/kg
108203	Di-isopropyl ether			not detected	NLE	0.042	mg/kg	0.110	mg/kg
75718	Dichlorodifluoromethane			not detected	490	0.115	mg/kg	0.115	mg/kg
74-87-3	Chloromethane			not detected	4	0.047	mg/kg	0.110	mg/kg
75-01-4	Vinyl Chloride			not detected	0.7	0.055	mg/kg	0.110	mg/kg
74-83-9	Bromomethane			not detected	25	0.057	mg/kg	0.110	mg/kg
75-00-3	Chloroethane			not detected	220	0.049	mg/kg	0.110	mg/kg
75-69-4	Trichlorofluoromethane			not detected	23000	0.094	mg/kg	0.110	mg/kg
75-35-4	1,1-Dichloroethene			not detected	11	0.085	mg/kg	0.110	mg/kg
67-64-1	Acetone			not detected	70000	0.090	mg/kg	0.110	mg/kg
75-15-0	Carbon Disulfide			not detected	7800	0.075	mg/kg	0.110	mg/kg
75-09-2	Methylene Chloride			not detected	34	0.072	mg/kg	0.110	mg/kg
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.065	mg/kg	0.110	mg/kg
75-35-3	1,1-Dichloroethane			not detected	8	0.064	mg/kg	0.110	mg/kg
108-05-4	Vinyl Acetate			not detected	NLE	0.036	mg/kg	0.110	mg/kg
78-93-3	2-Butanone			not detected	3100	0.078	mg/kg	0.110	mg/kg
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.064	mg/kg	0.110	mg/kg
67-66-3	Chloroform			not detected	0.6	0.082	mg/kg	0.110	mg/kg
75-55-6	1,1,1-Trichloroethane			not detected	290	0.070	mg/kg	0.110	mg/kg
56-23-5	Carbon Tetrachloride			not detected	0.6	0.068	mg/kg	0.110	mg/kg
71-43-2	Benzene			not detected	2	0.063	mg/kg	0.110	mg/kg
107-06-2	1,2-Dichloroethane			not detected	0.9	0.050	mg/kg	0.110	mg/kg
79-01-6	Trichloroethene			not detected	7	0.060	mg/kg	0.110	mg/kg
78-87-5	1,2-Dichloropropane			not detected	2	0.064	mg/kg	0.110	mg/kg
75-27-4	Bromodichloromethane			not detected	1	0.053	mg/kg	0.110	mg/kg
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.067	mg/kg	0.110	mg/kg
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.042	mg/kg	0.110	mg/kg
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.060	mg/kg	0.110	mg/kg
108-88-3	Toluene			not detected	6300	0.078	mg/kg	0.110	mg/kg
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.050	mg/kg	0.110	mg/kg
79-00-5	1,1,2-Trichloroethane			not detected	2	0.056	mg/kg	0.110	mg/kg
127-18-4	Tetrachloroethene			not detected	2	0.073	mg/kg	0.110	mg/kg
591-78-6	2-Hexanone			not detected	NLE	0.052	mg/kg	0.110	mg/kg
126-48-1	Dibromochloromethane			not detected	3	0.051	mg/kg	0.110	mg/kg
108-90-7	Chlorobenzene			not detected	510	0.072	mg/kg	0.110	mg/kg
100-41-4	Ethylbenzene			not detected	7800	0.076	mg/kg	0.110	mg/kg
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.077	mg/kg	0.110	mg/kg
1330-20-7	m+p-Xylenes			not detected	1200	0.145	mg/kg	0.221	mg/kg
1330-20-7	o-Xylene			not detected	1200	0.068	mg/kg	0.110	mg/kg
100-42-5	Styrene			not detected	90	0.060	mg/kg	0.110	mg/kg
75-25-2	Bromoform			not detected	81	0.044	mg/kg	0.110	mg/kg
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.060	mg/kg	0.110	mg/kg
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.064	mg/kg	0.110	mg/kg
106-46-7	1,4-Dichlorobenzene			not detected	5	0.062	mg/kg	0.110	mg/kg
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.065	mg/kg	0.110	mg/kg
91-20-3	Naphthalene			not detected	6	0.068	mg/kg	0.110	mg/kg

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank
 E = Value above linear range
 D = Value from dilution
 PQL = Practical Quantitation Limit
 J = Estimated value, concentration lies between R.L. and M.D.L.

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

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812 DUPLICATE

Lab Name: FMETL NJDEP # 13461
 Project: _____ Case No.: MW Location: _____ SDG No.: 10451
 Matrix: (soil/water) SOIL Lab Sample ID: 1045105
 Sample wt/vol: 10.6 (g/ml) G Lab File ID: VA7881.D
 Level: (low/med) MED Date Received: 10/21/2010
 % Moisture: not dec. 14.5 Date Analyzed: 10/22/2010
 GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 15 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Branched	7.58	1300	J
2.	Alkane: Branched	7.93	970	J
3.	Alkane: Branched	8.25	470	J
4.	Alkane: Cyclic	9.17	990	J
5.	Alkane: Branched	9.86	820	J
6.	Alkane: Branched	10.03	650	J
7.	Alkane: Branched	10.12	2500	J
8.	Alkane: Cyclic	10.69	500	J
9.	Alkane: Cyclic	11.68	700	J
10.	Alkane: Branched	12.60	520	J
11.	C4 alkyl benzene	21.44	750	J
12.	1H-Indene-dihydro-methyl-	21.76	540	J
13.	C4 alkyl benzene	22.25	500	J
14.	1H-Indene-dihydro-methyl-	23.34	860	J
15.	1H-Indene-dihydro-dimethyl-	23.87	570	J

Volatile Analysis Report

U.S. Army, Fort Monmouth Environmental Laboratory

NJDEP Certification #13461

Data File VA7882.D
Operator ROBERTS
Date Acquired 22 Oct 2010 8:09 pm

Sample Name 1045106
Field ID 812 COMPOSITE
Sample Multiplier 0.105

Sample Weight 11.19 g
Percent Solids 85.5 %
Methanol extract volume 25 ml
Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5	0.456	mg/kg	1.045	mg/kg
107131	Acrylonitrile			not detected	0.9	0.225	mg/kg	1.045	mg/kg
75650	tert-Butyl alcohol			not detected	1400	0.430	mg/kg	1.045	mg/kg
1634044	Methyl-tert-Butyl ether			not detected	110	0.033	mg/kg	0.105	mg/kg
108203	Di-isopropyl ether			not detected	NLE	0.040	mg/kg	0.105	mg/kg
75718	Dichlorodifluoromethane			not detected	490	0.109	mg/kg	0.109	mg/kg
74-87-3	Chloromethane			not detected	4	0.045	mg/kg	0.105	mg/kg
75-01-4	Vinyl Chloride			not detected	0.7	0.052	mg/kg	0.105	mg/kg
74-83-9	Bromomethane			not detected	25	0.054	mg/kg	0.105	mg/kg
75-00-3	Chloroethane			not detected	220	0.046	mg/kg	0.105	mg/kg
75-69-4	Trichlorofluoromethane			not detected	23000	0.089	mg/kg	0.105	mg/kg
75-35-4	1,1-Dichloroethene			not detected	11	0.080	mg/kg	0.105	mg/kg
67-64-1	Acetone			not detected	70000	0.086	mg/kg	0.105	mg/kg
75-15-0	Carbon Disulfide			not detected	7800	0.071	mg/kg	0.105	mg/kg
75-09-2	Methylene Chloride			not detected	34	0.068	mg/kg	0.105	mg/kg
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.062	mg/kg	0.105	mg/kg
75-35-3	1,1-Dichloroethane			not detected	8	0.061	mg/kg	0.105	mg/kg
108-05-4	Vinyl Acetate			not detected	NLE	0.034	mg/kg	0.105	mg/kg
78-93-3	2-Butanone			not detected	3100	0.074	mg/kg	0.105	mg/kg
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.061	mg/kg	0.105	mg/kg
67-66-3	Chloroform			not detected	0.6	0.077	mg/kg	0.105	mg/kg
75-55-6	1,1,1-Trichloroethane			not detected	290	0.066	mg/kg	0.105	mg/kg
56-23-5	Carbon Tetrachloride			not detected	0.6	0.065	mg/kg	0.105	mg/kg
71-43-2	Benzene			not detected	2	0.060	mg/kg	0.105	mg/kg
107-06-2	1,2-Dichloroethane			not detected	0.9	0.047	mg/kg	0.105	mg/kg
79-01-6	Trichloroethene			not detected	7	0.056	mg/kg	0.105	mg/kg
78-87-5	1,2-Dichloropropane			not detected	2	0.061	mg/kg	0.105	mg/kg
75-27-4	Bromodichloromethane			not detected	1	0.050	mg/kg	0.105	mg/kg
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.064	mg/kg	0.105	mg/kg
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.040	mg/kg	0.105	mg/kg
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.056	mg/kg	0.105	mg/kg
108-88-3	Toluene			not detected	6300	0.074	mg/kg	0.105	mg/kg
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.047	mg/kg	0.105	mg/kg
79-00-5	1,1,2-Trichloroethane			not detected	2	0.053	mg/kg	0.105	mg/kg
127-18-4	Tetrachloroethene			not detected	2	0.069	mg/kg	0.105	mg/kg
591-78-6	2-Hexanone			not detected	NLE	0.049	mg/kg	0.105	mg/kg
126-48-1	Dibromochloromethane			not detected	3	0.048	mg/kg	0.105	mg/kg
108-90-7	Chlorobenzene			not detected	510	0.068	mg/kg	0.105	mg/kg
100-41-4	Ethylbenzene			not detected	7800	0.072	mg/kg	0.105	mg/kg
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.073	mg/kg	0.105	mg/kg
1330-20-7	m+p-Xylenes			not detected	1200	0.137	mg/kg	0.209	mg/kg
1330-20-7	o-Xylene			not detected	1200	0.065	mg/kg	0.105	mg/kg
100-42-5	Styrene			not detected	90	0.056	mg/kg	0.105	mg/kg
75-25-2	Bromoform			not detected	81	0.042	mg/kg	0.105	mg/kg
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.056	mg/kg	0.105	mg/kg
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.061	mg/kg	0.105	mg/kg
106-46-7	1,4-Dichlorobenzene			not detected	5	0.059	mg/kg	0.105	mg/kg
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.062	mg/kg	0.105	mg/kg
91-20-3	Naphthalene	24.55	85738	0.31 mg/kg	6	0.065	mg/kg	0.105	mg/kg

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812 COMPOSITE

Lab Name: FMETL NJDEP # 13461
 Project: _____ Case No.: MW Location: _____ SDG No.: 10451
 Matrix: (soil/water) SOIL Lab Sample ID: 1045106
 Sample wt/vol: 11.2 (g/ml) G Lab File ID: VA7882.D
 Level: (low/med) MED Date Received: 10/21/2010
 % Moisture: not dec. 14.5 Date Analyzed: 10/22/2010
 GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
 Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 15 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q
1.	Alkane: Branched	7.57	1500	J
2.	Alkane: Branched	8.26	1300	J
3.	Alkane: Cyclic	9.18	1100	J
4.	Alkane: Branched	9.85	2300	J
5.	Alkane: Branched	10.11	3400	J
6.	Alkane: Branched	10.69	1300	J
7.	Alkane: Cyclic	11.69	1300	J
8.	Alkane: Branched	12.36	1800	J
9.	Alkane: Branched	12.60	1400	J
10.	Alkane: Branched	14.87	1700	J
11.	Alkane: Branched	15.09	1300	J
12.	Alkane: Branched	17.52	2300	J
13.	Alkane: Branched	19.83	1100	J
14.	C4 alkyl benzene	21.43	1300	J
15.	1H-Indene-dihydro-methyl-	23.34	1400	J

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

Data File **VA7883.D**
 Operator **ROBERTS**
 Date Acquired **22 Oct 2010 8:40 pm**

Sample Name **1045107**
 Field ID **812 TRIP BLANK**
 Sample Multiplier **0.100**

Sample Weight **10.00 g**
 Percent Solids **100.0 %**
 Methanol extract volume **25 ml**
 Methanol aliquot volume **1.25 ml**

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5	0.436	mg/kg	1.000	mg/kg
107131	Acrylonitrile			not detected	0.9	0.215	mg/kg	1.000	mg/kg
75650	tert-Butyl alcohol			not detected	1400	0.411	mg/kg	1.000	mg/kg
1634044	Methyl-tert-Butyl ether			not detected	110	0.032	mg/kg	0.100	mg/kg
108203	Di-isopropyl ether			not detected	NLE	0.038	mg/kg	0.100	mg/kg
75718	Dichlorodifluoromethane			not detected	490	0.104	mg/kg	0.104	mg/kg
74-87-3	Chloromethane			not detected	4	0.043	mg/kg	0.100	mg/kg
75-01-4	Vinyl Chloride			not detected	0.7	0.050	mg/kg	0.100	mg/kg
74-83-9	Bromomethane			not detected	25	0.052	mg/kg	0.100	mg/kg
75-00-3	Chloroethane			not detected	220	0.044	mg/kg	0.100	mg/kg
75-69-4	Trichlorofluoromethane			not detected	23000	0.085	mg/kg	0.100	mg/kg
75-35-4	1,1-Dichloroethene			not detected	11	0.077	mg/kg	0.100	mg/kg
67-64-1	Acetone			not detected	70000	0.082	mg/kg	0.100	mg/kg
75-15-0	Carbon Disulfide			not detected	7800	0.068	mg/kg	0.100	mg/kg
75-09-2	Methylene Chloride			not detected	34	0.065	mg/kg	0.100	mg/kg
156-60-5	trans-1,2-Dichloroethene			not detected	300	0.059	mg/kg	0.100	mg/kg
75-35-3	1,1-Dichloroethane			not detected	8	0.058	mg/kg	0.100	mg/kg
108-05-4	Vinyl Acetate			not detected	NLE	0.033	mg/kg	0.100	mg/kg
78-93-3	2-Butanone			not detected	3100	0.071	mg/kg	0.100	mg/kg
156-59-2	cis-1,2-Dichloroethene			not detected	230	0.058	mg/kg	0.100	mg/kg
67-66-3	Chloroform			not detected	0.6	0.074	mg/kg	0.100	mg/kg
75-55-6	1,1,1-Trichloroethane			not detected	290	0.063	mg/kg	0.100	mg/kg
56-23-5	Carbon Tetrachloride			not detected	0.6	0.062	mg/kg	0.100	mg/kg
71-43-2	Benzene			not detected	2	0.057	mg/kg	0.100	mg/kg
107-06-2	1,2-Dichloroethane			not detected	0.9	0.045	mg/kg	0.100	mg/kg
79-01-6	Trichloroethene			not detected	7	0.054	mg/kg	0.100	mg/kg
78-87-5	1,2-Dichloropropane			not detected	2	0.058	mg/kg	0.100	mg/kg
75-27-4	Bromodichloromethane			not detected	1	0.048	mg/kg	0.100	mg/kg
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE	0.061	mg/kg	0.100	mg/kg
10061-01-5	cis-1,3-Dichloropropene			not detected	2	0.038	mg/kg	0.100	mg/kg
108-10-1	4-Methyl-2-Pentanone			not detected	NLE	0.054	mg/kg	0.100	mg/kg
108-88-3	Toluene			not detected	6300	0.071	mg/kg	0.100	mg/kg
10061-02-6	trans-1,3-Dichloropropene			not detected	2	0.045	mg/kg	0.100	mg/kg
79-00-5	1,1,2-Trichloroethane			not detected	2	0.051	mg/kg	0.100	mg/kg
127-18-4	Tetrachloroethene			not detected	2	0.066	mg/kg	0.100	mg/kg
591-78-6	2-Hexanone			not detected	NLE	0.047	mg/kg	0.100	mg/kg
126-48-1	Dibromochloromethane			not detected	3	0.046	mg/kg	0.100	mg/kg
108-90-7	Chlorobenzene			not detected	510	0.065	mg/kg	0.100	mg/kg
100-41-4	Ethylbenzene			not detected	7800	0.069	mg/kg	0.100	mg/kg
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE	0.070	mg/kg	0.100	mg/kg
1330-20-7	m+p-Xylenes			not detected	1200	0.131	mg/kg	0.200	mg/kg
1330-20-7	o-Xylene			not detected	1200	0.062	mg/kg	0.100	mg/kg
100-42-5	Styrene			not detected	90	0.054	mg/kg	0.100	mg/kg
75-25-2	Bromoform			not detected	81	0.040	mg/kg	0.100	mg/kg
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1	0.054	mg/kg	0.100	mg/kg
541-73-1	1,3-Dichlorobenzene			not detected	5300	0.058	mg/kg	0.100	mg/kg
106-46-7	1,4-Dichlorobenzene			not detected	5	0.056	mg/kg	0.100	mg/kg
95-50-1	1,2-Dichlorobenzene			not detected	5300	0.059	mg/kg	0.100	mg/kg
91-20-3	Naphthalene			not detected	6	0.062	mg/kg	0.100	mg/kg

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J= Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

812 TRIP BLANK

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10451
Matrix: (soil/water) SOIL Lab Sample ID: 1045107
Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7883.D
Level: (low/med) MED Date Received: 10/21/2010
% Moisture: not dec. 0 Date Analyzed: 10/22/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

TPHC

000049

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

Client: U.S. Army
 DPW. SELFM-PW-EV
 Bldg. 173
 Ft. Monmouth, NJ 07703

Project #: 10-179124
Location: BLDG. 812
ECP:
Work Order:

Analysis: OQA-QAM-025
Matrix:
Inst. ID: GC TPHC INST. #1
Column Type: RTX-5, 0.32mm ID, 30 m
Injection Vol.: 1 uL

Date Received: 21-Oct-10
Date Extracted: 22-Oct-10
Extraction Method: Shake
Analyst: Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Data	Qualifiers
MB10221001	MB10221001	1.00	15.00	100.00	23	333	not detected		
LCS10221001	LCS10221001	1.00	15.00	100.00	23	333	1133.87		
1045101	812 PX-1 NE WALL	1.00	15.19	80.2	29	410	not detected		
1045102	812 PX-2 SE WALL	1.00	15.47	82.6	27	391	not detected		
1045103	812 PX-3 SW WALL	1.00	15.31	82.6	28	395	not detected		
1045104	812 PX-4 BOTTOM	1.00	15.09	80.5	29	412	not detected		
1045105	812 DUPLICATE	1.00	15.46	85.5	26	378	not detected		
1045106	812 COMPOSITE	1.00	15.22	85.5	27	384	not detected		

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Result exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Result from dilution

ND = not detected

000050

LEAD

000058

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 10451
Sample Received: NA
Sample Matrix: Aqueous
Sample Prepared: 10/22/10

Site: BLDG. 812

Field ID: Method Blank

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/L)

Element	Date of Analysis	Result (mg/L)	R.L. (mg/L)	MDL (mg/L)
Lead	10/22/10	ND	0.500	0.076

ND = Not Detected, NLE = No Limit Established,
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & R.L.

000059

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1045101
Sample Received: 10/21/10
Sample Matrix: Soil

Site: BLDG. 812

Field ID: 812-PX1, NE Wall

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	10/22/10	ND	400	118.2	17.97

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000060

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1045102
Sample Received: 10/21/10
Sample Matrix: Soil

Site: BLDG. 812

Field ID: 812-PX2, SE Wall

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	10/22/10	ND	400	105.6	16.06

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000061

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1045103
Sample Received: 10/21/10
Sample Matrix: Soil

Site: BLDG. 812

Field ID: 812-PX3, SW Wall

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	10/22/10	24.9	400	112.9	17.17

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000062

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1045104
Sample Received: 10/21/10
Sample Matrix: Soil

Site: BLDG. 812

Field ID: 812-PX4, Bottom

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	10/22/10	ND	400	119.5	18.16

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000063

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1045105
Sample Received: 10/21/10
Sample Matrix: Soil

Site: BLDG. 812

Field ID: 812-Duplicate

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	10/22/10	ND	400	99.8	15.17

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000064

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1045106
Sample Received: 10/21/10
Sample Matrix: Soil

Site: BLDG. 812

Field ID: 812-Composite

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	10/22/10	55.1	400	108.9	16.55

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000065

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 data 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.

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✓

Laboratory Manager or Environmental Consultant's Signature
Date: 10/29/10

Sean Tardiff

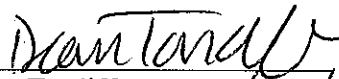
Laboratory Certification # 13461

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

000073

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.


Dean Tardiff 10/29/10
Laboratory Manager

000074

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



ANALYTICAL DATA REPORT

Fort Monmouth Environmental Laboratory

ENVIRONMENTAL DIVISION

Fort Monmouth, New Jersey

PROJECT: 10-179124

Bldg. /812

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
812-Overburden	1045801	Soil	25-Oct-10 11:50	10/25/10

ANALYSIS:

FORT MONMOUTH ENVIRONMENTAL TESTING LAB

TPHC, %SOLIDS

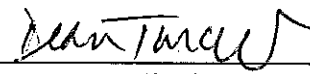

Dean Tardiff/Date: 11/3/10
Laboratory Manager

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CHAIN OF CUSTODY

000001

SAMPLE RECEIPT FORM

Date Received: 10-23-10

Work Order ID#: 10458

Site/Proj. Name: Billy 812

Cooler Temp (°C): ICE

Received By: J. Pennington
(Print name)

Sign: [Signature]

Check the appropriate box

1. Did the samples come in a cooler?	yes	no	n/a
2. Were samples rec'd in good condition?	yes	no	
3. Was the chain of custody filled out correctly and legibly?	yes	no	
4. Was the chain of custody signed in the appropriate place?	yes	no	
5. Did the labels agree with the chain of custody?	yes	no	
6. Were the correct containers/preservatives used?	yes	no	
7. Was a sufficient amount of sample supplied?	yes	no	
8. Were air bubbles present in VOA vials?	yes	no	n/a
9. Were samples received on ice?	yes	no	
10. Were analyze-immediately tests perform within 15 minutes	yes	no	n/a

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments: _____

000003

METHOD SUMMARY

000003A

Method Summary

NJDEP Method OQA-QAM-025 02/08

Gas Chromatographic Determination of Total Petroleum Hydrocarbons in Soil

Fifteen grams (15g) of soil is added to a 125-ml acid cleaned and solvent rinsed capped Erlenmeyer flask. 15g anhydrous Sodium Sulfate is added to dry the sample. Surrogate standard spiking solution is then added to the flask.

Twenty-five ml of Methylene Chloride is added to the flask and it is secured on an orbital shaker table. The agitation rate is set to 400 rpm and the sample is shaken for 30 minutes. The flask is removed from the table and the particulate matter is allowed to settle. The extract is transferred to a Teflon capped vial. A second 25-ml 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 1-ml auto-sampler 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 moisture, sample weight and concentration.

000003B

CONFORMANCE/ NON-CONFORMANCE SUMMARY

10458 TPH

TPHC Conformance/Non-conformance Summary Report

	Indicate Yes, No, N/A
1. Method Detection Limits provided.	<u>Yes</u>
2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank. _____	<u>No</u>
3. Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____	<u>Yes</u>
4. Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____	<u>N/A</u>
5. IR Spectra submitted for standards, blanks and samples.	<u>N/A</u>
6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	<u>N/A</u>
7. Analysis holding time met. (If not met, list number of days exceeded for each sample). _____	<u>Yes</u>

Additional comments: _____

Sean Tanch
Laboratory Manager

11/3/10
Date

But 10/28/10

000005

LABORATORY CHRONICLE

000006

Laboratory Chronicle

Lab ID: 10458

Site: 812

	Date	Hold Time
Date Sampled	10/25/10	NA
Receipt/Refrigeration	10/25/10	NA

Analyses

1. TPHC	10/26/10	14 Days

000006A

TPHC

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

Client: U.S. Army
DPW. SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Project #: 10-179124
Location: BLDG. 812
ECP:
Work Order:

Analysis: OQA-QAM-025
Matrix:
Inst. ID: GC TPHC INST. #1
Column Type: RTX-5, 0.32mm ID, 30 m
Injection Vol.: 1 uL

Date Received: 25-Oct-10
Date Extracted: 26-Oct-10
Extraction Method: Shake
Analyst: Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Data	Qualifiers
MB10261001	MB10261001	1.00	15.00	100.00	23	333	not detected		
LCS10261001	LCS10261001	1.00	15.00	100.00	23	333	1154.10		
1045801	812 OVERBURDEN	1.00	15.08	89.8	26	369	not detected		

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Result exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Result from dilution

ND = not detected

800000

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 data 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.

✓
✓
✓
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✓
✓
✓
✓
✓
✓
✓

Laboratory Manager or Environmental Consultant's Signature

Date: 11/3/10

Dean Tardella

Laboratory Certification # 13461

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

000029

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.


Dean Tardiff 11/3/10
Laboratory Manager

000030

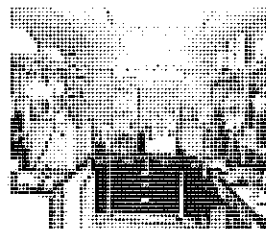
FORT MONMOUTH ENVIRONMENTAL TESTING LABORATORY

DIRECTORATE OF PUBLIC WORKS

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

WET-CHEM - METALS - ORGANICS - FIELD SAMPLING

CERTIFICATIONS: NJDEP #13461

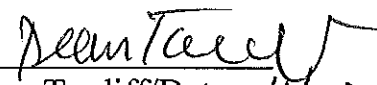


ANALYTICAL DATA REPORT Fort Monmouth Environmental Laboratory ENVIRONMENTAL DIVISION Fort Monmouth, New Jersey PROJECT: 10-179124

Bldg. /812

Field Sample Location	Laboratory Sample ID#	Matrix	Date and Time of Collection	Date Received
812-PX5/NE Wall	1046201	Soil	27-Oct-10 09:00	10/27/10

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


Dean Tardiff/Date: 11/23/10
Laboratory Manager



Tel (732)532-4359 Fax (732)532-6263 EMail:dean.tardiff@us.army.mil

Chain of Custody Record

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CHAIN OF CUSTODY

SAMPLE RECEIPT FORM

Date Received: 10-27-10

Work Order ID#: 10462

Site/Proj. Name: Brady 812

Cooler Temp (°C): ICE

Received By: J. Vengala
(Print name)

Sign: [Signature]

Check the appropriate box

1. Did the samples come in a cooler?	yes	no	n/a
2. Were samples rec'd in good condition?	yes	no	
3. Was the chain of custody filled out correctly and legibly?	yes	no	
4. Was the chain of custody signed in the appropriate place?	yes	no	
5. Did the labels agree with the chain of custody?	yes	no	
6. Were the correct containers/preservatives used?	yes	no	
7. Was a sufficient amount of sample supplied?	yes	no	
8. Were air bubbles present in VOA vials?	yes	no	n/a
9. Were samples received on ice?	yes	no	
10. Were analyze-immediately tests perform within 15 minutes	yes	no	n/a

Fill out the following table for each sample bottle

Lims ID	pH	Preservative	Sample ID	pH	Preservative

Comments: _____

CONFORMANCE/ NON-CONFORMANCE SUMMARY

10462 VOA

GC/MS ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY FORMAT

	Indicate Yes, No, N/A
1. Chromatograms labeled/Compounds identified (Field samples and method blanks)	<u>Yes</u>
2. Retention times for chromatograms provided	<u>Yes</u>
3. GC/MS Tune Specifications	
a. BFB Meet Criteria	<u>Yes</u>
b. DFTPP Meet Criteria	<u>N/A</u>
4. GC/MS Tuning Frequency – Performed every 24 hours for 600 series and 12 hours for 8000 series	<u>Yes</u>
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	<u>Yes</u>
6. GC/MS Calibration requirements	
a. Calibration Check Compounds Meet Criteria	<u>Yes</u>
b. System Performance Check Compounds Meet Criteria	<u>Yes</u>
7. Blank Contamination – If yes, List compounds and concentrations in each blank:	<u>No</u>
a. VOA Fraction _____	
b. B/N Fraction _____	
c. Acid Fraction _____	
8. Surrogate Recoveries Meet Criteria	<u>Yes</u>
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"?	
9. Matrix Spike/Matrix Spike Duplicate Recoveries Meet Criteria (If not met, list those compounds and their recoveries, which fall outside the acceptable range)	<u>No</u>
a. VOA Fraction <u>See msl/msd report for notes</u>	
b. B/N Fraction _____	
c. Acid Fraction _____	

000005

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 range)

Yes

- a. VOA Fraction _____
b. B/N Fraction _____
c. Acid Fraction _____

11. Extraction Holding Time Met

N/A

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: _____

Additional Comments:

Laboratory Manager: _____

Date: _____

Signature 11/23/10
Signature 11/2/10

000006

TPHC Conformance/Non-conformance Summary Report

	Indicate Yes, No, N/A
1. Method Detection Limits provided.	<u>Yes</u>
2. Method Blank Contamination – If yes, list the sample and the corresponding concentrations in each blank. _____ _____	<u>No</u>
3. Matrix Spike Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>Yes</u>
4. Duplicate Results Summary Meet Criteria (If not met, list the sample and corresponding recovery which falls outside the acceptable range). _____ _____	<u>N/A</u>
5. IR Spectra submitted for standards, blanks and samples.	<u>N/A</u>
6. Chromatograms submitted for standards, blanks and samples if GC fingerprinting was conducted.	<u>N/A</u>
7. Analysis holding time met. (If not met, list number of days exceeded for each sample). _____ _____	<u>Yes</u>

Additional comments: _____

Deanne Tarr
Laboratory Manager

Date

11/23/10

Antje 10/28/10

**FLAA/GFAA ANALYSIS CONFORMANCE/NON-CONFORMANCE SUMMARY
REPORT**

Lab ID:

Method: 3142B

SW8 467420

Indicate
Yes, No, N/A

1. Initial Calibration has a correlation coefficient of 0.995 or higher

----- ✓ -----

2. Initial and Continuing Calibration Verifications Meet Criteria

----- ✓ -----

3. Laboratory Control Samples Meet Criteria

----- ✓ -----

4. Preparation, Method and Calibration Blank Contamination
If yes, list compounds and concentrations in each blank

----- ✓ -----

5. Spike Sample Recoveries Meet Criteria

1046201

----- ✓ -----

6. Duplicates Meet Criteria

1046201

----- ✓ -----

7. Analysis Holding Time Met
If not met, list number of days exceeded for each sample

----- ✓ -----

8. Over range samples are diluted within the calibration.
List samples that exceed high standard and are flagged with an
"E" (estimate).

----- N/A -----

Additional Comments

Laboratory Manager:

Seantene

Date:

11/2/10

000008

LABORATORY CHRONICLE

Laboratory Chronicle

Lab ID: 10462

Site: 812

	Date	Hold Time
Date Sampled	10/27/10	NA
Receipt/Refrigeration	10/27/10	NA

Analyses

1. Volatiles	10/29/10	14 Days
2. TPHC	10/27/10	14 Days
3. LEAD	11/01/10	6 Months

000010

VOLATILE ORGANICS

000011

US ARMY FT. MONMOUTH ENVIRONMENTAL LABORATORY
NJDEP CERTIFICATION # 13461

Definition of Qualifiers

- U: The compound was analyzed for but not detected.
- B: Indicates that the compound was found in the associated method blank as well as in the sample.
- J: Indicates an estimated value. This flag is used:
- (1) When the mass spec and retention time data indicate the presence of a compound however the result is less than the reporting limit but greater than the MDL.
 - (2) When estimating the concentration of a tentatively identified compound (TIC), where a 1:1 response is assumed.
- D: This flag is used to identify all compounds (target or TIC) that required a dilution.
- E: Indicates the compound's concentration exceeds the calibration range of the instrument for that specific analysis.
- N: This flag is only used for TICs. It indicates the presumptive evidence of a compound. For a generic characterization of a TIC, such as unknown hydrocarbon, the flag is not used.

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

Data File VA7974.D
 Operator ROBERTS
 Date Acquired 29 Oct 2010 3:42 pm

Sample Name MB10291001
 Field ID METHOD 8260 10/29/10
 Sample Multiplier 0.100

Sample Weight 10.00 g
 Percent Solids 100.0 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL		Qualifiers
					Level (mg/kg)*			mg/kg	mg/kg	
107028	Acrolein			not detected	0.5		0.436	mg/kg	1.000	mg/kg
107131	Acrylonitrile			not detected	0.9		0.215	mg/kg	1.000	mg/kg
75650	tert-Butyl alcohol			not detected	1400		0.411	mg/kg	1.000	mg/kg
1634044	Methyl-tert-Butyl ether			not detected	110		0.032	mg/kg	0.100	mg/kg
108203	Di-isopropyl ether			not detected	NLB		0.038	mg/kg	0.100	mg/kg
75718	Dichlorodifluoromethane			not detected	490		0.104	mg/kg	0.104	mg/kg
74-87-3	Chloromethane			not detected	4		0.043	mg/kg	0.100	mg/kg
75-01-4	Vinyl Chloride			not detected	0.7		0.050	mg/kg	0.100	mg/kg
74-83-9	Bromomethane			not detected	25		0.052	mg/kg	0.100	mg/kg
75-00-3	Chloroethane			not detected	220		0.044	mg/kg	0.100	mg/kg
75-69-4	Trichlorofluoromethane			not detected	23000		0.085	mg/kg	0.100	mg/kg
75-35-4	1,1-Dichloroethene			not detected	11		0.077	mg/kg	0.100	mg/kg
67-64-1	Acetone			not detected	70000		0.082	mg/kg	0.100	mg/kg
75-15-0	Carbon Disulfide			not detected	7800		0.068	mg/kg	0.100	mg/kg
75-09-2	Methylene Chloride			not detected	34		0.065	mg/kg	0.100	mg/kg
156-60-5	trans-1,2-Dichloroethene			not detected	300		0.059	mg/kg	0.100	mg/kg
75-35-3	1,1-Dichloroethane			not detected	8		0.058	mg/kg	0.100	mg/kg
108-05-4	Vinyl Acetate			not detected	NLB		0.033	mg/kg	0.100	mg/kg
78-93-3	2-Butanone			not detected	3100		0.071	mg/kg	0.100	mg/kg
156-59-2	cis-1,2-Dichloroethene			not detected	230		0.058	mg/kg	0.100	mg/kg
67-66-3	Chloroform			not detected	0.6		0.074	mg/kg	0.100	mg/kg
75-55-6	1,1,1-Trichloroethane			not detected	290		0.063	mg/kg	0.100	mg/kg
56-23-5	Carbon Tetrachloride			not detected	0.6		0.062	mg/kg	0.100	mg/kg
71-43-2	Benzene			not detected	2		0.057	mg/kg	0.100	mg/kg
107-06-2	1,2-Dichloroethane			not detected	0.9		0.045	mg/kg	0.100	mg/kg
79-01-6	Trichloroethene			not detected	7		0.054	mg/kg	0.100	mg/kg
78-87-5	1,2-Dichloropropane			not detected	2		0.058	mg/kg	0.100	mg/kg
75-27-4	Bromodichloromethane			not detected	1		0.048	mg/kg	0.100	mg/kg
110-75-8	2-Chloroethyl vinyl ether			not detected	NLB		0.061	mg/kg	0.100	mg/kg
10061-01-5	cis-1,3-Dichloropropene			not detected	2		0.038	mg/kg	0.100	mg/kg
108-10-1	4-Methyl-2-Pentanone			not detected	NLB		0.054	mg/kg	0.100	mg/kg
108-88-3	Toluene			not detected	6300		0.071	mg/kg	0.100	mg/kg
10061-02-6	trans-1,3-Dichloropropene			not detected	2		0.045	mg/kg	0.100	mg/kg
79-00-5	1,1,2-Trichloroethane			not detected	2		0.051	mg/kg	0.100	mg/kg
127-18-4	Tetrachloroethene			not detected	2		0.066	mg/kg	0.100	mg/kg
591-78-6	2-Hexanone			not detected	NLB		0.047	mg/kg	0.100	mg/kg
126-48-1	Dibromochloromethane			not detected	3		0.046	mg/kg	0.100	mg/kg
108-90-7	Chlorobenzene			not detected	510		0.065	mg/kg	0.100	mg/kg
100-41-4	Ethylbenzene			not detected	7800		0.069	mg/kg	0.100	mg/kg
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLB		0.070	mg/kg	0.100	mg/kg
1330-20-7	m+p-Xylenes			not detected	1200		0.131	mg/kg	0.200	mg/kg
1330-20-7	o-Xylene			not detected	1200		0.062	mg/kg	0.100	mg/kg
100-42-5	Styrene			not detected	90		0.054	mg/kg	0.100	mg/kg
75-25-2	Bromoform			not detected	81		0.040	mg/kg	0.100	mg/kg
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1		0.054	mg/kg	0.100	mg/kg
541-73-1	1,3-Dichlorobenzene			not detected	5300		0.058	mg/kg	0.100	mg/kg
106-46-7	1,4-Dichlorobenzene			not detected	5		0.056	mg/kg	0.100	mg/kg
95-50-1	1,2-Dichlorobenzene			not detected	5300		0.059	mg/kg	0.100	mg/kg
91-20-3	Naphthalene			not detected	6		0.062	mg/kg	0.100	mg/kg

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank

E = Value above linear range

D = Value from dilution

PQL = Practical Quantitation Limit

J = Estimated value, concentration lies between R.L. and M.D.L.

MDL = Method Detection Limit

NLE = No Limit Established

R.T. = Retention Time

R.L. = Reporting Limit

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

MB10291001

Lab Name: FMETL NJDEP # 13461

Project: _____ Case No.: MW Location: _____ SDG No.: 10462

Matrix: (soil/water) SOIL Lab Sample ID: MB10291001

Sample wt/vol: 10.0 (g/ml) G Lab File ID: VA7974.D

Level: (low/med) MED Date Received: 10/27/2010

% Moisture: not dec. 0 Date Analyzed: 10/29/2010

GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0

Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

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

Data File VA7976.D
 Operator ROBERTS
 Date Acquired 29 Oct 2010 4:43 pm

Sample Name 1046201
 Field ID 812 PX-5 NE WALL
 Sample Multiplier 0.121

Sample Weight 9.20 g
 Percent Solids 90.1 %
 Methanol extract volume 25 ml
 Methanol aliquot volume 1.25 ml

CAS#	Compound Name	R.T.	Response	Result	Regulatory		MDL	RL	Qualifiers
					Level (mg/kg)*				
107028	Acrolein			not detected	0.5		0.526 mg/kg	1.206 mg/kg	
107131	Acrylonitrile			not detected	0.9		0.259 mg/kg	1.206 mg/kg	
75650	tert-Butyl alcohol			not detected	1400		0.496 mg/kg	1.206 mg/kg	
1634044	Methyl-tert-Butyl ether			not detected	110		0.039 mg/kg	0.121 mg/kg	
108203	Di-isopropyl ether			not detected	NLE		0.046 mg/kg	0.121 mg/kg	
75718	Dichlorodifluoromethane			not detected	490		0.125 mg/kg	0.125 mg/kg	
74-87-3	Chloromethane			not detected	4		0.052 mg/kg	0.121 mg/kg	
75-01-4	Vinyl Chloride			not detected	0.7		0.060 mg/kg	0.121 mg/kg	
74-83-9	Bromomethane			not detected	25		0.063 mg/kg	0.121 mg/kg	
75-00-3	Chloroethane			not detected	220		0.053 mg/kg	0.121 mg/kg	
75-69-4	Trichlorofluoromethane			not detected	23000		0.103 mg/kg	0.121 mg/kg	
75-35-4	1,1-Dichloroethene			not detected	11		0.093 mg/kg	0.121 mg/kg	
67-64-1	Acetone			not detected	70000		0.099 mg/kg	0.121 mg/kg	
75-15-0	Carbon Disulfide			not detected	7800		0.082 mg/kg	0.121 mg/kg	
75-09-2	Methylene Chloride			not detected	34		0.078 mg/kg	0.121 mg/kg	
156-60-5	trans-1,2-Dichloroethene			not detected	300		0.071 mg/kg	0.121 mg/kg	
75-35-3	1,1-Dichloroethane			not detected	8		0.070 mg/kg	0.121 mg/kg	
108-05-4	Vinyl Acetate			not detected	NLE		0.040 mg/kg	0.121 mg/kg	
78-93-3	2-Butanone			not detected	3100		0.086 mg/kg	0.121 mg/kg	
156-59-2	cis-1,2-Dichloroethene			not detected	230		0.070 mg/kg	0.121 mg/kg	
67-66-3	Chloroform			not detected	0.6		0.089 mg/kg	0.121 mg/kg	
75-55-6	1,1,1-Trichloroethane			not detected	290		0.076 mg/kg	0.121 mg/kg	
56-23-5	Carbon Tetrachloride			not detected	0.6		0.075 mg/kg	0.121 mg/kg	
71-43-2	Benzene			not detected	2		0.069 mg/kg	0.121 mg/kg	
107-06-2	1,2-Dichloroethane			not detected	0.9		0.054 mg/kg	0.121 mg/kg	
79-01-6	Trichloroethene			not detected	7		0.065 mg/kg	0.121 mg/kg	
78-87-5	1,2-Dichloropropane			not detected	2		0.070 mg/kg	0.121 mg/kg	
75-27-4	Bromodichloromethane			not detected	1		0.058 mg/kg	0.121 mg/kg	
110-75-8	2-Chloroethyl vinyl ether			not detected	NLE		0.074 mg/kg	0.121 mg/kg	
10061-01-5	cis-1,3-Dichloropropene			not detected	2		0.046 mg/kg	0.121 mg/kg	
108-10-1	4-Methyl-2-Pentanone			not detected	NLE		0.065 mg/kg	0.121 mg/kg	
108-88-3	Toluene			not detected	6300		0.086 mg/kg	0.121 mg/kg	
10061-02-6	trans-1,3-Dichloropropene			not detected	2		0.054 mg/kg	0.121 mg/kg	
79-00-5	1,1,2-Trichloroethane			not detected	2		0.062 mg/kg	0.121 mg/kg	
127-18-4	Tetrachloroethene			not detected	2		0.080 mg/kg	0.121 mg/kg	
591-78-6	2-Hexanone			not detected	NLE		0.057 mg/kg	0.121 mg/kg	
126-48-1	Dibromochloromethane			not detected	3		0.055 mg/kg	0.121 mg/kg	
108-90-7	Chlorobenzene			not detected	510		0.078 mg/kg	0.121 mg/kg	
100-41-4	Ethylbenzene			not detected	7800		0.083 mg/kg	0.121 mg/kg	
630-20-6	1,1,1,2-tetrachloroethane			not detected	NLE		0.084 mg/kg	0.121 mg/kg	
1330-20-7	m+p-Xylenes			not detected	1200		0.158 mg/kg	0.241 mg/kg	
1330-20-7	o-Xylene			not detected	1200		0.075 mg/kg	0.121 mg/kg	
100-42-5	Styrene			not detected	90		0.065 mg/kg	0.121 mg/kg	
75-25-2	Bromoform			not detected	81		0.048 mg/kg	0.121 mg/kg	
79-34-5	1,1,2,2-Tetrachloroethane			not detected	1		0.065 mg/kg	0.121 mg/kg	
541-73-1	1,3-Dichlorobenzene			not detected	5300		0.070 mg/kg	0.121 mg/kg	
106-46-7	1,4-Dichlorobenzene			not detected	5		0.068 mg/kg	0.121 mg/kg	
95-50-1	1,2-Dichlorobenzene			not detected	5300		0.071 mg/kg	0.121 mg/kg	
91-20-3	Naphthalene			not detected	6		0.075 mg/kg	0.121 mg/kg	

*Higher value of PQLs and Soil Quality Criteria as per N.J.A.C. 7:9C

Qualifiers

B = Compound found in related blank
 E = Value above linear range
 D = Value from dilution
 PQL = Practical Quantitation Limit
 J = Estimated value, concentration lies between R.L. and M.D.L.

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

1E

VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

FIELD ID.

312-PX5 NE WALL

Lab Name: FMETL NJDEP # 13461
Project: _____ Case No.: MW Location: _____ SDG No.: 10462
Matrix: (soil/water) SOIL Lab Sample ID: 1046201
Sample wt/vol: 9.2 (g/ml) G Lab File ID: VA7976.D
Level: (low/med) MED Date Received: 10/27/2010
% Moisture: not dec. 9.9 Date Analyzed: 10/29/2010
GC Column: Rtx-VMS ID: 0.25 (mm) Dilution Factor: 1.0
Soil Extract Volume: 25000 (uL) Soil Aliquot Volume: 125 (uL)

CONCENTRATION UNITS:

Number TICs found: 0 (ug/L or ug/Kg) UG/KG

CAS NO.	COMPOUND NAME	RT	EST. CONC.	Q

TPHC

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

Client: U.S. Army
DPW. SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Project #: 10-179124
Location: BLDG. 812
ECP:
Work Order:

Analysis: OQA-QAM-025
Matrix:
Inst. ID: GC TPHC INST. #1
Column Type: RTX-5, 0.32mm ID, 30 m
Injection Vol.: 1 uL

Date Received: 26-Oct-10
Date Extracted: 27-Oct-10
Extraction Method: Shake
Analyst: Robert Szot

Lab ID	Field ID	Dilution Factor	Weight (g)	% Solid	MDL (mg/kg)	RL (mg/kg)	TPHC Result (mg/kg)	Data	Qualifiers
MB10271001	MB10271001	1.00	15.00	100.00	23	333	not detected		
LCS10271001	LCS10271001	1.00	15.00	100.00	23	333	1095.65		
1046201	812 PX-5 NE WALL	1.00	15.16	90.1	26	366	not detected		

Qualifiers:

MDL = Method Detection Limit

RL = Reporting Limit

E = Result exceeds calibration limit

J = Estimated value, concentration is between MDL and RL

D = Result from dilution

ND = not detected

000032

LEAD

(SOIL)

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 10462
Sample Received: NA
Sample Matrix: Aqueous
Sample Prepared: 10/28/10

Site: BLDG. 812

Field ID: Method Blank

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/L)

Element	Date of Analysis	Result (mg/L)	R.L. (mg/L)	MDL (mg/L)
Lead	11/01/10	ND	0.500	0.076

ND = Not Detected, NLE = No Limit Established,
R.L. = Reporting limit, MDL = Method Detection Limit
Estimated results between MDL & RL

000044

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

Client: U.S. Army
DPW, SELFM-PW-EV
Bldg. 173
Ft. Monmouth, NJ 07703

Lab ID #: 1046201
Sample Received: 10/27/10
Sample Matrix: Soil

Site: BLDG. 812

Field ID: 812-PX5, NE Wall

Method of Analysis: E.P.A SW-846, Method 7420

METALS RESULTS SUMMARY (mg/kg)

Element	Date of Analysis	Result (mg/kg)	Soil Cleanup Criteria (mg/kg)*	R.L. (mg/kg)	MDL (mg/kg)
Lead	11/01/10	ND	400	99.8	15.2

ND = Not Detected, NLE = No Limit Established,

*Residential Direct Contact Soil Remediation Standard as per N.J.A.C. 7:26D

R.L. = Reporting limit, MDL = Method Detection Limit

Estimated results between MDL & R.L.

000045

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 data 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.	☒

Laboratory Manager or Environmental Consultant's Signature

Date: 11/23/10

Laboratory Certification # 13461

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

000053

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.


Dean Tardiff 11/03/10
Laboratory Manager

Attachment C

Compliance Averaging Methodology Applied at FTMM-64

ATTACHMENT C

Details Regarding Compliance Averaging FTMM-64 (formerly Site 812)

INTRODUCTION

This attachment summarizes the methodology and results of compliance averaging for the FTMM-64 site at Fort Monmouth (FTMM) in Oceanport, New Jersey. New Jersey Department of Environmental Protection (NJDEP) technical guidance (Reference 5) provides an approach that can be used for all exposure pathways in the remedial investigation or remedial action phases. At FTMM-64, the site has already been investigated (Reference 6). One sample result for lead and one sample result for total petroleum hydrocarbons (TPH) exceeded the NJDEP residential direct contact soil remediation standards (RDCSRS). Compliance averaging is used herein to determine whether the current residential remedial goals for extractable petroleum hydrocarbons (EPH) and lead have been achieved at FTMM-64. The previous TPH results, presented in **Table 1**, are considered comparable to EPH results for decision making purposes based on NJDEP guidance (References 3 and 4).

COMPLIANCE AVERAGING APPROACH

Compliance averaging, using either the 95% upper confidence limit of the mean or arithmetic mean, is used herein to determine whether the current residential remedial goals for lead and EPH have been achieved at FTMM-64.

There is one subsurface soil (greater than 2 feet bgs) location with a lead exceedance of the NJDEP RDCSRS of 400 mg/kg, and there is one surface soil (0-2 feet bgs) location with a TPH exceedance of the RDCSRS for EPH of 5,100 mg/kg (**Figure 1**). The lead exceedance is not co-located with the TPH exceedance. Lead and TPH soil data are presented in **Table 1**. Only *in situ* soil was evaluated. Therefore, excavated samples were excluded from the compliance averaging calculations.

Regulatory Approach for TPH: Since completion of the prior FTMM-64 investigations, NJDEP has revised analytical requirements for the investigation of petroleum hydrocarbons, notably replacing TPH analysis with EPH analysis in September 2010. The EPH method focuses on the non-volatile products, such as No. 2 fuel oil. However, the quality (and abundance) of the TPH data previously collected at FTMM using the Environmental Protection Agency (EPA) Method 418.1 analysis is believed to accurately characterize the No. 2 fuel oil at the site for the purpose of site closure. Specifically, the NJDEP response to FAQ#2 in NJDEP's Health Based and Ecological Screening Criteria for Petroleum Hydrocarbons Frequency Asked Questions (Reference 4) indicates that TPH and EPH data generated from a NJDEP field study of residential fuel oil tanks in 2007 are comparable at a ratio of roughly 1:1.

NJDEP's "Technical Guidance for Attainment of Remediation Standards and Site-Specific Criteria" (Reference 5) notes in Section 9.0 that the requirements for investigating EPH are found in the "Protocol for Addressing Extractable Petroleum Hydrocarbons" (Reference 3), which provides remedial standards for petroleum hydrocarbons. Neither the attainment guidance nor the

EPH protocol document mentions compliance averaging for TPH or EPH as an analyte), so in terms of written guidance on this topic, NJDEP is silent. However, Parsons is aware of an unwritten NJDEP policy decision made in 2015 that allows compliance averaging to be used for EPH where certain criteria are met. It is Parsons understanding that NJDEP will accept a compliance averaging approach for EPH if the two following criteria are met: 1) the petroleum hydrocarbons are Category 1 (i.e., No. 2 fuel oil and/or diesel fuel) discharges; and 2) EPH concentrations are less than the 8,000 parts per million (ppm) residual product/free product limit. FTMM-64 meets both criteria.

Compliance averaging was applied at FTMM-64 using an approach consistent with the attainment guidance (Reference 5). The horizontal and vertical definition of each functional area was drawn using the data points where soil sample results exceeded the RDCSRS and the guidelines provided in Appendix A of the NJDEP attainment guidance (Reference 5). A unique functional area was drawn for each chemical (i.e., one functional area for lead and one for TPH). Therefore, two functional areas were defined at FTMM-64: Lead Functional Area (0.25 acres) and TPH Functional Area (0.25 acres) (**Figure 1**). Each functional area has two vertical zones per NJDEP guidance (Reference 5): the surface zone (0 to 2 feet bgs) is designated with “A” and the subsurface zone (greater than 2 feet bgs) is designated with “B”. The sample data associated with each functional area is indicated on **Table 1**.

The size and shape of the functional areas is constrained horizontally by the NJDEP attainment guidance. NJDEP guidance recommends 0.25-acre square functional areas for residential exposure scenarios (for the ingestion-dermal pathway). As shown on **Figure 1**, the defined functional areas meet these requirements. The name and definition of each functional area, including acreage and vertical definition, is included on **Table 2**.

As shown in **Table 2**, the maximum detected concentrations of lead in Lead FA A and TPH in TPH FA B do not exceed the RDCSRS. Therefore, compliance averaging for these functional areas was not necessary.

The 95% UCL was calculated for Lead FA B using ProUCL software (version 5.1). The 95% UCL was calculated using *in situ* sample results (i.e., the soil remaining following excavations). Excavated sample data are indicated as such in **Table 1**. The 95% UCL is a conservative estimate of potential exposure, because it does not account for placement of clean fill after excavation. Because the field duplicate samples in the 1999/2000 dataset could not be matched with a location or parent sample, no field duplicate results were used in the UCL calculations. To avoid biasing results to a single boring with multiple sample depths, the average at each boring was used in the UCL calculation. Because the reporting limits were not published in the RI dataset, the method detection limits were used for non-detects. The ProUCL output is included in **Table 3**.

At TPH FA A, there was not a sufficient number of samples (i.e., 10 or more) or detections for ProUCL to calculate meaningful or reliable statistics. Therefore, the arithmetic mean compliance averaging method was used for this functional area (**Table 4**), as described in the NJDEP attainment guidance (Reference 5).

RESULTS

The compliance averaging results are summarized in **Table 2**. The average lead and TPH concentrations for each functional area were less than the respective RDCSRS (**Table 2**). Further, the compliance averaging results are also compliant with the New Jersey Administrative Code 5:17 (Reference 2) which requires that arithmetic mean of lead: 1) in children's bare soil play areas is less than 400 mg/kg; and 2) in all other bare soil areas is less than 1,200 mg/kg. The future land use is currently designated as low density residential (Reference 1).

REFERENCES CITED

1. EDAW, Inc. 2008. Fort Monmouth Reuse and Redevelopment Plan, Final Plan. Prepared for Fort Monmouth Economic Revitalization Planning Authority. August 22.
2. New Jersey Administrative Code Title 5 Community Affairs, Chapter 17 Lead Hazard Evaluation and Abatement Code. New Jersey Register, Vol. 46 No. 21, September 5, 2017. Available at: http://www.state.nj.us/dca/divisions/codes/codreg/pdf_regs/njac_5_17.pdf
3. NJDEP, 2010a. Protocol for Addressing Extractable Petroleum Hydrocarbons. Version 5.0, August 9.
4. NJDEP, 2010b. Health Based and Ecological Screening Criteria for Petroleum Hydrocarbons, Frequently Asked Questions. Version 4.0, August 9.
5. NJDEP, 2012. Technical Guidance for the Attainment of Remediation Standards and Site-Specific Criteria. September 24.
6. VERSAR, Inc. (Versar), 2001. Final Remedial Investigation Report and Remedial Action Workplan, Site 812. June.

FIGURES:

Figure 1 – In-Place Soil Sample Exceedance and Functional Areas

TABLES:

Table 1 – Lead and TPH Soil Data Within Functional Areas - Comparison to NJDEP Criteria

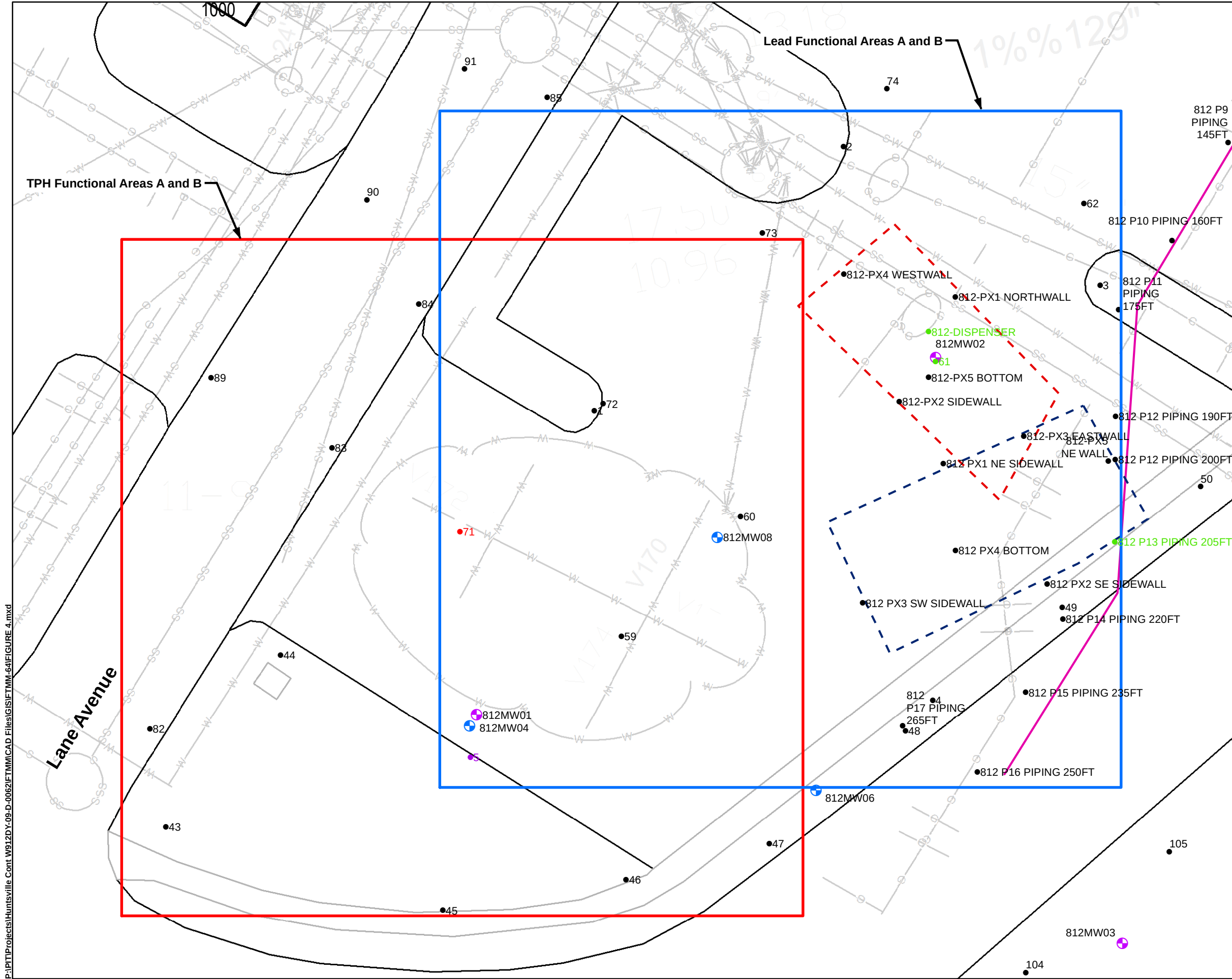
Table 2 – Summary of Compliance Averaging Results

Table 3 – ProUCL Output, UCL Statistics for Datasets with Non-Detects, Lead FA B

Table 4 – Calculation of Arithmetic Mean for TPH, TPH FA A

Figures

Figure 1 - FTMM-64 In-Place Soil Sample Exceedance and Functional Areas



LEGEND:

- Lead (601.75 mg/kg) Exceedance of NJDEP RDCSRS of 400 mg/kg
- TPH (7,099.8 mg/kg) Exceedance of NJDEP RDCSRS of 5,100 mg/kg
- Soil Sample Location Excavated (2010)
- Soil Sample Location
- Deep Monitoring Well
- Shallow Monitoring Well
- Dispenser Excavation
- Additional Excavation from Pipeline Hotspot
- Excavated Pipeline (2010)
- W Water Line
- S Sanitary Sewer Line
- SW Storm Sewer Line
- G Gas Line

Source: FTMM Supplied CAD

PARSONS
401 Diamond Drive NW,
Huntsville AL

Fort Monmouth
New Jersey

**FTMM-64 IN PLACE SOIL SAMPLE
EXCEEDANCE AND FUNCTIONAL AREAS**

CREATED BY: RR	REVIEWED BY: CL
DATE: FEB. 2018	FIGURE NUMBER: ATTACHMENT C FIGURE 1
PROJECT NUMBER: 748810-01000	FILE: ATT C FIGURE 1.mxd

P:\P\Projects\Huntsville Cont W912DY-09-D-0062\FTMM\CAD Files\GIS\FTMM-64\FIGURE 4.mxd

Tables

Table 1 - Lead and TPH Soil Data Within Functional Areas - Comparison to NJDEP Criteria

Table 2 – Summary of Compliance Averaging Results

Table 3 – ProUCL Output, UCL Statistics for Datasets with Non-Detects, Lead FA B

Table 4 – Calculation of Arithmetic Mean for TPH, TPH FA A

Attachment C, Table 1
TPH and Lead Soil Data Within
Functional Areas - Comparison to
NJDEP Criteria
FTMM-64
FORT MONMOUTH, NEW JERSEY

Lab Sample ID		4810.03	4810.04	4810.05	4810.06	4810.07	4810.09	4998.03	4998.04	4998.05	4998.06	4998.07	4998.08	4998.09	5003.03	5003.04	5012.03	5012.04	5012.05	5012.09	5012.10	5012.11	5012.12	5012.13	5012.14	5012.15	5012.16	5016.03	5016.04	5016.05
Sample Location	NJDEP RDCSRS * (mg/kg)	1	2	3	4	4	5	5	5	5	5	5	5	5	43	44	45	46	46	47	47	47	47	47	59	71	71	48	48	48
Excavated? (Y/N)		N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Sample Depth		8.5 '	9'	9'	4'	9'	7.5'	0-0.5'	1-1.5'	2-2.5'	3-3.5'	4-4.4'	5-5.5'	6-6.5'	6.5'	6.5'	5.5-6'	5-5.5'	5.5-6'	1.5-2'	2.5-3'	3-3.5'	4.5-5'	6-6.5'	6-6.5'	1-1.5'	6-6.5'	1-1.5'	1.5-2'	2-2.5'
Sample Date		9/23/1999	9/23/1999	9/23/1999	9/23/1999	9/23/1999	9/23/1999	12/9/1999	12/9/1999	12/9/1999	12/9/1999	12/9/1999	12/9/1999	12/9/1999	12/9/1999	12/10/1999	12/10/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/13/1999	12/15/1999	12/15/1999
	Exposure Area	TPH FA B Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	TPH FA B Lead FA B	TPH FA A Lead FA A	TPH FA A Lead FA A	TPH FA B Lead FA B	TPH FA B Lead FA B	TPH FA B Lead FA B	TPH FA B Lead FA B	TPH FA B Lead FA B	TPH FA B	TPH FA B	TPH FA B	TPH FA B	TPH FA B	TPH FA A	TPH FA B	TPH FA B	TPH FA B	TPH FA B	TPH FA B	TPH FA A	TPH FA B	Lead FA A	Lead FA A	Lead FA B
Total Petroleum Hydrocarbons (TPH)	5,100	NA	NA	NA	NA	NA	NA	171 U	182 U	172 U	174 U	186 U	176 U	294.86	168 U	171 U	177 U	608.13	177 U	302.73	277.59	223.96	173 U	165 U	166 U	7099.8	174 U	224.88	667.8	393.25
Lead	400	11.99 U	5.47	12.54 U	5.66	12.2 U	601.75	32.9	25.0	21.9	21.8	19.9	21.7	7.79	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes
*-. The NJ Residential Direct Contact Soil Remediation Standard refers to the NJDEP's September 18, 2017 Remediation Standards (http://www.nj.gov/dep/rules/rules/njac7_26d.pdf).
Highlighted cell indicates exceedance of NJDEP RDCSRS
U - Not detected at concentration greater than the MDL. MDL reported.
NA - Not analyzed

Attachment C, Table 1
TPH and Lead Soil Data Within
Functional Areas - Comparison to
NJDEP Criteria
FTMM-64
FORT MONMOUTH, NEW JERSEY

Lab Sample ID		5016.06	5016.07	5016.08	5016.13	5016.14	5016.17	5016.18	5016.19	5016.20	5016.21	5016.22	5016.23	5016.24	5016.25	5016.26	5078.03	5078.04	5019.09	5019.10	5019.11	5019.12	5019.13	5019.14	5023.09	1035401	1035402	1035403	
Sample Location	NJDEP	48	48	48	60	72	49	49	49	49	49	49	49	49	49	84	82	89	73	61	61	61	61	61	62	812-PX1-NORTHWALL	812-PX2-SOUTHWALL	812-PX3-EASTWALL	
Excavated? (Y/N)	RDCSRS *	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	Y	Y	N	N	N		
Sample Depth	(mg/kg)	3-3.5'	3.5-4'	4.5-5'	6.5-7'	5-5.5'	0.5-1'	1-1.5'	1.5-2'	2-2.5'	2.5-3'	3-3.5'	3.5-3'	4-4.5'	4.5-5'	5-5.5'	6-6.5'	5-5.5'	5.5-6'	0.5-1'	2-2.5'	2.5-3'	3-3.5'	3.5-4'	5-5.5'	6-6.5	6-6.5	6-6.5	
Sample Date		12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	12/15/1999	1/7/2000	1/7/2000	12/16/1999	12/16/1999	12/16/1999	12/16/1999	12/16/1999	12/16/1999	12/17/99	8/20/2010	8/20/2010	8/20/2010	
	Exposure Area	Lead FA B	Lead FA B	Lead FA B	TPH FA B	TPH FA B	Lead FA A	Lead FA A	Lead FA A	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	TPH FA B	TPH FA B	TPH FA B	Lead FA B	Lead FA A	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	
Total Petroleum Hydrocarbons (TPH)	5,100	409.5	388.55	201.25	307.69	275.08	522.49	472.12	626.25	677.6	926.94	826.43	757.12	834.54	721.44	233.81	261	U	264	U	186	U	883.43	229.77	1356.52	744.58	265.32	178	U
Lead	400	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.73	9.28	8.88	

Notes
*- The NJ Residential Direct Contact Soil Remediation Standard refers to the NJDEP's September 18, 2017 Remediation Standards (http://www.nj.gov/dep/rules/rules/njac7_26d.pdf).
Highlighted cell indicates exceedance of NJDEP RDCSRS
U - Not detected at concentration greater than the MDL. MDL reported.
NA - Not analyzed

Attachment C, Table 1
TPH and Lead Soil Data Within
Functional Areas - Comparison to
NJDEP Criteria
FTMM-64
FORT MONMOUTH, NEW JERSEY

Lab Sample ID		1035404	1035405	1035406	1035407	1045101	1045102	1045103	1045104	1045105	1045106	1045801	1046201	1037801	1037802	1037803	1037803 10X	1037804	1037805
Sample Location	NJDEP	812-PX4-WESTWALL	812-PX5-BOTTOM	812-Duplicate	812 DISPENSER	812-PX1 NE Wall	812-PX2 SE Wall	812-PX3 SW Wall	812-PX4 Bottom	812-Duplicate	812-Composite	812-Overburden	812-PX-5 NE Wall	812-P11 (Piping)+175'	812-P12 (Piping)+190'	812-P12A (Piping)+205'	812-P12A (Piping)+205'	812-P13 (Piping)+205'	812-Duplicate
Excavated? (Y/N)	RDCSRS *	N	N	N	Y	N	N	N	N	N	N	N	N	N	N	Y	Y	N	Y
Sample Depth	(mg/kg)	6-6.5	6.5-7	6-6.5	4-4.5	7.5-8	7.5-8	8-8.5	9-9.5	8-8.5	8-8.5	--	7-7.5	3-3.5	3-3.5	4.5-5	4.5-5	3.5-4	4.5-5
Sample Date		8/20/2010	8/20/2010	8/20/2010	8/20/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/21/2010	10/25/2010	10/25/2010	9/8/2010	9/8/2010	9/8/2010	9/8/2010	9/8/2010	9/8/2010
	Exposure Area	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA A	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B
Total Petroleum Hydrocarbons (TPH)	5,100	27 U	29 U	27 U	2,946	29 U	27 U	28 U	29 U	26 U	27 U	26 U	26 U	27 U	26 U	1,230	NA	26 U	540.54
Lead	400	6.41	7.49	8.18	19.9	17.97 U	16.06 U	24.9	18.16 U	15.17 U	55.1	NA	0.076 U	9.16	7.27	15.5	NA	9.58	15.7

Notes
*-. The NJ Residential Direct Contact Soil Remediation Standard refers to the NJDEP's September 18, 2017 Remediation Standards (http://www.nj.gov/dep/rules/rules/njac7_26d.pdf).
Highlighted cell indicates exceedance of NJDEP RDCSRS
U - Not detected at concentration greater than the MDL. MDL reported.
NA - Not analyzed

Attachment C, Table 1
TPH and Lead Soil Data Within
Functional Areas - Comparison to
NJDEP Criteria
FTMM-64
FORT MONMOUTH, NEW JERSEY

Lab Sample ID		1037805 10X	1039101	1039102	1039103	1039104	1039105
Sample Location	NJDEP	812-Duplicate	812-P14 (Piping)+220'	812-P15 (Piping)+235'	812-P16 (Piping)+250'	812-P17 (Piping)+265'	812-Duplicate
Excavated? (Y/N)	RDCSRS *	Y	N	N	N	N	N
Sample Depth	(mg/kg)	4.5-5	3.5-4	4-4.5	4-4.5	2.5-3	4-4.5
Sample Date		9/8/2010	9/14/2010	9/14/2010	9/14/2010	9/14/2010	9/14/2010
	Exposure Area	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B	Lead FA B
Total Petroleum Hydrocarbons (TPH)	5,100	NA	27 U	28 U	28 U	27 U	29 U
Lead	400	NA	16.8	9.31	10.5	16.8	9.69

Notes
*. The NJ Residential Direct Contact Soil Remediation Standard refers to the NJDEP's September 18, 2017 Remediation Standards (http://www.nj.gov/dep/rules/rules/njac7_26d.pdf).
Highlighted cell indicates exceedance of NJDEP RDCSRS
U - Not detected at concentration greater than the MDL. MDL reported.
NA - Not analyzed

Attachment C, Table 2
Summary of Compliance Averaging Results
FTMM-64
Fort Monmouth, New Jersey

Functional Area	Acres	Number of Samples ^A	Functional Area Depth Interval (feet bgs)	Maximum Detected Concentration (mg/kg)	NJDEP RDCSRS (mg/kg)	Compliance Averaging Result ^B (mg/kg)
Lead FA A	0.25	2	0-2	32.9	400	32.9 ^C
Lead FA B	0.25	29	>2	601.75	400	150.2
TPH FA A	0.25	4	0-2	7,099.80	5,100	2,526 ^D
TPH FA B	0.25	21	>2	608.13	5,100	608.13 ^C

Notes:

^A – Does not include field duplicates. Includes only *in situ* soil samples (i.e., excludes excavated soil samples).

Does not include sample locations not analyzed for chemical of concern.

^B – 95 percent upper confidence limit (UCL) unless noted. See Attachment C for ProUCL output.

^C – Because maximum detected concentration was less than the RDCSRS, compliance averaging for this functional area was not necessary.

^D – Too few detections were available to calculate a UCL. Therefore, the arithmetic mean is presented. See Attachment C for arithmetic mean calculation.

Value UCL achieves compliance with remedial goal

Abbreviations:

bgs - below ground surface

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Attachment C, Table 3												
2	ProUCL Output												
3	UCL Statistics for Datasets with Non-Detects												
4	Lead FA B, FTMM-64, Fort Monmouth, New Jersey												
5													
6	User Selected Options												
7	Date/Time of Computation			ProUCL 5.11/31/2018 12:31:05 PM									
8	From File			ProUCL.Lead B.xls									
9	Full Precision			OFF									
10	Confidence Coefficient			95%									
11	Number of Bootstrap Operations			2000									
12													
13	Lead												
14													
15	General Statistics												
16	Total Number of Observations				23		Number of Distinct Observations				22		
17							Number of Missing Observations				6		
18	Number of Detects				18		Number of Non-Detects				5		
19	Number of Distinct Detects				17		Number of Distinct Non-Detects				5		
20	Minimum Detect				0.076		Minimum Non-Detect				11.99		
21	Maximum Detect				601.8		Maximum Non-Detect				18.16		
22	Variance Detects				19432		Percent Non-Detects				21.74%		
23	Mean Detects				45.23		SD Detects				139.4		
24	Median Detects				9.295		CV Detects				3.082		
25	Skewness Detects				4.192		Kurtosis Detects				17.69		
26	Mean of Logged Detects				2.318		SD of Logged Detects				1.645		
27													
28	Normal GOF Test on Detects Only												
29	Shapiro Wilk Test Statistic				0.308		Shapiro Wilk GOF Test						
30	5% Shapiro Wilk Critical Value				0.897		Detected Data Not Normal at 5% Significance Level						
31	Lilliefors Test Statistic				0.447		Lilliefors GOF Test						
32	5% Lilliefors Critical Value				0.202		Detected Data Not Normal at 5% Significance Level						
33	Detected Data Not Normal at 5% Significance Level												
34													
35	Kaplan-Meier (KM) Statistics using Normal Critical Values and other Nonparametric UCLs												
36	KM Mean				37.14		KM Standard Error of Mean				25.93		
37	KM SD				120.8		95% KM (BCA) UCL				88.78		
38	95% KM (t) UCL				81.66		95% KM (Percentile Bootstrap) UCL				87.97		
39	95% KM (z) UCL				79.79		95% KM Bootstrap t UCL				721.4		
40	90% KM Chebyshev UCL				114.9		95% KM Chebyshev UCL				150.2		
41	97.5% KM Chebyshev UCL				199.1		99% KM Chebyshev UCL				295.1		
42													
43	Gamma GOF Tests on Detected Observations Only												
44	A-D Test Statistic				3.038		Anderson-Darling GOF Test						
45	5% A-D Critical Value				0.814		Detected Data Not Gamma Distributed at 5% Significance Level						
46	K-S Test Statistic				0.346		Kolmogorov-Smirnov GOF						
47	5% K-S Critical Value				0.217		Detected Data Not Gamma Distributed at 5% Significance Level						
48	Detected Data Not Gamma Distributed at 5% Significance Level												
49													
50	Gamma Statistics on Detected Data Only												
51	k hat (MLE)				0.435		k star (bias corrected MLE)				0.399		
52	Theta hat (MLE)				104.1		Theta star (bias corrected MLE)				113.3		
53	nu hat (MLE)				15.65		nu star (bias corrected)				14.37		
54	Mean (detects)				45.23								
55													
56	Gamma ROS Statistics using Imputed Non-Detects												
57	GROS may not be used when data set has > 50% NDs with many tied observations at multiple DLs												
58	GROS may not be used when kstar of detects is small such as <1.0, especially when the sample size is small (e.g., <15-20)												
59	For such situations, GROS method may yield incorrect values of UCLs and BTVs												
60	This is especially true when the sample size is small.												
61	For gamma distributed detected data, BTVs and UCLs may be computed using gamma distribution on KM estimates												
62	Minimum				0.01		Mean				35.4		
63	Maximum				601.8		Median				8.88		
64	SD				124		CV				3.503		
65	k hat (MLE)				0.257		k star (bias corrected MLE)				0.252		
66	Theta hat (MLE)				137.8		Theta star (bias corrected MLE)				140.3		

Attachment C, Table 4
Calculation of Arithmetic Mean for TPH
TPH FA A
Site FTMM-64
FORT MONMOUTH, NEW JERSEY

Field Sample Location	Sample Depth (ft bgs)	Sample Date	TPH ⁽¹⁾ (mg/kg)	TPH ⁽²⁾ (mg/kg)
5	0-0.5	12/9/1999	171	176.5
5	1-1.5	12/9/1999	182	
47	1.5-2	12/13/1999	302.73	302.73
71	1-1.5	12/13/1999	7,099.8	7,099.8
			Arithmetic Mean:	2,526

Notes:

(1) Measured TPH concentration.

(2) To avoid biasing results to a single sample location with multiple samples, the average of the samples collected at each location with multiple samples was used in the calculation.