FY2006

FORT MONMOUTH
NEW JERSEY
INSTALLATION ACTION PLAN

Printed August 2005

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multi-year restoration program for an installation. The plan will define environmental cleanup requirements at each site or area of concern, and propose a comprehensive approach with associated costs and schedules, to conduct future investigations and remedial actions.

In an effort to coordinate planning information between the restoration manager, the U.S. Army Environmental Center (USAEC), Fort Monmouth, Northeast IMA, executing agencies, regulatory agencies, and the public, an IAP was completed. The IAP is used to track requirements, schedules and tentative budgets for all major Army installation cleanup programs.

All site specific funding and schedule information has been prepared according to projected overall Army funding levels and is therefore subject to change.

The following persons contributed to the formulation and completion of this 2006 Installation Action Plan for Fort Monmouth conducted on February 28, 2005:

Contributors to this IAP:

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Fort Monmouth
FY06 Installation Action Plan

APPROVAL

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Acronyms & Abbreviations

AAFES	Army/Air Force Exchange Services
AEC	Army Environmental Center
AEDB-R	Army Environmental Database – Restoration
AOC	Area of Concern
AST	Aboveground Storage Tank
bgs	below ground surface
BRAC	Base Realignment and Closure
CA	Corrective Action
CAP	Corrective Action Plan
CC	Compliance Cleanup
CEA	Classification Exception Area
CECOM	Communications-Electronics Command
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CTC	Cost To Complete
Cy	Cubic yard
DCE	1,2-Dichloroethene
DD	Decision Document
DDD	Dichlorodiphenyldichloroethane
DER	Declaration of Environmental Restriction
DERA	Defense Environmental Restoration Account (currently called ER,A)
DERP	Defense Environmental Restoration Program
DES	Design
DPW	Directorate of Public Works
EE	Engineering Evaluation
EEB	Enzyme Enhanced Bioremediation
ER,A	Environmental Restoration, Army (formerly called DERA)
ERP	Environmental Restoration Program
FID	Flame Ionization Detector
FS	Feasibility Study
FTMM	Fort Monmouth
FY	Fiscal Year
GAC	Granular Activated Carbon
GC/MS	gas chromatography/mass spectrometry
gph	gallon per hour
GWTS	ground water treatment system
HRC	Hydrogen Release Compound
IAP	Installation Action Plan
IAW	In accordance with
ICS	Initial Site Characterization
IMA	Installation Management Agency
IMP(C)	Implementation (Construction)
IMP(O)	Implementation (Operations)
INV	Investigation
IRA	Interim Remedial Action
IRP	Installation Restoration Program

Acronyms & Abbreviations

LTM	Long Term Management
LUCs	Land Use Controls
MC	Munitions Constituents
MEC	Munitions Explosive Constituents
MMRP	Military Munitions Response Program
MNA	Monitored Natural Attenuation
MTBE	Methyl-Tert-Butyl Ether
NJAC	New Jersey Administrative Code
NJDEP	New Jersey Department of Environmental Protection
NJPDES	New Jersey Pollutant Discharge Elimination System
NPL	National Priority List
ORC	Oxygen Release Compound
PA	Preliminary Assessment
PCB	Polychlorinated Biphenyls
PERC	Tetrachloroethene
PID	Photo Ionization Detector
POL	Petroleum, Oil & Lubricants
R&D	Research & Development
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operation
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation Recovery Act
RD	Remedial Design
REM	Removal Action
RI	Remedial Investigation
RIP	Remedy in Place
ROD	Record of Decision
SI	Site Inspection
SVE	Soil Vapor Extraction
TAL	Target Analyte List
TAPP	Technical Assistance for Public Participation
TBA	Tert-Butyl Alcohol
TCE	Trichloroethene
TCL	Target Compound List
TPH	Total Petroleum Hydrocarbons
TPHC	Total Petroleum Hydrocarbons Concentrations
TRC	Technical Review Committee
ug/L	micrograms per liter
USAEC	United States Army Environmental Center
USATHAMA	U.S. Army Toxic and Hazardous Materials Agency
UST	Underground Storage Tank
VOA	Volatile Organic Analysis
VOC	Volatile Organic Compounds

Installation Information

INSTALLATION LOCALE: Fort Monmouth is located in the central-eastern portion of New Jersey in Monmouth County. The installation contains two subposts (Charles Wood Area and the Evans Area), in addition to the Main Post, which are located within a 12- mile radius of the Main Post. The Main Post encompasses an area of approximately 630 acres and is bounded by State Highway 35 to the west, Parkers Creek and Lafetra Creek to the north, the New Jersey Transit Railroad to the east and a residential neighborhood to the south. The Charles Wood Area is composed of approximately 511 acres and is located 1 mile west of the Main Post. The Charles Wood Area is bounded by Tinton Avenue to the north, residential development and Pine Brook Road to the south and the Garden State Parkway to the west. The Evans Area is being managed under the Base Realignment and Closure (BRAC) program, which was implemented in fiscal year (FY) 1993. Environmental issues relating to the Evans Area will not be the subject of this report.

INSTALLATION MISSION: Fort Monmouth is an active U.S. Army installation. The primary mission of Fort Monmouth is to provide command, administrative, and logistical support for Headquarters, U.S. Army Communications-Electronics Command (CECOM). The support provided by the installation is used by host and tenant activities in the performance of research, development, engineering, and acquisition of assigned communications and electronic systems, as well as the management of all material readiness functions associated with these systems and related equipment.

COMMAND ORGANIZATION:

MAJOR COMMAND: U.S. Army Installation Management Agency (IMA)
SUBCOMMAND: IMA-Northeast
INSTALLATION: Fort Monmouth, Public Works Directorate, Environmental Office
LEAD EXECUTORS: Public Works Directorate, Environmental Office

REGULATOR PARTICIPATION:

State= New Jersey Department of Environmental Protection, Division of Responsible Party Site Remediation, Bureau of Federal Case Management

NPL STATUS: Non-National Priorities List (NPL) site with written agreement with state regulator.

RAB/TRC/TAPP STATUS: No RAB/TRC/TAPP has been established at this time.

PROGRAM SUMMARIES:

IRP:

Contaminants of Concern: Trichloroethylene, Petroleum/Oil/Lubricants (POL), Lead, Tetrachloroethene, Polychlorinated Biphenyls (PCB), Chlorobenzene, Pesticides, Benzene, Arsenic, 1,2 – Dichloroethene, Cadmium
Media of Concern: Ground water, Soil, Surface Water
Estimated date for RIP/RC: SEPT 2008 / SEPT 2008
Funding to Date: (FY94-FY04): $12,481,000
CTC: $1,729,000

MMRP:
Contaminants of Concern: MEC/MC, Arsenic, Lead
Media of Concern: Soil
Estimated date for RC: SEPT 2017
Funding to Date: (FY03-FY05): $25,000
CTC: $1,295,000

BRAC:

There are no BRAC sites at Fort Monmouth.

CC:

There are no CC sites at Fort Monmouth.

Cleanup Program Summary

HISTORIC ACTIVITY: The Main Post of Fort Monmouth was established on 17 June 1917 as Camp Little Silver. The site of the Main Post had formerly been a horse racetrack, but the track had been idle since 1890. The name of the Camp was changed after 3 months to Camp Alfred Vail. The initial mission of the Camp was to train Signal Corps operators for service in World War I. In the first 19 months of the Camp's existence, 129 semi-permanent structures were built, a tent camp established on the site of a former swamp, and a parade ground established on the site of a former marsh. A radio laboratory and an airfield were developed in 1918. After the war, Camp Vail was designated as the site of the Signal Corps School, the only training area for Signal Corpsmen in the country. All but four World War I structures were demolished by 1924.

In 1925 the facility became a permanent post and its name was changed to Fort Monmouth. The primary mission of Fort Monmouth continued to be Signal Corps training and electronics research. In 1934, laboratory operations were consolidated in a new facility, Squier Laboratory (Building 283). Research on radios and radar continued here until the early 1950s. During World War II, the pace of training increased tremendously at Fort Monmouth. The expanded laboratory effort was accomplished by starting new laboratories at other post facilities. Squier Laboratory continued to be the principal laboratory on Main Post until 1954. In 1955 and 1956, 72 World War II wooden structures were demolished to make room for permanent structures. These new buildings were used for residential, administrative, commercial, and recreational purposes. A small number of additional administrative buildings were completed during the 1970s, 1980s and 1990s.

Camp Charles Wood was purchased in 1941 and opened in 1942. The eastern half of the property was formerly a golf course, and the western half was residential and farmland.

During World War II, the Camp was used for training Signal Corpsmen. Antenna shelters were constructed on 26.5 acres of land and used by the Signal Corps Laboratory for research and development (R&D) purposes.

A new R&D facility, the Myers Center (Building 2700), was completed in 1954. R&D activities that had formerly been conducted at Squier Laboratory and some activities from the Evans Area were transferred to the Myers Center. To this day, laboratories within the Myers Center facility continue to develop state-of-the-art electronic and communications equipment for use by the U.S. Armed Forces.

PROGRAM PROGRESS:

IRP: There are 17 active IRP sites. Remedial actions have been competed for sites FTMM-02, 08, 12, 14, 53, 64, and 66. A quarterly groundwater monitoring program has been implemented to support the MNA recommendation as the remedy for closure.

MMRP: A Preliminary Assessment (PA) has been completed and identified 1 MMRP site, the Former Outside Small Range. An SI is scheduled to be completed in 2007 and execute follow on phases/actions as required in the individual site cleanup strategies. It is anticipated that this site will have an RI/FS, RD and RA(C) phases conducted by the end of FY17.

IRP Summary

REGULATORY STATUS:

Non-NPL site with written agreement with state regulator.

AEDB-R SITES/SITES RC: 17/36

43 AEDB-R sites
17 Active ER,A Eligible Sites
36 Response Complete ER,A Eligible

AEDB-R SITE TYPES:

3 Above Ground Storage Tanks	1 Burn Area	1 Contaminated Fill
2 Incinerators	2 Industrial Discharges	9 Landfills
1 Maintenance Yard	3 Pesticide Shops	2 Pistol Ranges
4 Sewage Treatment Plants	4 Spill Site Areas	2 Storage Areas
1 Surface Disposal Areas	2 Underground Storage Tanks	
6 Underground Tank Farms		

CONTAMINANTS OF CONCERN:

Trichloroethene, Lead, Chlorobenzene Tetrachloroethylene, Vinyl Chloride, Benzene, Toluene, Ethylbenzene, Xylene, MTBE, Naphthalene, Arsenic, 1, 1 – Dichloroethene, Chlordane.

MEDIA OF CONCERN: Ground water, Soil, Surface Water

COMPLETED REM/IRA/RA:

RA - Stream Bank Stabilization at FTMM-02, 12 & 14 (FY99 & FY00)
RA - Ground Water Remediation at FTMM-02 (FY00)
RA - Storm Sewer Relocation at FTMM-08 (FY00)
RA - Ground Water Remediation at FTMM-64 (FY00)
RA - Soil Cleanup/Product Recovery System at FTMM-66 (FY02)

IDENTIFIED POSSIBLE REM/IRA/RA: None

TOTAL ER,A FUNDING:

PRIOR YEAR (FY94-FY04):	$12,481,000
CURRENT (FY05)	$ 711,000
FUTURE:	$ 1,729,000
TOTAL:	$14,921,000

DURATION OF IRP:

Year of IRP Inception:	1994
Year of RIP/RC:	200809/200809
Year of IRP Completion including LTM:	2011 with indefinite LUCs.

IRP Contamination Assessment

Assessment Overview:

Suspected hazardous waste sites were initially identified at Fort Monmouth in a 1980 report prepared by the U.S. Army Environmental Center (USAEC), formerly known as the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA). This report identified 37 sites with known or suspected waste materials on the Main Post and the two subposts (Charles Wood and Evans Area). In February 1993, the Directorate of Public Works (DPW) entered into a written agreement with the New Jersey Department of Environmental Protection (NJDEP) to investigate all areas of known or suspected contamination. The regulatory requirements for implementing this action are outlined in New Jersey Administrative Code (N.J.A.C.) 7:26D, Cleanup Standards for Contaminated Sites and N.J.A.C. 7:26E, Technical Requirements for Site Remediation. Following this agreement, a Preliminary Assessment (PA) was implemented to investigate each of the 37 sites, plus 8 additional sites which were identified by the DPW and the NJDEP. The PA commenced in August of 1993 and was completed in December of that same year. With the onset of BRAC 93, all Evans related issues were removed from further consideration under the PA phase. The CECOM BRAC Office became the lead agency for managing all BRAC 93 program initiatives for the Evans Area. With the removal of the Evans sites from further consideration, a total of 32 sites became the subject of this investigation. Twenty-one sites are located on the Main Post and eleven sites are located in the Charles Wood Area. The 32 areas of environmental concern include closed landfills, suspected landfills, a sludge dump, former PCB transformer sites, former pesticide storage and mixing areas, closed incinerator sites, former sewage treatment plants, neutralization pits, indoor/outdoor small arms ranges, a former training area and a former temporary hazardous waste storage area.

A Site Investigation Work Plan was developed concurrently during the PA phase. The Preliminary Assessment/Site Investigation Work Plan outlines field activities for investigating 23 sites (thirteen Main Post sites and ten Charles Wood sites). A “No Further Action” determination was proposed for 9 sites (eight Main Post sites and one Charles Wood site). The Preliminary Assessment/Site Investigation Work Plan was submitted to the NJDEP in December 1993 and subsequently approved by said agency in April 1994. Implementation of the Site Investigation Work Plan commenced in November 1994. Field activities conducted under the Site Investigation (SI) phase included surface geophysical investigations, surface and subsurface soil sampling, sediment and surface water sampling, ground water monitor well installation and sampling and tidal monitoring. In general, a majority of the environmental samples collected were analyzed for a full Target Compound List (TCL) + 30 scan, a Target Analyte List (TAL) scan and cyanide. A breakdown of the TCL + 30 scan includes analyses for the following types of compounds: volatile organics, base neutral acid extractables, pesticides, herbicides and polychlorinated biphenyls (PCBs). A TAL scan includes analyses for 23 metals. Field activities under the SI phase were completed in May 1995.

Sample results from the SI were evaluated by comparing them to NJDEP regulatory standards (N.J.A.C. 7:26D) and background sample results. Sample results were first compared to NJDEP regulatory standards. If a sample result exceeded the regulatory criteria, then it was compared against the maximum background concentration.

Compounds that exceeded the regulatory standard and the established background at a particular site were classified as compounds of concern. The primary compounds of concern identified in the SI report include Trichloroethene (TCE), Tetrachloroethene (PERC), Chlorobenzene, Benzene, 1,2-Dichloroethene (DCE), Total Petroleum Hydrocarbons (TPH), Pesticides, PCBs, Arsenic, Cadmium and Lead. These compounds were identified in soil, sediment, surface water, ground water and concrete.

The Final SI Report was completed and presented to the NJDEP in December 1995. The SI phase identified 16 sites with contaminant levels above NJDEP regulatory standards in one or more environmental medium. Contaminant levels at six sites were below regulatory concern. Two areas of concern were still in the SI phase. The Final SI Report includes recommendations for the 18 areas of concern. The following factors were considered before our site specific recommendations were finalized: degree regulatory standards were exceeded, environmental media impacted, human and ecological receptors, feasibility for cleanup, natural attenuation versus active remediation, and the economic impact. Recommendations listed in the report include: long term surface and ground water monitoring, further delineation of contaminants, a remedial design/remedial action for soils and ground water impacted by volatile organic compounds and several remedial actions involving the removal and disposal of contaminated soil. The NJDEP approved the Final SI Report in April 1996. Since the completion of SI activities, ten additional sites have been added to the restoration program.

Twenty-eight areas of concern (AEDB-R sites FTMM-02, 03, 04, 05, 08, 12, 14, 15, 16, 18, 20, 22, 23, 25, 26, 28, 29, 53, 54, 55, 56, 57, 58, 59, 61, 63, 64 & 66) have been identified as requiring additional Remedial Investigation (RI) work. Nine of the twenty-eight sites are former landfill areas (FTMM-02, 03, 04, 05, 08, 12, 14, 18 & 25).

Eight of the former landfill sites are located on the Main Post and one is located in the Charles Wood Area. The nine landfill sites were never closed in accordance with the New Jersey Solid Waste Management Act, N.J.A.C. 7:26-2A. Six landfill sites continue to exhibit both organic and inorganic contaminants within site ground water above NJDEP Ground Water Quality Criteria. In a letter dated 4 April 1996, the NJDEP requested that all nine sites meet the closure requirements as outlined in N.J.A.C. 7:26-2A. To meet this requirement the DPW would have to implement closure activities in the form of capping for approximately 38.5 acres of former landfill space. It should be noted that all nine sites have been closed for at least seventeen years and have naturally vegetated over this time period. As an alternate approach, the DPW proposed collecting surface soil samples from each of the nine landfills to document that the existing cover material does not contain contaminant levels above the New Jersey Residential Direct Contact Soil Cleanup Criteria and/or established background levels. In a letter dated August 10, 1998, the NJDEP approved our alternate sampling approach. Remedial investigation reports were prepared and submitted to the NJDEP for each of the nine landfill sites, a “No Further Action” determination for all nine sites has been requested from the NJDEP.

Eighteen areas of concern (AEDB-R sites FTMM-02, 03, 05, 08, 12, 14, 18, 22, 53, 54, 55, 56, 57, 58, 59, 61,64, & 66) have been identified as requiring Remedial Designs (RDs). Seven of the areas are former landfill sites (AEDBR sites FTMM-02, 03, 05, 08, 12, 14 & 18), site CW-1 is a wastewater treatment lime pit, site 699 is an active gasoline station and site 812 is a former gasoline distribution area. The ten sites combined exhibit elevated levels of PCE, TCE, DCE, vinyl chloride, benzene, xylene, chlorobenzene, arsenic and lead in ground water.

Sites M-2 and M-8 also exhibit elevated levels of PCBs within site soils. Sites M-2, M-5, CW-1, 699, 812, & 886 (AEDB-R sites FTMM-02, 05, 22, 53,64, & 66) all required the development of active treatment technologies based upon contaminant concentrations and potential down gradient receptors.

Four areas of concern (FTMM-02, 08, 12 & 14) require a one time corrective action at each site. All four areas are former landfill sites. Each of these sites has a surface water body which forms the perimeter of the closed landfill. The stream banks at three of the sites (FTMM-02, 12 & 14) have eroded to the point where waste materials are protruding out of them. The RD was completed in June 1999 and approved by the NJDEP in September 1999.

Sites M-3, M-8, M-12, M-18, 296, 290, 80, 108, 2567, 1122 and 283 (AEDB-R site FTMM-03, 08, 12, 18, 54, 55, 56, 57, 58, 59 & 61) were all selected for monitored natural attenuation. Site M-3 has been recommended for a “No Further Action” determination along with landfill sites M-12 and M-18 and is pending NJDEP approval. The remaining seven areas are former underground storage tank sites. Sites 108, 296 and 290 have been recommended for a “No Further Action” determination and are pending approval; Remedial investigation reports requesting a “No Further Action” determination from the NJDEP at site 80 is currently being prepared and will be submitted to the NJDEP upon their completion. Remedial action work plans proposing to continue monitored natural attenuation at sites 2567, 1122, and 283 are being prepared and will be submitted to the NJDEP upon their completion. Injection of ORC is also proposed for site 283 to accelerate attenuation.

Thirteen areas of concern (AEDB-R sites FTMM-02, 05, 08, 12, 14, 15, 16, 22, 26, 29, 53,64, & 66) have been identified as requiring Remedial Actions (RAs). RAs for the M-15 site (FTMM-15), M-16 site (FTMM-16) and the CW-4 site (FTMM-26) all involve the removal and offsite disposal of soils contaminated by pesticides and heavy metals. Final cleanup activities at the M-15 site were completed in November 1999. Final cleanup activities at the M-16 site were completed in February 1999. Cleanup activities for the CW-4 site were completed in July, 1997. A “No Further Action” determination is being requested for each of the three sites from the NJDEP. The RA for the CW-1 site (AEDB-R site FTMM-22) is currently in place and operating. The selected remedial technologies involve using a combination of air sparging and soil vapor extraction techniques. The RA for the CW-7 site (AEDB-R site FTMM-29) involved the removal and offsite disposal of soil contaminated by PCBs. Cleanup activities for the CW-7 site were completed in June 1998. A “No Further Action” determination is being requested from the NJDEP. RAs for the M-2, M-12 and M-14 sites (FTMM-02, 12 & 14) involve stabilizing the stream banks at these former landfill sites. RA implementation commenced in October 1999 and

was completed in June 2001. The last remaining RAs for FY00 implementation included sites M-2, M-5, M-8, 699 and 812 (AEDB-R site FTMM-02, 05, 08, 53 & 64). RA implementation at these sites address a combination of soil and ground water contamination issues. An in-house program to inject ORC/HRC at sites M-2, M-5, and 812, (AEDB-R site FTMM-02, 05, and 64) is currently implemented within the DPW The RA for the 886 site (AEDB-R site FTMM-66) involved the removal and offsite disposal of soil contaminated by TPHC (fuel oil) and the installation of an automated product recovery system. Soil cleanup and system installation activities for the 886 site commenced in November 2002 and were completed in February 2003.

All Fort Monmouth RA work activities were completed in February 2003

An in-house program to monitor ground and surface water is currently implemented within the DPW. Seventeen areas of concern (AEDB-R sites FTMM-02, 03, 05, 08, 12, 18, 22, 53, 54, 55, 56, 57, 58, 59, 61, 64, & 66) have been identified for the monitoring program. The DPW currently maintains a NJDEP certified analytical laboratory.

Exit Strategy:

The operations of the air sparge, SVE, and pump and treat system will continue at site FTMM-53 until FY09. The injection of ORC will continue at site FTMM-61 and the product recovery system will be maintained at FTMM-66 until FY08. This will be followed quarterly groundwater monitoring. Quarterly groundwater monitoring is currently being performed at the other 14 sites to support the MNA determination to include surface water samples at selected sites. Site closure for all sites is expected by FY11.

Previous Studies:

1980

- Installation Assessment of Fort Monmouth, Report No. 171, Aberdeen Proving Ground, Maryland. Prepared by U.S Army Toxic and Hazardous Materials Agency (USATHAMA), May 1980.

1985

- A Concise History of Fort Monmouth, New Jersey. Prepared by U.S. Army Communications-Electronics Command, Historical Office, July 1985.

1987

- Analytical/Environmental Assessment Report on Plans for Future Development at Fort Monmouth, Richmond, Virginia. Prepared by Harland Bartholomew & Associates, Inc., May 1987.

1988

- Update of the Initial Assessment of Fort Monmouth and Subinstallations: Charles Wood Area and Evans Area, Report No. 171, Aberdeen Proving Ground, Maryland. Prepared by U.S. Army Toxic and Hazardous Materials Agency, June 1988.

1993

- Investigation of Suspected Hazardous Waste Sites at Fort Monmouth, New Jersey, West Chester, Pennsylvania. Prepared by Roy F. Weston, Inc., December 1993.

1994

- Site Investigation, Fort Monmouth, Main Post and Charles Wood Areas, Chemical Data Acquisition Plan, West Chester, Pennsylvania. Prepared by Roy F. Weston, Inc., October 1994.
- Site Investigation, Fort Monmouth, Main Post and Charles Wood Areas, Safety, Health and Emergency Response Plan, West Chester, Pennsylvania. Prepared by Roy F. Weston, Inc., October 1994.

1995

- Final Site Investigation Report, Fort Monmouth, Main Post and Charles Wood Areas, West Chester, Pennsylvania. Prepared by Roy F. Weston, Inc., December 1995.

FORT MONMOUTH

INSTALLATION RESTORATION PROGRAM
SITE DESCRIPTIONS

FTMM-02
LANDFILL 2 (MAIN POST) SEE M-2

SITE DESCRIPTION

The M-2 landfill is located in the southwestern corner of the Main Post, on the south bank of Mill Creek. The 6.5-acre landfill operated from 1964 until 1968. The types of materials disposed of in the landfill have been reported to include: construction debris, scrap metal, asbestos containing materials, vegetative waste, unwashed containers which previously held hazardous materials/wastes, outdated photographic chemicals, small quantities of outdated drugs, sludge from the sewage treatment plant, soot and boiler scale, incinerator ash, oil spill debris, oil filters, batteries, fluorescent tubes, and electronic components. Metal, concrete and other types of landfill debris can be observed protruding from the stream bank along Mill Creek. Under the SI phase, three monitoring wells were installed to evaluate ground water quality. In addition, surface water samples were collected from Mill Creek. All samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. Chlorobenzene, arsenic and lead were detected in downgradient monitoring wells above NJDEP Ground Water Quality Criteria. TCE and PCE were detected in surface water above NJDEP Surface Water Criteria. Under an enhanced SI phase, seven additional monitoring wells were installed to further evaluate ground water quality. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene, chlorobenzene, cadmium and lead have been detected in six of the seven downgradient monitoring wells above NJDEP Ground Water Quality Criteria. A remedial investigation to delineate compounds of concern within ground water and soil has been completed. PCBs were identified in site soils at two separate areas within the boundary of the landfill. A second remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material has also been completed. A “No Further Action” determination has been made regarding the landfill cover material. A remedial design that addresses soil erosion problems along Mill Creek was completed in June of 1999. A remedial action to correct the soil erosion problems commenced in October of 1999 and was completed in June of 2001. A remedial design that addresses ground water and soil contamination was submitted and approved by the NJDEP. The remedial alternative approach selected for the M-2 landfill involved the injection of Enzyme Enhanced Bioremediation (EEB) products into shallow ground water to accelerate contaminant degradation. The DPW utilized our Geo-Probe sampling vehicle as the means for injecting the EEB products into the aquifer. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP as part of our Remedial Action Work Plan submittal. The CEA restricts the use of ground water within a defined area until such time that contaminants

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN:
Benzene, Chlorobenzene

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI/FS	199902	200003
RD	199804	200101
RA(C)	199909	200509
RA(O)	200106	200609
LTM	200610	200909
RC:	**200609**	

of concern achieve compliance with the NJDEP Ground Water Quality Criteria. In addition, the DPW incorporated a document equivalent to a Declaration of Environmental Restriction (DER) into the Fort Monmouth Installation Master Plan for the PCB soil contamination. Remedial action work activities were completed in June of 2001. Subsequent remedial action operations [RA (O)] activities involved injecting Oxygen Release Compound (ORC) materials into shallow ground water to further enhance contaminant degradation. Currently, as part of a monitoring program, sixteen (16) ground water monitoring wells are sampled on a quarterly basis. Operation of the remedial action (ORC injection) will end in FY 05.

CLEANUP STRATEGY

Continue compliance monitoring of ground water and surface water as a key component of monitored natural attenuation. Sixteen (16) ground water monitoring wells will continue to be sampled on a quarterly basis to include surface water sampling until 2009.

FTMM-03
LANDFILL 3 (MAIN POST) SEE M-3

SITE DESCRIPTION

The M-3 landfill is located between North Drive and Lafetra Creek in the west-central part of the Main Post. The 5.9-acre landfill operated from 1959 until 1964. The types of materials disposed of in the landfill have been reported to include: construction debris, scrap metal, asbestos containing materials, vegetative waste, unwashed containers which previously held hazardous materials/wastes, outdated photographic chemicals, small quantities of outdated drugs, sludge from the sewage treatment plant, soot and boiler scale, incinerator ash, oil spill debris, oil filters, batteries, fluorescent tubes, and electronic components. Under the SI phase, three monitoring wells were installed to evaluate ground water quality. In addition, surface water samples were collected from Lafetra Creek. All samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. Chlorobenzene and lead were detected in downgradient monitoring wells above NJDEP Ground Water Quality Criteria. No compounds of concern were detected in surface water samples collected during the SI phase. Surface water samples collected under a now expired New Jersey Pollutant Discharge Elimination System (NJPDES) permit identified PCE above NJDEP Surface Water Criteria. Under an enhanced SI phase, five additional monitoring wells were installed to further evaluate ground water quality. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene, chlorobenzene, cadmium and lead were detected in all five downgradient monitoring wells above NJDEP Ground Water Quality Criteria. Contaminant levels are consistent with the levels identified during the SI phase and subsequent quarterly long term monitoring results for surface water and ground water at the M-3 landfill. A remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was completed.

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Chlorobenzene, Vinyl Chloride

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199809	199912
RD	200001	200008
RA(C)	200010	200102
LTM	200103	200709
RC:	**200102**	

A "No Further Action" determination was made regarding the landfill cover material. A remedial design that addresses ground water contamination was submitted and approved by the NJDEP. The remedial alternative approach selected for the M-3 landfill involves the use of monitored natural attenuation. Due to a change in the NJDEP (Interim) Ground Water Quality Criteria, the compound of concern (chlorobenzene) no longer exceeds the NJDEP Criteria. A remedial action progress report was submitted in May 2004 requesting a "No Further Action" determination for the site. Currently eight (8) ground water monitoring wells are sampled on a quarterly basis.

CLEANUP STRATEGY

Continue compliance monitoring of eight (8) ground water monitoring wells pending NJDEP review. No further action is expected by 2008.

FTMM-05
LANDFILL 5 (MAIN POST) SEE M-5

SITE DESCRIPTION

The M-5 landfill is located just north of the M-4 landfill in the area bounded by North Drive to the south, an unpaved road south of Building 198 to the north, Wilson Avenue to the east and Mill and Parkers Creek to the west. The 3.2-acre landfill operated from 1952 until 1959. The types of materials disposed of in the landfill have been reported to include: construction debris, scrap metal, asbestos containing materials, vegetative waste, unwashed containers which previously held hazardous materials/wastes, outdated photographic chemicals, small quantities of outdated drugs, sludge from the sewage treatment plant, soot and boiler scale, incinerator ash, oil spill debris, oil filters, batteries, fluorescent tubes, and electronic components. Under the SI phase, two monitoring wells were installed to evaluate ground water quality. All samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. Elevated levels of PCE were detected in one monitoring well. The compound of concern exceeds the NJDEP Ground Water Quality Criteria by a factor of 130.

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN:
TCE, PCE, DCE, Vinyl Chloride

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199804	199911
RD	199803	200002
RA(C)	200009	200509
RA(O)	200101	200609
LTM	200610	200909
RC:	**200609**	

Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Surface water samples collected under a now expired NJPDES permit identified PCE above NJDEP Surface Water Criteria. Under the RI phase, approximately 260 ground water and soil samples were collected by means of a Geo-Probe sampling device. Following the Geo-Probe investigation, thirteen additional monitoring wells were installed to further evaluate ground water quality. At present, the extent of the PCE plume has been delineated both vertically and horizontally within site soil and ground water. A remedial design that proposes injecting Hydrogen Releasing Compounds (HRC) into the aquifer to remediate the PCE plume was submitted and approved by the NJDEP. The DPW utilized our Geo-Probe sampling vehicle as the means for injecting the HRC into the aquifer. A Classification Exception Area (CEA) for site ground water will be filed with the NJDEP as part of our Remedial Action Progress Report submittal. The CEA restricts the use of ground water within a defined area until such time that the contaminant of concern achieves compliance with the NJDEP Ground Water Quality Criteria. A second remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was also completed. A "No Further Action" determination was made regarding the landfill cover material. Currently ten (10) ground water monitoring wells are sampled on a quarterly basis. Operation of the remedial action (HRC injection) will end in FY 05.

FTMM-05
LANDFILL 5 (MAIN POST) SEE M-5

CLEANUP STRATEGY

Continue compliance monitoring of ten (10) ground water monitoring wells and surface water as a key component of monitored natural attenuation.

FTMM-08
LANDFILL 8 (MAIN POST) SEE M-8

SITE DESCRIPTION

The M-8 landfill is located north of Buildings 692 and 697 in a bend of Parkers Creek. The 7.2-acre landfill operated from 1962 until 1981. Following closure of the M-8 landfill, all solid wastes generated at Fort Monmouth were directed to the Monmouth County landfill. The types of materials disposed of in the landfill have been reported to include: construction debris, scrap metal, asbestos containing materials, vegetative waste, unwashed containers which previously held hazardous materials/wastes, outdated photographic chemicals, small quantities of outdated drugs, sludge from the sewage treatment plant, soot and boiler scale, incinerator ash, oil spill debris, oil filters, batteries, fluorescent tubes, and electronic components. Under the SI phase, four monitoring wells were installed to evaluate ground water quality. All samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. Benzene and chlorobenzene were detected in downgradient monitoring wells above NJDEP Ground Water Quality Criteria. Under an enhanced SI phase, seven additional monitoring wells were installed to further evaluate ground water quality. Benzene and chlorobenzene were detected in four downgradient monitoring wells above NJDEP Ground Water Quality Criteria. Contaminant levels are consistent with the levels identified during the SI phase and subsequent quarterly long term monitoring results for surface water and ground water at the M-8 landfill. PCB soil contamination was identified at one location within the M-8 landfill. A second remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was also completed. A "No Further Action" determination was been made regarding the landfill cover material. A remedial design that addresses ground water contamination was submitted and approved by the NJDEP. The remedial alternative approach selected for the M-8 landfill involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water will be filed with the NJDEP as part of our Remedial Action Progress Report submittal. The CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. In addition, the DPW incorporated a document equivalent to a Declaration of Environmental Restriction (DER) into the Fort Monmouth Installation Master Plan for the PCB soil contamination. Currently, as part of a monitoring program thirteen (13) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN:
Benzene, Chlorobenzene, Tetrachloroethylene

MEDIA OF CONCERN:
Ground water, Surface Water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199811	199912
RD	200001	200009
RA(C)	200010	200103
RA(O)	200103	200609
LTM	200610	200909

RC: 200609

CLEANUP STRATEGY

Continue monitoring of thirteen (13) ground water monitoring wells and surface water as a key component of our monitored natural attenuation program.

FTMM-12
LANDFILL 12 (MAIN POST) SEE M-12

SITE DESCRIPTION

The M-12 landfill is located on the Main Post, on the south side of Husky Brook, west of Murphy Drive. Dates of operation for the 1.4-acre landfill are unknown. The types of materials disposed of in the landfill have been reported to include: construction debris, scrap metal, asbestos containing materials, vegetative waste, unwashed containers which previously held hazardous materials/wastes, outdated photographic chemicals, small quantities of outdated drugs, sludge from the sewage treatment plant, soot and boiler scale, incinerator ash, oil spill debris, oil filters, batteries, fluorescent tubes, and electronic components.

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Arsenic, Lead

MEDIA OF CONCERN:
Ground water, Surface Water

PHASES	Start	End
PA	199208	199312
SI	199411	199512
RI	199803	199908
RD	199803	200012
RA(C)	199909	200103
LTM	200103	200809
RC:	**200103**	

Metal, concrete and other types of landfill debris can be observed protruding from the stream bank along Husky Brook. Under the SI phase, three monitoring wells were installed to evaluate ground water quality. All samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. Arsenic, cadmium, mercury and lead were detected in site monitoring wells slightly below NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. A remedial investigation of site ground water has been completed and eight additional monitoring wells have been installed at the site. Arsenic was detected consistently in two monitoring wells above NJDEP Ground Water Quality Criteria. A remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was completed. A "No Further Action" determination was made regarding the landfill cover material. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the M-12 landfill involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. The CEA restricts the use of ground water within a defined area until such time that the contaminant of concern achieves compliance with the NJDEP Ground Water Quality Criteria. A remedial design that addresses soil erosion problems along Husky Brook was completed in 1999. A remedial action to correct the soil erosion problems commenced in 1999 and was completed in 2001. A Remedial Investigation Report, which presents a ground water flow and transport model to evaluate the migration of arsenic in ground water, was submitted to the NJDEP in October 2003. A "No Further Action" determination was requested for the site.
Currently eleven (11) ground water monitoring wells are sampled on a quarterly basis.

CLEANUP STRATEGY

Continue compliance monitoring of eleven (11) ground water monitoring wells on a quarterly basis and surface water pending NJDEP review.

FTMM-18
FORMER TRAINING AREA (MAIN POST)
M-18

SITE DESCRIPTION

The M-18 site is a former training area utilized by the Army Signal School and other Army units. The M-18 site is located on the Main Post, between Parkers Creek to the north and Bldgs. 283, 289, 293 and 294 to the south. The 4.1-acre site is partially paved and the remaining portion is an open sandy area. A tidal marsh adjoins the site. The 1980 IA report (USAEC) identifies diesel and gasoline generators along with other types of military vehicles being used at this site. The report goes on to state that numerous fuel spills occurred at the site as a result of these activities. Under the SI phase, nine soil borings in a grid pattern were drilled at the site. Two soil samples were collected from each boring, either 6 to 12 inches or 12 to 18 inches below the bottom of the asphalt (to avoid bias) and either from intervals with visible staining or from just above the water table. Soil samples were analyzed for volatile organic compounds (VOCs) and Total Petroleum Hydrocarbons (TPHs). No compounds of concern were detected above NJDEP Direct Contact Soil Cleanup Criteria. Two soil boring locations were converted to monitoring wells in order to evaluate ground water quality. One existing monitoring well was also used to evaluate ground water quality. Ground water samples were analyzed for TCL + 30 parameters, TAL metals and TPH. Arsenic, lead and 4,4 DDD were detected in downgradient monitoring wells above NJDEP Ground Water Quality Criteria. Under an enhanced SI phase, three additional monitoring wells were installed to further evaluate ground water quality. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene and lead were detected in four of the six site monitoring wells above NJDEP Ground Water Quality Criteria. A geophysical survey was also conducted under the SI phase in order to determine whether the M-18 site was a former landfill. The data gathered from geophysical survey identified waste materials buried at the site. Subsequent trenching work confirmed the presence of construction debris at the site. A remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was completed. A "No Further Action" determination was made regarding the landfill cover material. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the M-18 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. The CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. A Remedial

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Arsenic, Lead, Benzene

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199901	199912
RD	200009	200012
RA(C)	200101	200103
LTM	200103	200809
RC:	**200103**	

Investigation Report which presents a ground water flow and transport model to evaluate the migration of benzene and metals in ground water was submitted to the NJDEP in October 2003. A "No Further Action" determination was requested for the site. Currently two (2) ground water monitoring wells are sampled on a quarterly basis. In addition, monitoring wells associated with this site are sampled at Bldg. 290 site (2 wells) and Bldg. 296 site (7 wells).

CLEANUP STRATEGY

Continue compliance monitoring of two (2) ground water monitoring wells and surface water pending NJDEP review.

FTMM-22
WASTEWATER TREAT LIME PIT (CHARLES W)

SITE DESCRIPTION

The CW-1 site is one of two wastewater treatment lime pits located next to the Myer Center facility (Bldg. 2700). The Myer Center facility is located in the Charles Wood area of Fort Monmouth at the intersection of Pearl Harbor Avenue and Corregidor Road. The CW-1 wastewater treatment lime pit can be found in the courtyard area of Bldg. 2700. The wastewater treatment lime pit was constructed concurrently with the Myer Center facility in 1952. The pit was designed to treat corrosive wastes generated from laboratory activities operating within the facility. The pit is a concrete vault measuring 7 by 13 by 8 feet in height and contains limestone chips. Corrosive waste discharge lines originating from the north and west wings of Bldg. 2700 are plumbed to the pit. The effluent discharge line exiting the pit is connected to the sanitary sewer. In FY92, DPW personnel collected limestone and sludge samples from the pit to evaluate the potential for environmental contaminants being present. Analytical testing of the sample material identified elevated levels of organic contaminants. A cleanup action ensued which generated ninety-two 55 gallon drums of RCRA waste. Following the cleanup action, fresh limestone chips were placed into the pit as a precautionary measure. Current hazardous waste management practices prohibit the discharge of corrosive wastes into the wastewater treatment lime pit system. Due to the presence of elevated levels of organic contaminants being identified in the pit prior to the cleanup action, the focus of the SI was to evaluate the potential impact to soil and ground water. Under the SI phase, soil borings were drilled on each side of the lime pit. In the absence of field instrument readings and visible staining, one soil sample was collected from each boring at an interval just above the water table. In addition, each boring was converted to a monitoring well in order to evaluate ground water quality. Both soil and ground water samples were analyzed for TCL + 30 parameters and TAL metals. In reference to the four soil samples, no compounds of concern were detected above NJDEP Direct Contact Soil Cleanup Criteria. TCE, PCE and 1,2-Dichloroethene were detected in downgradient monitoring wells above NJDEP Ground Water Quality Criteria. At their peak, contaminant levels within the ground water were 7,440 times higher than the NJDEP Ground Water Quality Criteria. Under the RI phase, a passive soil gas survey commenced at the CW-1 site in March 1996. The purpose of the soil gas survey was to delineate the extent of lateral soil contamination at the site and to use the survey data to aid in the placement of three additional monitoring wells. Results of the soil gas survey determined that compounds of concern were migrating horizontally in site soil. The three new monitoring wells were installed at the CW-1 site during the first week of May 1996. One deep well was installed next to the lime pit to determine the vertical extent of contamination both in soil and ground water. The other two wells were placed downgradient of the contaminant plume. The RI phase

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
TCE, PCE, 1,1-Dichloroethene

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199601	199606
RD	199703	199708
RA(C)	199710	200509
RA(O)	199803	200609
LTM	200610	200909
RC:	**200609**	

delineated the vertical and horizontal extent of the contaminant plume. At present, the contaminant plume has not encroached upon the Myer Center facility. However, the downgradient migration pathway for said contaminants is in the direction of the referenced building. It should be noted that the Myer Center facility has a basement level. A RD was completed and approved by the NJDEP in August 1997. The selected remedial technologies involve using a combination of air sparging and soil vapor extraction techniques. Construction of the selected remedial alternative was completed in April 1998. In January 2002, an additional ground water recovery well, RW-2, was installed in the source area and two additional air sparge points (SPG-3 and SPG-4) were installed to further enhance source area remediation. Ground water recovery system wells RW-1 and RW-2 were connected to a newly constructed ground water treatment system (GWTS). The GWTS was designed to capture and treat contaminated ground water in the source area and reduce the elevated concentrations of detected chlorinated hydrocarbons as well as achieve hydraulic control in the source area and beyond. The GWTS utilizes an air stripper to remove dissolved-phase chlorinated hydrocarbons from impacted ground water extracted from the recovery wells. The air stripper effluent is polished via two in-series 500-pound granular activated carbon (GAC) units prior to final discharge to the sanitary sewer. In addition to ground water extraction, recovery wells RW-1 and RW-2 and source area monitoring wells MW-28 and MW-29 were tied into the soil vapor extraction system to further enhance removal of vapor phase chlorinated hydrocarbons in the source area. Air sparge wells SPG-1, SPG-2, SPG-3 and SPG-4 were installed to enhance the stripping of volatile chlorinated hydrocarbons from source area ground water, where they are subsequently captured by the vapor extraction at RW-1, RW-2, MW-28, MW-29, SVE-1, and SVE- 2. The vapor phase carbon units were upgraded from two in-series 55-gallon drums to two in-series 1,000-pound vapor phase units capable of a substantial SVE airflow increase. The flow upgrade has resulted in a substantial increase of contaminant mass removal rates. Currently twelve (12) ground water monitoring wells are sampled on a quarterly basis.

CLEANUP STRATEGY

Continue remedial action operations until the end of FY 05. Continue compliance monitoring of twelve (12) ground water monitoring wells as a key component of monitored natural attenuation.

FTMM-53
UST, GASOLINE, B 699 (MAIN POST)

SITE DESCRIPTION

Site FTMM-53 is an active gasoline service station operated by the Army/Air Force Exchange Services (AAFES) organization. The station is located on Saltzman Avenue which is situated in the center portion of the Main Post. The tank system is comprised of six 10,000 gallon underground storage tanks (USTs) with two remote pumping islands. The USTs store various grades of gasoline. On 5 November 1984, a tank tightness test identified a .333 gallon per hour (gph) leak in two of the USTs. No action was taken until 1989 when a line leak was identified; subsequently the piping was excavated and replaced. Since that time a ground water pump system (to recover free product and to control the plume) has been operating in conjunction with a quarterly ground water monitoring program. Thirteen monitoring wells were installed at the site in order to delineate the extent of the contaminant plume. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene, ethyl benzene, toluene, xylene, and MTBE have been detected both in soil and ground water above NJDEP Direct Contact Soil Cleanup Criteria and Ground Water Quality Criteria. A remedial action work plan specifying the installation of an air sparging/soil vapor extraction system, plus an expanded ground water pump and treat system was submitted and approved by the NJDEP. In addition, the use of Enzyme Enhanced Bioremediation products were stipulated for the localized treatment of soils in dense silt and clay areas. Construction of the selected remedial alternative was completed in January of 2001. Currently, as part of a monitoring program, thirteen (13) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN:
Benzene, Ethylbenzene, Toluene, Xylene, MTBE

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
ISC	198910	198910
INV	198910	198910
CAP	198910	199308
DES	199803	200008
IRA	198910	199508
IMP(C)	200009	200809
IMP(O)	200102	200809
LTM	200810	201010
RC:	**200809**	

CLEANUP STRATEGY

Continue remedial action operation (air sparge, SVE, pump & treat system) activities and monitoring efforts at Building 699 site. Shut down of the treatment system is expected in FY08 and quarterly groundwater monitoring of 13 wells will be performed for two years after shut down.

FTMM-54
UST, GASOLINE, B 296 (MAIN POST)

SITE DESCRIPTION

Site FTMM-54 is a former fuel distribution facility which was abandoned and then rediscovered during a renovation project at Bldg. 296. The facility dates back to the 1940s and is located on Sherrill Avenue. The UST system was comprised of ten 1,000 gallon tanks which stored various types of fuel products. These products were distributed from remote pumping islands located over 450 feet from the UST field and within 50 feet of Parkers Creek (a sensitive estuarine marsh area). Between November and December 1993, the previously unknown fuel distribution system was removed and the source of contamination was eliminated. Since that time seven monitoring wells were installed in order to delineate the extent of contamination at the site. Benzene and lead were initially detected above NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene and lead were detected in site monitoring wells above NJDEP Ground Water Quality Criteria. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the Building 296 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. The CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. Due to the proximity of this site, the Bldg. 290 site, and the M-18 Landfill, one Remedial Investigation Report was generated for all three sites. This report, submitted to the NJDEP in October 2003, presents a ground water flow and transport model to evaluate the migration of benzene and metals in ground water. A "No Further Action" determination was requested for this site. Currently, as part of the monitoring program, seven (7) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Benzene, Lead

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
ISC	199311	199401
INV	199401	199402
CAP	199610	199801
DES	200009	200012
IMP(C)	200101	200103
LTM	200103	200809
RC:	**200103**	

CLEANUP STRATEGY

Continue compliance monitoring of seven (7) ground water monitoring wells pending NJDEP review.

FTMM-55
UST, GASOLINE, BLDG 290

SITE DESCRIPTION

FTMM-55 is the site of a former UST system which was located at Building 290. The site formerly served as a motor pool for a military unit that has since left Fort Monmouth. The tanks were used to store gasoline and they were both removed on 2 September 1994. The tank site was reported to the NJDEP as a discharge to the environment, Case # 93-11-30-1246-27. In accordance with (IAW) NJDEP UST Site Assessment activity requirements, the DPW was required to install two monitoring wells to determine any adverse impact to the environment. One monitoring well was installed within ten feet of the UST excavation and the second well was installed down gradient of the potential discharge area. On 2 July 1996, a construction activity identified gasoline-contaminated soil within 50 feet of the former UST site. The contaminated area was suspected to be the previously unknown dispenser area for the UST system. Soil samples were collected and test results identified TPH levels in excess of 17,000 mg/kg. Soils were removed and disposed of IAW NJDEP requirements. Additional soil and ground water samples were collected in March 1998 to further delineate the area of contamination. No additional contaminated soils were identified within the area of concern. The results of the initial ground water assessment identified lead above the NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Arsenic and lead were detected in site monitoring wells above NJDEP Ground Water Quality Criteria. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the Building 290 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. The CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. Due to the proximity of this site, the Bldg. 296 site, and the M-18 Landfill, one Remedial Investigation Report was generated for all three sites. This report, submitted to the NJDEP in October 2003, presents a ground water flow and transport model to evaluate the migration of benzene and metals in ground water. A "No Further Action" determination was requested for this site. Currently, as part of the monitoring program, two (2) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Arsenic, Lead

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
ISC	199408	199408
INV	199409	199412
CAP	199409	199412
DES	200009	200012
IMP(C)	200101	200103
LTM	200103	200809
RC:	**200103**	

CLEANUP STRATEGY

Continue compliance monitoring of two (2) ground water monitoring wells pending NJDEP review.

FTMM-56
PETROLEUM RELEASE, BLDG 80

SITE DESCRIPTION

FTMM-56 is a former UST site (Bldg. 80) which is located off Riverside Drive and is situated in the eastern section of the Main Post. The UST was a fiberglass reinforced plastic tank which stored # 2 fuel oil. The tank was installed in 1984 and was removed on 16 June 1994. The site was reported to the NJDEP as a discharge to the environment, Case # 94-06-16-1127-25. The Bldg. 80 site serves as an operational area for DPW equipment and maintenance activities.

Although the discharge was identified during the UST closure, the discharge is believed to have come from activities prior to and not related to the UST removal (pre-1984). In accordance with NJDEP UST Site Assessment activity requirements, the DPW was required to install monitoring wells down gradient of the potential discharge area in order to evaluate any adverse impact to the environment. Since the time of tank closure, two monitoring wells were installed at the site. Ground water samples have been collected and analyzed for VOA + 15 and BN+15. Benzene was initially detected at levels up to 1.7 ug/l and chlorobenzene up to 5.20 ug/l. Benzene was above the NJDEP Ground Water Quality Criteria of 1.0 ug/l and chlorobenzene was above the standard of 4 ug/l. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene, chlorobenzene, 4,4'DDD, cadmium and lead were detected in site monitoring wells above NJDEP Ground Water Quality Criteria. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the Building 80 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. A CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. A Remedial investigation report requesting a "No Further Action" determination from the NJDEP at this site is currently being prepared and will be submitted to the NJDEP upon its completion. Currently, as part of a monitoring program, six (6) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Chlordane, Arsenic, Lead

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199405	199405
SI	199405	199506
RI	199810	200008
RD	200009	200012
RA(C)	200101	200103
LTM	200103	200809
RC:	**200103**	

CLEANUP STRATEGY

Continue compliance monitoring of six (6) ground water monitoring wells pending NJDEP review.

FTMM-57
UST GASOLINE RELEASE BLDG 108

SITE DESCRIPTION

FTMM-57 is located off of Riverside Avenue in the eastern section of the Main Post. The DPW removed five USTs in the area of Building 108 on 2 November 1993. The site was reported to the NJDEP as a discharge to the environment, Case # 93-04-12-1939-29. In accordance with NJDEP UST Site Assessment activity requirements, monitoring wells were installed at the site to determine any adverse impact to the environment. Four shallow monitoring wells were installed to help delineate the extent of the contaminants at the site. Benzene, chlorobenzene and lead were initially detected at levels above NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Arsenic and lead were detected in site monitoring wells above NJDEP Ground Water Quality Criteria. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the Building 108 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. A CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. A Remedial investigation report requesting a "No Further Action" determination from the NJDEP at this site is currently being prepared and will be submitted to the NJDEP upon its completion. Currently, as part of a monitoring program, four (4) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Arsenic, Lead

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199303	199304
SI	199304	199307
RI	199610	199801
RD	200009	200012
RA(C)	200101	200103
LTM	200103	200809
RC:	**200103**	

CLEANUP STRATEGY

Continue compliance monitoring of four (4) ground water monitoring wells pending NJDEP review.

FTMM-58
UST, GASOLINE BLDG 2567

SITE DESCRIPTION

Site FTMM-58 is an active gasoline service station operated by the Army/Air Force Exchange Services (AAFES) organization. The station is located at the corner of Hope Road and Laboratory Road in the Charles Wood Area. Five single walled steel USTs were removed as part of a renovation project which was initiated as a result of one UST failing a tightness test. At the time, a determination was made to remove the existing tank system and replace it with a new fiberglass double walled tank system. The tank system was removed (February 1993) and approximately 1,000 cubic yards of petroleum contaminated soil was excavated and stock piled for off site disposal. A preliminary assessment was conducted at the site and five monitoring wells were installed. Ground water samples have been collected and analyzed for VOA + 15 and lead. Benzene, 1,2-Dichloroethane, MTBE and lead were initially detected above NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene, xylene, TBA and MTBE were detected in two of the five site monitoring wells above NJDEP Ground Water Quality Criteria. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the Building 2567 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. A CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. A Geoprobe investigation was performed in early 2004 to further evaluate site ground water conditions. A Remedial Investigation Report summarizing these findings is being prepared and will be submitted to the NJDEP upon its completion. Currently, as part of a monitoring program seven (7) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
MTBE, Lead

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
ISC	199108	199110
INV	199111	199203
CAP	199111	199203
DES	200009	200012
IMP(C)	200103	200103
IMP(O)	200103	200609
LTM	200610	200909
RC:	**200609**	

CLEANUP STRATEGY

Continue compliance monitoring of seven (7) ground water monitoring wells as a key component of monitored natural attenuation.

FTMM-59
BUILDING 1122, UNKNOWN DISCHARGE

SITE DESCRIPTION

Site FTMM-59 is located on Alexander Avenue, adjacent to Mill Creek on the Main Post. The DPW removed one underground storage tank located next to Bldg. 1122 (a self help vehicle repair shop) in June 1994. The UST was a single wall steel tank used for storing # 2 fuel oil. During tank closure activities, a petroleum discharge to site soil and ground water was identified. Upon further investigation, the DPW identified a second UST which was removed from the same area during the late 1980s. Discussions with site personnel leads us to believe that the tank was removed because of inventory control problems. It is assumed that the site was not fully remediated during the first UST closure. In accordance with NJDEP UST Site Assessment activity requirements, all petroleum contaminated soils have been removed and disposed of. In addition, the DPW has installed two monitoring wells to determine any adverse impact to ground water. TCE was initially detected at levels above NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Surface water sampling points (Mill Creek) currently exist downgradient from the site and are being monitored. TCE continues to be quantified in one of the two site monitoring wells above NJDEP Ground Water Quality Criteria. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the Building 1122 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. A CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. A Geo-probe investigation was performed in April 2004 to further evaluate site ground water conditions and potential contaminant migration. The investigation determined there was a release of # 2 fuel oil to the site. The investigation to determine the extent of the petroleum contamination was conducted in house and concluded that the extent of the release was localized. A well sump was installed for the removal of free-phase product. No free phase product has been observed since October 2004. A Remedial Investigation Report summarizing these findings is being prepared and will be submitted to the NJDEP upon its completion. Currently, as part of the monitoring program five (5) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN:
TCE, Naphthalene

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
PA	199406	199407
SI	199407	199511
RI	199610	200008
RD	200009	200012
RA(C)	200103	200103
RA(O)	200103	200609
LTM	200610	200909
RC:	**200609**	

CLEANUP STRATEGY

Continue compliance monitoring of five (5) ground water monitoring wells and surface water as a key component of monitored natural attenuation.

FTMM-61
BUILDING 283, LEAKING UST, GASOLINE

SITE DESCRIPTION

Site FTMM-61 is located off of Sherrill Avenue in the northern section of the Main Post. On August 28, 1997, a 3,000 gallon steel UST (No. 0081533-229) was removed. The tank was used to store gasoline. The UST was located within the courtyard of Building 283. Following its removal, the UST was inspected for corrosion holes. Numerous holes were noted in the UST. Soils within the tank excavation which corresponded with the locations of the holes were dark in color and appeared to be contaminated. Based on site assessment activities, it was concluded that a discharge to the environment had taken place. The NJDEP hotline was notified and the site was assigned case # 97-8-28-1330-33. Approximately 400 cubic yards of contaminated soil was removed and disposed of in accordance with NJDEP requirements. Ground water was encountered at 12.0 feet below grade and a sheen was observed on the ground water. In response to this observation, one ground water sample was collected. The sample was analyzed for volatile organic compounds (VOCs) to include a calibration for xylene plus 15 tentatively identified compounds. Benzene, ethyl benzene, toluene, and lead were detected above the NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Benzene was detected at a concentration of 2,238.10 ug/L, above the Ground Water Quality Criteria of 1.0 ug/L. Ethyl benzene was detected at a concentration of 797.4 ug/L, above the Ground Water Quality Criteria of 700.0 ug/L. Toluene was detected at a concentration of 1,084.57 ug/L, above the Ground Water Quality Criteria of 1,000 ug/L. Lead was detected at a concentration of 22.0 ug/L, above the Ground Water Quality Criteria of 10.0 ug/L. Two additional monitoring wells were installed downgradient of the site for the purpose of serving as sentinel wells. A remedial design that addresses ground water contamination was submitted to the NJDEP. The remedial alternative approach selected for the Building 283 site involves the use of monitored natural attenuation. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. A CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. A Remedial action work plan proposing the injection of ORC to accelerate attenuation of VOCs in ground water and to continue monitored natural attenuation at this site is being prepared and will be submitted to the NJDEP upon its completion. Currently, as part of the monitoring program, six (6) ground water monitoring wells are sampled on a quarterly basis.

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN:
Benzene, Ethylbenzene, Toluene, Lead

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
ISC	199708	199708
INV	199708	200009
CAP	199708	200009
DES	200009	200012
IMP(C)	200101	200103
IMP(O)	200103	200709
LTM	200709	201009
RC:	**200709**	

CLEANUP STRATEGY

Inject ORC for two years. Continue compliance monitoring of ground water (6 wells quarterly) and surface water. This is a key component of monitored natural attenuation.

FTMM-64
UST, GASOLINE, BUILDING 812

SITE DESCRIPTION

Based upon historical records, site FTMM-64 has been identified as a former gasoline distribution area. The former gasoline station was located off Murphy Drive in what is now a parking lot for Building 812. The former site sits directly across from the Patterson Army Health Clinic. Aerial photographs dating from 1947 through 1961 clearly identify the gasoline station. The next aerial photograph, taken in August of 1971, no longer identifies the station at the site. In order to determine any adverse environmental impacts from the former gasoline station, a site investigation was initiated in September of 1999. Utilizing our Geo-Probe sampling vehicle, a total of five borings were completed at the site. Soil and ground water samples were collected and analyzed for VOA + 15 parameters, plus lead. The ground water sample collected from boring # 5 contained the following VOCs above the NJDEP Ground Water Quality Criteria: benzene, total xylene, PCE, TCE, DCE, vinyl chloride and lead. Benzene was detected at a concentration of 12.0 ug/L, above the Ground Water Quality Criteria of 1.0 ug/L. Total xylenes were detected at a concentration of 92.0 ug/L, above the Ground Water Quality Criteria of 40.0 ug/L. PCE was detected at a concentration of 2.7 ug/L, above the Ground Water Quality Criteria of 1.0 ug/L. TCE was detected at a concentration of 5.0 ug/L, above the Ground Water Quality Criteria of 1.0 ug/L. DCE was detected at a concentration of 15,879.5 ug/L, above the Ground Water Quality Criteria of 10.0 ug/L. Vinyl chloride was detected at a concentration of 98.1 ug/L, above the Ground Water Quality Criteria of 5.0 ug/L. Lead was detected at a concentration of 160.2 ug/L, above the Ground Water Quality Criteria of 10.0 ug/L. Ethyl benzene and toluene were also detected, however both compounds of concern were measured below the NJDEP Ground Water Quality Criteria. The soil sample collected from boring # 5 contained both PCE and DCE, however both measurements were below the NJDEP Residential Direct Contact Soil Cleanup Criteria. Commencing in December of 1999, a remedial investigation was initiated to further delineate compounds of concern. Again, the Geo-Probe sampling vehicle was utilized for sample collection. A total of 164 borings were completed. One aqueous sample and a minimum of one soil sample were collected from the interval just above the water table for each bore hole sampled. The soil column was visually inspected from the interval extending from the surface layer to the saturated zone. In addition, soils were screened in 4-foot increments utilizing a Flame Ionization Detector/Photo-Ionization Detector (FID/PID) field reading instrument. Additional soil samples were collected based upon visual and field observations. Soil and ground water samples were analyzed for VOA + 15 parameters, plus lead. Out of the 164 ground water samples collected under the RI phase, eight samples contained VOCs above the New Jersey

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
Benzene, PCE, TCE, DCE, Vinyl Chloride, Lead

MEDIA OF CONCERN:
Ground water

PHASES	Start	End
ISC	199909	199909
INV	199912	200002
DES	200004	200103
IMP(C)	200009	200509
IMP(O)	200106	200609
LTM	200610	200909
RC:	**200609**	

Ground Water Quality Criteria. Five of the boring locations are in close proximity to bore hole # 5 which continues to measure the highest VOC levels. Soil samples collected under the RI phase continue to show that all compounds of concern are below the NJDEP Residential Direct Contact Soil Cleanup Criteria. In May of 2000, fourteen monitoring wells were installed to delineate the vertical and horizontal extent of the ground water contaminant plume. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. All aqueous samples were analyzed for VOA + 15 parameters, plus lead. At present, the extent of the contaminant plume has been delineated both vertically and horizontally within site soil and ground water. A remedial design that proposes injecting Hydrogen Releasing Compounds (HRC) into the aquifer to remediate the contaminant plume was approved by the NJDEP. The DPW utilized our Geo-Probe sampling vehicle as the means for injecting the HRC into the aquifer. A Classification Exception Area (CEA) for site ground water was filed with the NJDEP. The CEA restricts the use of ground water within a defined area until such time that contaminants of concern achieve compliance with the NJDEP Ground Water Quality Criteria. Remedial action work activities were completed in June of 2001. Subsequent remedial action operation activities involve injecting additional HRC materials into shallow ground water to further enhance contaminant degradation. Currently, as part of the monitoring program, eight (8) ground water monitoring wells are sampled on a quarterly basis. Operation of the remedial action (HRC) will end in FY 05.

CLEANUP STRATEGY

Continue compliance monitoring of eight (8) ground water monitoring wells as a key component of monitored natural attenuation.

FTMM-66
FORMER ABOVEGROUND STORAGE TANK SITE

SITE DESCRIPTION

Based upon historical records, site FTMM-66 has been identified as a former fuel oil storage area. Aerial photos indicate a former aboveground storage tank (AST) was located adjacent to Building 886, located off Murphy Drive on the Main Post. The AST had a storage capacity of 250,000 gallons and stored # 2 fuel oil. The AST has been identified on base maps dating back to 1956. Fort Monmouth records show the AST being removed during the 1970s. Soil contamination was identified at the site during the removal of a 1,000-gallon, steel, fuel oil UST located on the west side of Building 886. In order to determine the extent of environmental impacts in the area of Building 886, a site investigation was initiated in March 2002. Utilizing our Geoprobe® sampling vehicle, a total of forty-eight soil borings were completed at the site from March to April 2002. Soil samples were collected at 2-foot interval from the surface to a total depth of 12-feet below ground surface (bgs) and analyzed for TPHC. Eight of the soil boring locations contained soils, which exceeded the NJDEP Residential Direct Contact Soil Cleanup Criteria for TPHC (>10,000 ppm). Twenty-four soil samples collected from boring locations containing soils exceeding 1,000 ppm were analyzed for VOA + 15 parameters. None of these samples contained VOA concentrations that exceeded the NJDEP Residential Direct Contact Soil Cleanup Criteria. Concurrently, twenty-seven temporary piezometer points were installed for depth to water measurements. Free-phase petroleum hydrocarbons (product) was observed in twelve of the piezometers at a thickness ranging from 1/16 to 5-inches. Two ground water samples were collected from soil borings located adjacent to the piezometer locations, which contained the highest product thickness. Ground water samples were collected using the Geoprobe® and analyzed for VOA +15 and semi volatile constituents. No concentrations detected exceeded the NJDEP Ground Water Quality Criteria for those constituents tested. The extent of the contaminated soil has been delineated both vertically and horizontally as well as the areal extent of floating product. Limited migration of contaminants from the source area has occurred. Based on the results of the investigation, a remedial design consisting of the excavation and removal of contaminated soil exceeding the NJDEP Residential Direct Contact Soil Cleanup Criteria for TPHC of 10,000 ppm and the recovery of free-phase petroleum hydrocarbons was initiated in November 2002. Soil excavation activities were completed in February 2003. An estimated 4,000 tons of excessively contaminated soil was removed from the site. In January 2003, five (5) monitoring wells were installed to establish the areal extent of petroleum hydrocarbon impacts to ground water and serve as sentinel wells. Ground water

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN:
TPHC, Benzene

MEDIA OF CONCERN:
Ground water, Soil

PHASES	Start	End
PA	200203	200203
SI	200203	200203
RI	200203	200206
RA(C)	200207	200709
RA(O)	200302	200709
LTM	200710	201009

RC: 200709

samples are collected on a quarterly basis. The installation of an automated product recovery system consisting of eight 6-inch diameter recovery wells and air driven product recovery pumps was completed and became operational in February 2003. A remedial action report is currently being prepared and will be submitted to the NJDEP upon its completion. Currently, as part of the monitoring program, five (5) ground water monitoring wells are sampled on a quarterly basis and five (5) recovery wells are sampled on an annual basis.

CLEANUP STRATEGY

Continue remedial action operations (product recovery system) along with compliance monitoring of five (5) ground water monitoring wells as a key component of monitored natural attenuation.

FORT MONMOUTH

INSTALLATION RESTORATION PROGRAM RESPONSE COMPLETE SITES

Response Complete Sites

AEDB-R#	SITE NAME	RC DATE
FTMM		
-04	LANDFILL (MAIN POST) SEE M-4	200012
-06	BURNING AREA (MAIN POST) SEE M-3	199604
-07	BURNING AREA (MAIN POST) SEE M-7	199404
-09	PCB TRANSFORMER, B 1150-2 (MAIN POST)	199404
-10	ASBESTOS STORAGE (MAIN POST) SEE M-10	199404
-11	ELEVATED WATER TANK (MAIN POST) SEE M-11	199404
-13	PATHOLGENIC WASTE INCIN. (MAIN POST) M-13	199404
-14	LANDFILL 14 (MAIN POST) SEE M-14	200012
-15	WATER TANK (MAIN POST) SEE M-15	199911
-16	PESTICIDE STORAGE B, 498 (MAIN POST) M-16	199902
-17	PESTICIDE STORAGE, B T-65 (MAIN POST)	199404
-19	SANITARY TREAT PLT (MAIN POST) SEE AOC-3	199604
-20	FORMER SANITARY TREAT PLT (MAIN POST)	200009
-21	FORMER FIRING RANGE (MAIN POST)	199404
-23	WASTEWATER TREAT. LIME PIT 2 (CHARLES W)	200012
-24	SURFACE DISPOSAL AREA, CW-3 SITE	199709
-25	LANDFILL, SITE CW-3A, CHARLES WOOD	200012
-26	INDOOR SMALL ARMS RANGE (CHARLES W) CW-4	199707
-27	SANITARY TREAT PLT (CHARLES WOOD) CW-5	199604
-28	FORMER PESTICIDE STORAGE AREA, SITE CW-6	200012
-29	PCB TRANSFORMER (CHARLES WOOD) SEE CW-7	199802
-30	SEWAGE LIFT STATION (CHARLES W) CW-8	199404
-31	SLUDGE DUMP (CHARLES WOOD)	199604
-32	HAZ WASTE STORAGE AREA (CHARLES W) AOC-7	199604
-47	FORMER PCB TRANSFORMER SITE-BLDG. 1002	200003
-63	UST, GASOLINE, BUILDING 2603	199912

FTMM-04
LANDFILL 4 (MAIN POST) SEE M-4

The M-4 landfill is located in the area bounded by Avenue of Memories to the south, North Drive to the north, Mill Creek to the west and Wilson Avenue to the east. The 1.4-acre landfill operated from 1955 until 1956. The types of materials disposed of in the landfill have been reported to include: construction debris, scrap metal, asbestos containing materials, vegetative waste, unwashed containers which previously held hazardous materials/wastes, outdated photographic chemicals, small quantities of outdated drugs, sludge from the sewage treatment plant, soot and boiler scale, incinerator ash, oil spill debris, oil filters, batteries, fluorescent tubes, and electronic components.

STATUS

RRSE: High

CONTAMINANTS OF CONCERN: 4, 4-DDT, Lead

MEDIA OF CONCERN: Ground water, Surface water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199803	200012
LTM	200012	200109
RC:	**200012**	

Under the SI phase, three monitoring wells were installed to evaluate ground water quality. All samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. A single pesticide (4,4 DDT) was detected in an upgradient monitoring well above NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Lead was initially detected in site monitoring wells above NJDEP Ground Water Quality Criteria. The DPW has collected sufficient ground water data to seek a "No Further Action" determination from the NJDEP. A remedial investigation report is currently being prepared and will be submitted to the NJDEP upon its completion. A remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was completed. A "No Further Action" determination was made regarding the landfill cover material.

Upon its completion, submit remedial investigation report that requests "No Further Action" determination from the NJDEP.

FTMM-06
BURNING AREA (MAIN POST) SEE M-3

The M-6 burning area consisted of open-air wood burning in small pits located within the M-3 landfill. Specific pit locations cannot be discerned from aerial photographs or site reconnaissance. According to interviews with Fort Monmouth personnel, the open-air wood burning practices were conducted to reduce the volume of waste materials being placed into the M-3 landfill.

The investigation of the M-6 site was incorporated into field activities referenced for the M-3 landfill (FTMM-03).

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: 4, 4-DDT, Lead

MEDIA OF CONCERN: Ground water, Surface water

PHASES	Start	End
RFA	199308	199312
CS	199411	199512
RC:	**199604**	

FTMM-07
BURNING AREA (MAIN POST) SEE M-7

The 1980 Installation Assessment (IA) report prepared by USAEC identified the M-7 burning site as a potential area of concern. The M- 7 burning area was a former incinerator located within Building 697. The site is located in the north central area of the Main Post near the M-8 landfill. The incinerator was used until 1990 for burning classified documents. Since 1990, all classified documents have been shredded. Prior to closure, the incinerator operated under a NJDEP air permit. The incinerator was dismantled in November 1993. "No Further Action" determination approved by the NJDEP.

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: CO, CO2, Particulates

MEDIA OF CONCERN: Air

PHASES	Start	End
PA	199308	199312
RC:	**199404**	

FTMM-09
PCB TRANSFORMER, B 1150-2 (MAIN POST)

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: PCBs

MEDIA OF CONCERN: Soil, Concrete

PHASES	Start	End
RFA	199308	199312
RC:	**199404**	

The 1980 IA report (USAEC) identified the M-9 site as a PCB transformer location. The site identified in the IA is where Bldgs. 1150 and 1152 are located. These buildings are found in the western portion of the Main Post, south of Avenue of Memories. Records review and site reconnaissance work conducted under the PA phase revealed no transformers at the M-9 site were leaking in 1980 or at any other time. Prior to 1989, the policy at Fort Monmouth was to label all transformers as containing PCBs unless available test data proved otherwise. An EPR project (FM0089F005) was implemented in 1989 to sample and test all transformers with no available data for PCB content. The survey was completed in 1990. Test results for the transformers located at the M-9 site revealed PCB levels all below 50 parts per million (ppm). Under the Toxic Substance Control Act (TSCA), all transformers containing PCBs at levels less than 50 ppm are considered Non-PCB Class Equipment. "No Further Action" determination approved by the NJDEP.

FTMM-10
ASBESTOS STORAGE (MAIN POST) SEE M-10

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Asbestos

MEDIA OF CONCERN: Air, Soil, Concrete

PHASES	Start	End
RFA	199308	199312
RC:	**199404**	

The 1980 IA report (USAEC) identified the M-10 site as an asbestos storage area. The report identifies the site as being adjacent to Bldg. 1220 which is located in the northwest area of the Main Post. Bldg. 1220 is the main boiler plant which provides heat and hot water for all buildings located in the 1200 area. Interviews with DPW personnel indicate that the storage area was located across the street to the west of Bldg. 1220. Containers of new spray-on asbestos were stored in a metal shed until they were used elsewhere in the facility. The shed has sheet metal walls and is built on a concrete pad. The primary purpose of the shed has always been to store machine parts for the boiler plant. Under the PA phase, the metal shed was inspected for evidence of asbestos containing materials; however none were found. "No Further Action" determination approved by the NJDEP.

FTMM-11
ELEVATED WATER TANK (MAIN POST)
SEE M-11

The 1980 IA report (USAEC) identified the M-11 site as a potential area of concern. The M-11 site consists of a large elevated tank that contains water. The tank was constructed in the 1940s and is located in the center of the Main Post. The tank is used to boost the water pressure in the water distribution system for fire-fighting purposes. Under the PA phase, site reconnaissance work revealed no visible stains, stressed soil or vegetation at the site. In addition, no visible debris (such as paint chips) was observed. "No Further Action" determination approved by the NJDEP.

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Lead

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199308	199312
RC:	**199404**	

FTMM-13
PATHOGENIC WASTE INCIN. (MAIN POST) M-13

The 1980 IA report (USAEC) identified the M-13 site as a potential area of concern. The pathogenic waste incinerator formerly located on the west side of Bldg. 1076 was constructed in 1975. Bldg. 1076 is the site of a boiler plant which provides heat and hot water for Patterson Army Community Hospital (Bldg. 1075). The incinerator was an approximately 5-ft-by 6-ft-by-6-ft-high metal unit, which was propane fired. The incinerator was used to burn medical waste generated from the hospital. The unit was tested for compliance with NJDEP air standards and achieved compliance at a maximum charging rate of 57 lbs/hr in 1977. No state permit was required because the incinerator was operating before the 1977 revision to the Clean Air Act (CAA). In accordance with a written agreement with the NJDEP, the pathogenic waste incinerator was taken out of service in December 1992. A contract for offsite disposal of all generated medical waste was established prior to unit closure. Under the PA phase, site reconnaissance work revealed no ash or debris in or around the incinerator unit. The incinerator was dismantled in November 1993. "No Further Action" determination approved by the NJDEP.

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: CO, CO2, Particulates

MEDIA OF CONCERN: Air

PHASES	Start	End
PA	199308	199312
RC:	**199404**	

FTMM-14
LANDFILL 14 (MAIN POST) SEE M-14

STATUS

RRSE: High

CONTAMINANTS OF CONCERN: Arsenic

MEDIA OF CONCERN: Ground water, Surface water, Soil

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199812	199908
RD	199803	199908
RA(C)	199909	200012
LTM	200101	200109
RC:	**200012**	

The M-14 landfill is located on the Main Post, on the north side of Husky Brook, west of Murphy Drive. The 6.9-acre landfill operated from 1965 until 1966. The types of materials disposed of in the landfill have been reported to include: construction debris, scrap metal, asbestos containing materials, vegetative waste, unwashed containers which previously held hazardous materials/wastes, outdated photographic chemicals, small quantities of outdated drugs, sludge from the sewage treatment plant, soot and boiler scale, incinerator ash, oil spill debris, oil filters, batteries, fluorescent tubes, and electronic components. Metal, concrete and other types of landfill debris can be observed protruding from the stream bank along Husky Brook. Under the SI phase, three monitoring wells were installed to evaluate ground water quality. In addition, surface water samples were collected from Husky Brook. All samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. Lead was detected in one downgradient monitoring well above NJDEP Ground Water Quality Criteria. Subsequently, consecutive quarterly rounds of ground water samples have been collected for analysis. Arsenic was detected in one site monitoring well above NJDEP Ground Water Quality Criteria. Lead and 1,2 - Dichloroethene were detected in surface water samples slightly below NJDEP Surface Water Quality Criteria. The DPW has collected sufficient ground water data to seek a “No Further Action” determination from the NJDEP. A remedial investigation report is currently being prepared and will be submitted to the NJDEP upon its completion. A remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was completed. A “No Further Action” determination was made regarding the landfill cover material. A remedial design that addresses soil erosion problems along Husky Brook was completed in June of 1999. A remedial action to correct the soil erosion problems commenced in October of 1999 and was completed in June of 2001. Upon its completion, submit remedial investigation report that requests “No Further Action” determination from the NJDEP.

FTMM-15
WATER TANK (MAIN POST) SEE M-15

STATUS

RRSE: High

CONTAMINANTS OF CONCERN:
4, 4-DDE, 4,4-DDT, Cadmium

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199610	199907
RA(C)	199709	199911
RC:	**199911**	

The 1980 IA report (USAEC) identified the M-15 site as a potential area of concern. A 500,000 gallon above ground storage tank is located at the M-15 site. The tank was built in 1941 and is of steel construction. It has always been used for the storage of potable water. The tank is located in the northeast section of the Main Post next to Parkers Creek which is a tributary of the Shrewsbury River. Under the SI phase, environmental contaminants in the form of pesticides and heavy metals were identified in site soil. Two pesticides, 4,4- DDE and 4,4-DDT, were identified above NJDEP Direct Contact Soil Cleanup Criteria. It has been determined that the pesticide contamination is the result of past over spraying practices. Three heavy metals, cadmium, lead and zinc, were also identified above NJDEP Direct Contact Soil Cleanup Criteria. Under the RI phase, environmental sampling confirmed that the contaminants of concern had migrated horizontally towards Parkers Creek. FY96 and FY97 ER,A funding was received to implement a corrective action at the M-15 site. The selected remedial alternative involved removing the contaminated soil from the site thereby eliminating the contaminants of concern. Post remedial action sampling for the M-15 site has identified elevated lead levels within soils in one localized area. ER,A funding was received in the 2nd Qtr of FY99 to complete restoration work at the M-15 site. Final remedial activities were completed in November of 1999. A post remedial action report is currently being prepared for submission to NJDEP. A “No Further Action” letter from the NJDEP will be requested as part of the submittal.

FTMM-16
PESTICIDE STORAGE B, 498 (MAIN POST) M-16

STATUS

RRSE: High

CONTAMINANTS OF CONCERN: Aldrin, Lindane, Heptachlor, Dieldrin, 4,4-DDE, 4,4-DDD, 4,4-DDT, Endrin Ketone, alpha-Chlordane, gamma-Chlordane

MEDIA OF CONCERN: Ground water, Surface water

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199610	199809
RA(C)	199701	199902
RC:	**199902**	

A former pesticide storage and mixing area was located at the M-16 site. The facility (Bldg. 498) is a brick structure and was constructed in 1939. Pesticide management practices were conducted at the site until the late 1950s. Following this, the operation was moved to Bldg. 65. Under the SI phase, a total of 10 pesticide compounds were detected above laboratory quantitative limits in site soil. Five pesticide compounds were found at concentrations exceeding the NJDEP Direct Contact Soil Cleanup Criteria. The M-16 site is located within 50 feet of two family housing units and both sets of quarters have several small children residing within them. Furthermore, environmental sampling confirmed that the contaminants were migrating horizontally in the direction of Oceanport Creek. The creek is located approximately 250 feet down gradient of the M-16 site. FY96 and FY97 ER,A funding was received to implement a corrective action at the M-16 site. The selected remedial alternative involved removing the contaminated soil from the site thereby eliminating the contaminants of concern. The contaminated soil in question contains spill residues from unused commercial chemical products as defined by 40 CFR Part 261.33 paragraph (e) and (f). In accordance with said regulation, the soil must be managed as a RCRA listed hazardous waste. Being a listed hazardous waste, all contaminated soils must be incinerated at a RCRA Part B Permitted Facility in accordance with the Land Disposal Restrictions cited under 40 CFR Part 268. Post remedial action sampling for the M-16 site has identified elevated pesticide levels within soils on the eastern boundary of the site. ER,A funding was received in the 1st Qtr of FY99 to complete restoration work at the M-16 site. Final remedial activities were completed in February of 1999. A post remedial action report is currently being prepared for submission to NJDEP. A “No Further Action” letter from the NJDEP will be requested as part of the submittal.

FTMM-17
PESTICIDE STORAGE, B T-65 (MAIN POST)

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Chlordane

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199308	199312
RC:	**199404**	

Pesticide storage and mixing operations were moved from the M-16 site (FTMM-16) to the M-17 site (FTMM-17) in the late 1950s. Pesticide operations at the M-17 site continued until the early 1980s. Prior to closing the M-17 site, an outside contract was established for pesticide services. The former pesticide operation was located in Bldg. 65. Prior to demolition, Bldg. 65 was located in the southeastern section of the Main Post. In March 1990, 16 soil samples were collected from eight borings, two of which were located outside the building. Soil samples were collected from 6 to 12 inches below ground surface (bgs) and from a deeper interval (6 inches beginning at either 38, 41, 48, or 60 inches bgs). Each soil sample was analyzed for a complete pesticide scan. A monitoring well was installed outside the former pesticide storage room during the removal of a UST. The only pesticide compound to be identified was chlordane. It was also detected in two of the sixteen soil samples. Chlordane was detected in two separate borings, one located inside the building and the other just outside the structure. Both chlordane detections were at the 6-12 inch sampling intervals. The chlordane result for the interior boring measured 47 mg/kg and 1.4 mg/kg for the soil sample collected from the building exterior. The localized nature of these detections and the concentrations is consistent with termite control practices used on base until 15 April 1988, when all use of chlordane was banned in the United States. Chlordane was not detected in ground water samples collected from the monitoring well located approximately 1 ft east of the soil boring in which chlordane was detected outside the building. “No Further Action” determination approved by the NJDEP.

FTMM-19
SANITARY TREAT PLT (MAIN POST) SEE AOC-3

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN: Organics, Metals, Cyanide

MEDIA OF CONCERN: Soil, Sediment

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RC:	**199604**	

The former sanitary treatment plant (STP) was located on Parkers Creek north of Sherrill Avenue, between Bldg. 292 to the east and Bldg. 697 to the west. This site was identified by the NJDEP as an Area of Concern (AOC) in an 8 June 1990 letter. The STP was built in 1941 to handle 700,000 gallons of sewage per day. As described in the 1980 IA report (USAEC), the STP consisted of a bar screen and grit chamber, comminutor, primary and secondary settling tanks, a mixing and aeration tank, and a baffled contact chlorination tank. Effluent from the STP was discharged to Parkers Creek. Sludge was treated in a three-stage anaerobic digester and discharged to underdrained sandbeds for drying. According to the IA and DPW employees, sludge was transported to the Charles Wood golf course and to landfills. The STP was closed on 3 September 1975 when the Main Post sewer system was connected to the Northeast Monmouth County Regional Sewerage Authority (NEMCRSA) system. In 1981, all sludges and supernatant liquids were removed from the STP and the facility was cleaned and disinfected. The removal contractor was Modern Transportation Co. of Kearny, New Jersey. The physical facility was demolished in 1983. At present, this area is flat and grass covered. Under the SI phase, two soil samples were collected in the former area of the sludge drying beds. In addition, one sediment sample was collected from the former wastewater discharge point at Parkers Creek. All three samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. No compounds of concern were detected above NJDEP Direct Contact Soil Cleanup Criteria or Sediment Criteria. “No Further Action” determination approved by the NJDEP.

FTMM-20
FORMER SANITARY TREAT PLT (MAIN POST)

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN: Arsenic, Cadmium, Chromium, Zinc

MEDIA OF CONCERN: Sediment

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	200003	200009
RC:	**200009**	

The pre-1941 STP for the Main Post was located on Parkers Creek in an area north of Allen Avenue in approximately the same location as current Bldg. 259. The date of construction and period of operation are unknown, although the STP presumably operated until the second Main Post STP (AOC-3) came on line in 1941. Under the SI phase, one sediment sample was collected from the former wastewater discharge point at Parkers Creek. The sediment sample was analyzed for TAL metals. Arsenic, cadmium, chromium and zinc were detected at concentrations slightly exceeding NJDEP Sediment Criteria and background levels. Under the RI phase, additional sediment samples were collected to further delineate the extent of the heavy metal contamination at the site. The RI work was completed in April 2000. The findings of the RI revealed that heavy metal concentrations at the site were consistent with background metal concentrations from nearby, undisturbed locations. A remedial investigation report that requests a "No Further Action" determination from the NJDEP is currently being prepared. Upon its completion, submit remedial investigation report that requests "No Further Action" determination from the NJDEP.

FTMM-21
FORMER FIRING RANGE (MAIN POST)

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Lead

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199308	199312
RC:	**199404**	

Evidence of an outdoor pistol range located in the 1200 area of the Main Post was uncovered during preparation of the PA report. The former range was located just east of Bldg. 1220, along North Drive. A long-term DPW employee indicated that the pistol range was operational between the late 1930s and the early 1950s. The range was closed with the onset of construction activities in the 1200 area. Small arms training was moved to Naval Weapons Station Earle following closure of the Main Post facility. The former location of the pistol range has been developed for some forty years, no evidence of the former range exists at this time. Grounds in the general vicinity of the former range, which were not affected by construction, are completely grass covered. "No Further Action" determination approved by the NJDEP. This site was reclassified for possible further investigation under MMRP.

FTMM-23
WASTEWATER TREAT LIME PIT (CHARLES W)

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN: PCE, PCB, Arsenic, Lead

MEDIA OF CONCERN: Ground water, Soil

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199512	200012
LTM	200101	200109
RC:	**200012**	

The CW-2 site is the second wastewater treatment lime pit located next to the Myer Center facility (Bldg. 2700). The CW-2 wastewater treatment lime pit is located on the east side of the Myer Center facility, near the former electrical substation. The wastewater treatment lime pit was constructed concurrently with the Myer Center facility in 1952. The pit was designed to treat corrosive wastes generated from laboratory activities operating within the facility. The pit is a concrete vault measuring 7 by 13 by 8 feet in height and contains limestone chips. Corrosive waste discharge lines originating from the south and east wings of Bldg. 2700 are plumbed to the pit. The effluent discharge line exiting the pit is connected to the sanitary sewer. In FY92, DPW personnel collected limestone and sludge samples from the pit to evaluate the potential for environmental contaminants being present. Analytical testing of the sample material identified elevated levels of organic contaminants. A cleanup action ensued which generated ninety-one 55 gallon drums of RCRA waste. Following the cleanup action, fresh limestone chips were placed into the pit as a precautionary measure. Current hazardous waste management practices prohibit the discharge of corrosive wastes into the wastewater treatment lime pit system. Due to the presence of organic contaminants being identified in the pit prior to the cleanup action, the focus of the SI was to evaluate the potential impact to soil and ground water. Under the SI phase, soil borings were drilled on each side of the lime pit. In the absence of field instrument readings and visible staining, one soil sample was collected from each boring at an interval just above the water table. In addition, each boring was converted to a monitoring well in order to evaluate ground water quality. Both soil and ground water samples were analyzed for TCL + 30 parameters and TAL metals. In reference to the four soil samples, only PCBs were detected in one soil sample slightly above NJDEP Direct Contact Soil Cleanup Criteria. PCE was detected in one downgradient monitoring well slightly above NJDEP Ground Water Quality Criteria. To date, fifteen consecutive quarterly rounds of ground water samples have been collected for subsequent analysis. Arsenic and lead were detected in three of the four site monitoring wells above NJDEP Ground Water Quality Criteria. Under the RI phase, a passive soil gas survey commenced at the CW-2 site in December 1995. The purpose of the soil gas survey was to delineate the lateral extent of soil contamination at the site and to use the survey data to aid in the placement of additional monitoring wells if required. Results of the soil gas survey were negative. Currently the DPW has collected sufficient ground water data to seek a “No Further Action” determination from the NJDEP. A remedial investigation report is currently being prepared and will be submitted to the NJDEP upon its completion. Upon its completion, submit remedial investigation report that requests “No Further Action” determination from the NJDEP.

FTMM-24
SURFACE DISPOSAL AREA, CW-3 SITE

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Metals, Organics

MEDIA OF CONCERN: Ground water, Soil

PHASES	Start	End
RFA	199308	199312
CMI(C)	199410	199505
RC:	**199709**	

The 1980 IA report (USAEC) identified the CW-3 site as a former landfill area. The suspected landfill is located in the southwestern part of the Charles Wood area, otherwise known as the 2600 area. According to the IA report, administrative-type wastes and wood debris were placed into the one-acre landfill during 1940s. Interviews with long term DPW employees conducted during the PA phase study concluded that a landfill did not exist at the site in question. During the 1980s and into the early 1990s the CW-3 site was utilized as a surface dump for the accumulation of construction debris. Materials observed at the site during the PA phase included: concrete, brick, asphalt, wood demolition debris, wood pallets, vegetative debris, metal and PVC pipes. In order to proceed with the investigation of the suspected landfill, all construction debris covering the site needed to be removed. An EPR project (FM0094F086) was identified and FY95 ER,A funding was received to execute the project. Cleanup of the construction debris started in October 1994 and was completed in May 1995. On 25 September 1997, DPW personnel excavated 29 test pits at the former surface disposal area. No waste materials were encountered within any of the test pits. The various soil horizons within each test pit were clearly undisturbed. “No Further Action” determination approved by the NJDEP.

FTMM-25
LANDFILL, SITE CW-3A, CHARLES WOOD

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN: Benzene, Arsenic, Chromium, Lead

MEDIA OF CONCERN: Ground water, Soil

PHASES	Start	End
PA	199308	199312
SI	199709	199712
RI	199812	200012
LTM	200101	200109
RC:	**200012**	

The CW-3A site was identified as a suspected landfill area during the PA phase study. Interviews with long term DPW employees suggested that a former landfill might be present at the site in question. The suspected landfill is located north of the Pulse Power facility (Bldg. 2707) which is also located in the southwestern part of the Charles Wood area. On 25 September 1997, DPW personnel excavated several test pits at the CW-3A site to ascertain whether the site was previously utilized as a landfill. Upon excavating the test pits, waste materials, mostly in the form of construction debris, were observed within the test pits. The debris itself consisted of concrete, asphalt, brick, wood, glass and assorted scrap metals. Coal ash was also observed within each of the test pits. To further evaluate the potential impact the landfill may have had on site soils and ground water, the DPW has installed four shallow monitoring wells at the site. During monitoring well construction, continuous split spoon soil samples were collected in four foot increments. Based upon field observations and measurements, soil samples were collected at the following intervals: 0 to 6 inches, 18 to 24 inches and just above the water table. Samples collected at the 18 to 24 inch interval were collected solely for Volatile Organic Analysis (VOA) to include a GC/MS library search. Samples collected at the 0 to 6 inch interval were analyzed for Target Compound List (TCL) + 30 parameters, minus the VOA parameters, Target Analyte List (TAL) metals and cyanide. Samples collected just above the water table were analyzed for TCL + 30 parameters, TAL metals and cyanide. A coal ash sample was also collected on December 17th, 1997 and was analyzed for TCL + 30 parameters, TAL metals and cyanide. During the week of January 12th, 1998, ground water samples were collected from each of the four wells. A second round of ground water samples was collected during the week of January 26th, 1998. All ground water samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. All referenced samples were analyzed in our in-house NJDEP certified laboratory. Benzo[a] anthracene, benzo[a]pyrene and cadmium were detected within site soils slightly above NJDEP Direct Contact Soil Cleanup Criteria. Benzene and lead were detected in three downgradient monitoring wells slightly above NJDEP Ground Water Quality Criteria. Arsenic, chromium and lead were detected in one upgradient monitoring well slightly above NJDEP Ground Water Quality Criteria. To date, eight consecutive quarterly rounds of ground water samples have been collected for subsequent analysis. Currently the DPW has collected sufficient ground water data to seek a “No Further Action” determination from the NJDEP. A remedial investigation report is currently being prepared and will be submitted to the NJDEP upon its completion. A remedial investigation that evaluated the potential for environmental contaminants being present within the existing landfill cover material was completed. A “No Further Action” determination was made regarding the landfill cover material. Upon its completion, submit remedial investigation report that requests “No Further Action” determination from the NJDEP.

FTMM-26
INDOOR SMALL ARMS RANGE
(CHARLES W) CW-4

STATUS

RRSE: High

CONTAMINANTS OF CONCERN: Lead

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199611	199706
RA(C)	199706	199707
RC:	**199707**	

An indoor small arms range is located at the CW-4 site. The range is a one story concrete structure (Bldg. 2537) which was built in 1945. Spent rounds and shell casings were visible at the surface of a bare patch of soil approximately 5 feet in diameter northeast of the building. The area of contamination was located within 10 feet of a side entrance to the facility. Environmental sampling confirmed the presence of lead in soil at the CW-4 site. Lead levels were identified above the NJDEP Direct Contact Soil Cleanup Criteria. Sampling activities also confirmed that the lead was migrating both horizontally and vertically in the soil column. The Youth Activity Center (Bldg. 2566) is located approximately 250 feet from the area of concern. FY96 and FY97 ER,A funding was received to implement a corrective action at the CW-4 site. The selected RA involved removing the spent rounds, casings and contaminated soil from the site thereby eliminating the contaminant of concern. Cleanup work commenced in June 1997 and was completed in July 1997. A post remedial action report is currently being prepared for submission to NJDEP. A “No Further Action” letter from the NJDEP will be requested as part of the submittal.

FTMM-27
SANITARY TREATMENT PLT (CHARLES WOOD) CW-5

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN: Organics, Metals, Cyanide

MEDIA OF CONCERN: Soil, Sediment

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RC:	**199604**	

The former sanitary treatment plant (STP) was located in the center of the Charles Wood area, bounded by Hope Road to the east, Corregidor Road to the north, Guam Lane to the west, and Laboratory Road to the south. The STP was built in 1942 to handle 800,000 gallons of sewage per day. As described in the 1980 IA report (USAEC), the STP consisted of a grit chamber screen, comminutor, primary and secondary settling tanks, biofilters, and a baffled contact chlorination tank. Sludge was treated in two anaerobic digesters and discharged to underdrained sand beds for final drying. Supernatant liquid from digester sludge and drainage from the sand beds were recycled through the STP for additional treatment. The chlorinated effluent was discharged to a tributary of Wampum Brook on the east side of Hope Road. According to the IA and DPW employees, sludge was transported to the Charles Wood golf course and to landfills. The STP was closed on 29 October 1975 when the Charles Wood sewer system was connected to the NEMCRSA system. In 1981, all sludges and supernatant liquids were removed from the STP and the facility was cleaned and disinfected. The removal contractor was Modern Transportation Co. of Kearny, New Jersey. Mercury used in the distributor seal on the biofilter was removed and disposed of by the Directorate of Logistics. The physical facility was demolished in 1983. In 1993, a youth center was constructed on the site. Under the SI phase, two soil samples were collected in the former area of the sludge drying beds. In addition, one sediment sample was collected from the former wastewater discharge point. All three samples were analyzed for TCL + 30 parameters, TAL metals and cyanide. No compounds of concern were detected above NJDEP Direct Contact Soil Cleanup Criteria or Sediment Criteria. “No Further Action” determination approved by the NJDEP.

FTMM-28
FORMER PESTICIDE STORAGE AREA, SITE CW-6

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN: Benzene, Heptachlor Epoxide, Dieldrin, Arsenic

MEDIA OF CONCERN: Ground water, Soil

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RI	199605	200012
LTM	200101	200109
RC:	**200012**	

Building 2044 is part of a small complex of buildings located in the southwest section of the Charles Wood golf course. The complex also includes Bldg. 2070, a large metal shed and two smaller metal igloos. The buildings are currently used to store course maintenance and landscaping equipment, such as mowers and tractors. The golf course maintenance complex may predate the purchase of the golf course by the Army. Pesticides and herbicides may have been stored and mixed in this area prior to Army ownership of the property. The 1980 IA report (USAEC) contains a 1979 inventory of pesticides and herbicides that were used on the golf course and stored in Bldg. 2044. Pesticides that were present in significant quantities include: malathion, floriable sevin, resmithrin, Borocel IV, chlordane, and Dibrom. The IA also discusses a pest control program that was in effect in 1979. The compounds that were used in large quantities include carbaryl (sevin), malathion, chlordane, and diazinon. Some of the herbicides mentioned in the IA include 2,4-D, Dacthal, 2,4,5-T, and sodium arsenite. The course groundskeeper, who had been part of the grounds crew for 33 years (1960 to 1993) was interviewed during the PA phase. The groundskeeper stated that pesticides and herbicides were also stored inside the two metal igloos and former mixing activities generally took place directly outside the two igloos. Pesticides and herbicides are not currently stored or mixed on-site. The facility has hired an outside contractor to come in and apply pesticides and herbicides. Under the SI phase, soil borings were completed at two locations where pesticide mixing was documented to occur. Two soil samples were collected from each boring, one surface sample and the other sample from the interval just above the water table. In addition, each boring was converted to a monitoring well in order to evaluate ground water quality. Both soil and ground water samples were analyzed for TCL + 30 parameters. Dieldrin was identified in one soil sample slightly above NJDEP Direct Contact Soil Cleanup Criteria. Benzene was detected in one ground water sample above NJDEP Ground Water Quality Criteria. To date, fifteen consecutive quarterly rounds of ground water samples have been collected for subsequent analysis. Heptachlor epoxide and arsenic were initially detected in two of the four site monitoring wells above NJDEP Ground Water Quality Criteria. Alpha-chlordane, gamma-chlordane and 4,4'DDD were also detected in the two monitoring wells; however said contaminants were identified slightly below the NJDEP Ground Water Quality Criteria. Currently the DPW has collected sufficient ground water data to seek a "No Further Action" determination from the NJDEP. A remedial investigation report is currently being prepared and will be submitted to the NJDEP upon its completion. Upon its completion, submit remedial investigation report that requests "No Further Action" determination from the NJDEP.

FTMM-29
PCB TRANSFORMER (CHARLES WOOD) SEE CW-7

STATUS

RRSE: High

CONTAMINANTS OF CONCERN: PCBs

MEDIA OF CONCERN: Soil

PHASES	Start	End
RFA	199308	199312
CS	199411	199512
RFI	199605	199607
CMI(C)	199711	199802
RC:	**199802**	

The 1980 IA report (USAEC) identified the CW-7 site as a PCB transformer location. Prior to its removal, the referenced transformer was located near the front entrance of the Officers Club (Bldg. 2000). The Officers Club is located on the same grounds as the Charles Wood golf course. Prior to 1989, the policy at Fort Monmouth was to label all transformers as containing PCBs unless available test data proved otherwise. An EPR project (FM0089F005) was implemented in 1989 to sample and test all transformers with no available data for PCB content. The survey was completed in 1990. Test results for the transformer located at the CW-7 site revealed PCB levels at 223,091 ppm. The PCB Class transformer was removed from service on 10 September 1990 and shipped for offsite disposal on 24 September 1990. Under the SI phase, four surface soil samples were collected to evaluate the potential impact the transformer had on site soils. PCBs were detected above NJDEP Direct Contact Soil Cleanup Criteria in all four samples. The sample with the highest PCB concentration was 204 times greater than the applicable standard. The NJDEP cleanup action level for PCBs in soil is 0.49 mg/kg. Sampling conducted under the SI phase demonstrated that PCBs were migrating horizontally within the soil column. In May 1996, a remedial investigation was implemented to completely delineate PCB levels both horizontally and vertically within the soil column. The remedial investigation was a combination of field screening techniques and sample collection for laboratory analysis. Environmental data gathered under the RI phase identified PCBs as migrating both horizontally and vertically within the soil column. FY97 ER,A funding was received to implement a corrective action at the CW-7 site. The selected RA involved removing the contaminated soil from the site thereby eliminating the contaminant of concern. Cleanup work commenced in November 1997 and was completed in February 1998. Offsite disposal of PCB contaminated soils was completed in June 1998. A post remedial action report is currently being prepared for submission to NJDEP. A “No Further Action” letter from the NJDEP will be requested as part of the submittal.

FTMM-30
SEWAGE LIFT STATION (CHARLES W) CW-8

The 1980 IA report (USAEC) identified the CW-8 site as a potential area of concern. The CW-8 site is a sewage lift station (Bldg. 2603) located north of the Wherry Housing area off Pinebrook Road. This site was misidentified in the IA as an STP. There has never been an STP at this site. A 1940 aerial photograph shows this area as being heavily wooded. The sewage lift station was constructed in 1954 when the Wherry Housing area was built to pump sewage into the forced main that went to the Charles Wood STP (CW-5). The lift station building appears on several aerial photographs dating from 1957 through 1986. At present, the sewage lift station is connected to the NEMCRSA system.

"No Further Action" determination approved by the NJDEP.

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Organics, Metals

MEDIA OF CONCERN: Soil, Sediment

PHASES	Start	End
PA	199308	199312
RC:	**199404**	

FTMM-31
SLUDGE DUMP (CHARLES WOOD)

A sludge dump (CW-9) as identified in the 1980 IA report (USAEC) was located in the southwest section of the Charles Wood golf course, south and southeast of Bldg. 2070 and west of Green 11 and Tee 12. Since the 1940s, sludge generated from both the Main Post and Charles Wood STPs were stored in this area before being used as a soil conditioner and fertilizer on the golf course. Sludge piles are visible on aerial photographs dating from 1957 through 1981. Under the SI phase, two monitoring wells were installed, one subsurface soil sample and nine surface soil samples were collected to evaluate the impact to ground water and soil as a result of past site activities. All samples were analyzed for TCL + 30 parameters and TAL metals. No compounds of concern were detected above NJDEP Direct Contact Soil Cleanup Criteria or Ground Water Quality Standards. "No Further Action" determination approved by the NJDEP.

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Organics, Metals

MEDIA OF CONCERN: Ground water, Soil

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RC:	**199604**	

FTMM-32
HAZ WASTE STORAGE AREA (CHARLES W)
AOC-7

STATUS

RRSE: NE

CONTAMINANTS OF CONCERN: Organics, Metals

MEDIA OF CONCERN: Soil

PHASES	Start	End
PA	199308	199312
SI	199411	199512
RC:	**199604**	

This site was identified by the NJDEP as an Area of Concern (AOC) in an 8 June 1990 letter. A temporary hazardous waste storage area (AOC-7) was located in the southwest section of the Charles Wood area. The site is an unpaved, open sandy lot, approximately one-acre in size, surrounded by a 7-ft-high fence. The site is just east of Bldg. 2708. According to DPW records, the site was used for a six month period in 1987 for the temporary storage of hazardous waste (in drums). During the PA phase study, an interview was conducted with the Hazardous Waste Disposal Officer who was present at the time of the drum operation. Comments made by the Disposal Officer confirm that the site was used for a six month period in 1987 to accumulate drums of hazardous waste. Drums were stored on pallets along the interior fence line at the site. At the end of the six month period, all drums stored at the site were removed by a permitted hazardous waste disposal company. Following this action, the area was no longer used for the temporary storage of hazardous waste. Under the SI phase, six soil borings were drilled at the site and samples collected in order to evaluate the potential impact to site soil as a result of the former hazardous waste accumulation activities. Soil boring locations were biased towards the fence line, which coincides with the areas of drum storage. In the absence of field instrument readings and visible staining, one soil sample was collected from each boring at an interval just above the water table. All six soil samples were analyzed for TCL+30 parameters and TAL metals. No compounds of concern were detected above NJDEP Direct Contact Soil Cleanup Criteria. “No Further Action” determination approved by the NJDEP.

FTMM-47
FORMER PCB TRANSFORMER SITE-BLDG 1002

STATUS

RRSE: Medium

CONTAMINANTS OF CONCERN: PCBs

MEDIA OF CONCERN: Soil, Concrete

PHASES	Start	End
RFA	199308	199312
CS	199411	199512
RFI/CMS	199904	200003
RC:	**200003**	

All locations where PCB transformers had formerly been located were inspected for evidence of spills. Eight sites were identified where a PCB transformer was either formerly located over soil and/or concrete with signs of visible oil staining. The former PCB transformer locations are as follows: buildings 292, 686, 718, 1002, 1004, 1208, 1209 and 1220. PCB transformers formerly utilized at buildings 292, 686, 718 and 1004 were located over soil. Transformers formerly utilized at buildings 1002, 1208 and 1209 were located over concrete. Transformers formerly utilized at building 1220 were located both over soil and concrete. Under the SI phase, soil and concrete chip samples were collected for PCB analysis. PCB results for all soil samples were detected below the NJDEP Direct Contact Soil Cleanup Criteria. Elevated PCB levels were identified in the concrete samples collected from buildings 1002, 1208 and 1209. Upon further evaluation, the oil staining at each of these locations is generally minor in nature, both in their horizontal distribution and in the depth at which the staining penetrates the concrete. These minor source areas are not a threat to human health or the environment. At present the active use of transformers at buildings 1002, 1208 and 1209 preclude the possibility of any remedial work. At such time when the transformers are replaced or removed from service, the minor PCB source areas shall be addressed accordingly. “No Further Action” determination approved by the NJDEP.

FTMM-63
UST, GASOLINE, BLDG 2603

STATUS

RRSE: Low

CONTAMINANTS OF CONCERN: Benzene, Ethyl Benzene, Toluene, Lead

MEDIA OF CONCERN: Ground water, Surface water, Soil

PHASES	Start	End
ISC	199901	199903
INV	199904	199912
LTM	200001	200109
RC:	**199912**	

Site FTMM-63 is a sewage lift station (Bldg. 2603) located north of the Wherry Housing area off Pinebrook Road. At present, the sewage lift station is connected to the NEMCRSA system. On April 14, 1998, a 275 gallon steel UST (No. 0081515-60) was removed. The tank was used to store diesel fuel. Soils and ground water within the tank excavation were observed to be impacted by a petroleum substance. The NJDEP hotline was notified and the site was assigned case # 98- 04-16-1603-19. Approximately 225 cubic yards of contaminated soil was removed and disposed of in accordance with NJDEP requirements. A ground water sample was collected from the excavation prior to being backfilled with certified clean material. The sample was analyzed for TCL + 30 parameters, plus lead. Benzene was detected at a concentration of 20.0 ug/L, above the Ground Water Quality Criteria of 1.0 ug/L. Total xylenes were detected at a concentration of 786.1 ug/L, above the Ground Water Quality Criteria of 40.0 ug/L. Ethyl benzene was detected at a concentration of 141.5 ug/L, below the Ground Water Quality Criteria of 700.0 ug/L. Toluene was detected at a concentration of 113.3 ug/L, below the Ground Water Quality Criteria of 1,000 ug/L. Lead was detected at a concentration of 175.0 ug/L, above the Ground Water Quality Criteria of 10.0 g/L. The referenced contaminants are not generally recognized as being constituents of diesel fuel. However, they are generally recognized as being constituents of gasoline. It is reasonable to assume that the site was impacted from an older UST, which contained gasoline or possibly an aboveground spill involving gasoline. An unnamed creek located fifteen feet downgradient of the tank site was also sampled. The sample was analyzed for TCL + 30 parameters, plus lead. No compounds of concern were identified in the creek sample. A four-inch monitoring well was installed within the former tank excavation in July of 1999. Two rounds of ground water samples have since been collected. Samples were analyzed for TCL + 30 parameters and TAL metals. Ethyl benzene, total xylene and lead were detected in both rounds, however, the results are below the NJDEP Ground Water Quality Criteria. Post excavation soil samples have identified remaining soils as within the NJDEP Residential Direct Contact Soil Cleanup Criteria. “No Further Action” determination approved by the NJDEP.

PAST MILESTONES

Start Date of IRP at Installation: 1980

Past Phase Completion Milestones:
The following is the schedule of IRP work completed to date and planned through completion of all restoration work.

IRP Phase	*Completion Date*
PA Initiation	Aug 1993
PA Completion	Dec 1993
SI Initiation	Nov 1994
IRA - CW-6 Site, Soil Cleanup (FTMM-28)	Mar 1995
IRA - CW-3 Site, Debris Cleanup (FTMM-24)	May 1995
SI Completion	Dec 1995
RI - CW-2 Site, Soil Gas Survey (FTMM-23)	Jan 1996
RI - CW-1 Site, Treatment Pit (FTMM-22)	Jun 1996
RI - CW-7 PCB Transformer Location (FTMM-29)	Jul 1996
LTM – Begin Ground water and Surface Water Monitoring at 18 sites (FTMM-02, 03, 04, 05, 08, 12, 14, 18, 22, 23, 28, 53, 54, 55, 56, 57, 58 & 59)	Feb 1997
RA - CW-4 Site, Soil Cleanup (FTMM-26)	Jul 1997
RD - CW-1 Site, Treatment Pit (FTMM-22)	Aug 1997
SI - CW-3 Suspected Landfill (FTMM-24)	Sep 1997
SI - CW-3A Suspected Landfill (FTMM-25)	Dec 1997
RA - CW-1 Site, Treatment Pit (FTMM-22)	Feb 1998
RA - CW-7 Site, Soil Cleanup (FTMM-29)	Feb 1998
RI - Begin Landfill Cover Investigation (FTMM-02, 03, 04, 05, 08, 12, 14, 18 & 25)	Mar 1998
RI - Complete Landfill Cover Investigation, (FTMM-02, 03, 04, 05, 08, 12, 14, 18 & 25)	Dec 1998
RA - M-16 Site, Soil Cleanup (FTMM-16)	Feb 1999
RD - M-2, M-12 & M-14 Landfills, Stream Bank Stabilization (FTMM-02, 12 & 14)	Jun 1999
RA - M-15 Site, Soil Cleanup (FTMM-15)	Nov 1999
RD – M-5 Site, Ground Water Remediation (FTMM-05)	Feb 2000
RD – M-3 Site, Ground Water Remediation (FTMM-03)	Jul 2000
RD – M-8 Site, Ground Water Remediation, (FTMM-08)	Sep 2000
RA – M-5 Site, Ground Water Remediation (FTMM-05)	Dec 2000
RD – M-2 Site, Ground Water Remediation, (FTMM-02)	Jan 2001
RA – 699 Site, Ground Water & Soil Cleanup (FTMM-53)	Jan 2001

PAST MILESTONES

IRP Phase	*Completion Date*
RD – 812 Site, Ground Water Remediation (FTMM-64)	Feb 2001
RA – M-8 site, Storm Sewer Relocation (FTMM-08)	Mar 2001
RA – M-2 Site, Ground Water Remediation, (FTMM-02)	May 2001
RA - M-2, M-12 & M-14 Landfills, Stream Bank Stabilization (FTMM-02, 12 & 14)	Jun 2001
RA – 812 Site, Ground Water Remediation (FTMM-64)	Jun 2001
RA(C) – 886 Site, Soil Cleanup/Product Recovery System Install (FTMM-66)	Feb 2003

Final Contract Award Date of all RA: Sep 2002

Completion Date of all RA: Feb 2003
(Date revised from June 2001 to Feb 2003 due to discovery in March 2002 of subsurface contamination from a former AST fuel oil site.)

Past REM/IRA/RA
No further remedial action for 26 sites.

Projected completion date of IRP (excluding LTM): 2008

Estimated Completion Date of All RA(C) Activities: 2005

Estimated Completion Date of IRP at Installation (include LTM phase): Sep 2011

RA(O) – M-2 Site, Ground Water Remediation (FTMM-02)	Sep 2006
RA(O) – M-5 Site, Ground Water Remediation (FTMM-05)	Sep 2006
RA(O) – CW-1 Site, Ground Water Remediation (FTMM-22)	Sep 2006
RA(O) – 812 Site, Ground Water Remediation (FTMM-64)	Sep 2006
RA(O) – 699 Site, Ground water Remediation (FTMM-53)	Sep 2008
RA(O) – 886 Site, Ground Water Remediation (FTMM-66)	Sep 2007
LTM – Complete Ground water and Surface Water Monitoring	Sep 2011

And site closure activities at 17 sites (FTMM-02, 03, 05, 08, 12, 18, 22, 53, 54, 55, 56, 57, 58, 59, 61, 64, & 66)

Projected Completion Date of IRP: Sep 2011

Schedule

Fort Monmouth Installation Action Plan Schedule
(Based on Cost-to-Complete)

PHASE SCHEDULE

AEDB-R#	SITE NAME	PHASE	FY06	FY07	FY08	FY09	FY10	FY11+
FTMM-02	M-2 Landfill	RAO						
		LTM						
FTMM-03	M-3 Landfill	LTM						
FTMM-05	M-5 Landfill	RAO						
		LTM						
FTMM-08	M-8 Landfill	RAO						
		LTM						
FTMM-12	M-12 Landfill	LTM						
FTMM-18	M-18 Former Training Area	LTM						
FTMM-22	CW-1 Wastewater Treatment Lime Pit	RAO						
		LTM						
FTMM-53	Building 699	IMP(O)						
		LTM						
FTMM-54	Building 296	LTM						
FTMM-55	Building 290	LTM						
FTMM-56	Building 80	LTM						
FTMM-57	Building 108	LTM						
FTMM-58	Building 2567	IMP(O)						
		LTM						
FTMM-59	Building 1122	RAO						
		LTM						
FTMM-61	Building 283	IMP(O)						
		LTM						
FTMM-64	Building 812	IMP(O)						
		LTM						
FTMM-66	Building 886	RAO						
		LTM						

PRIOR YEAR FUNDING

Year	Expenditures	FY Total
FY 93		
PA (31 Areas of Concern) (EPR # FM0092F029)	125.0 K	**125.0K (non IRP)**
FY 94		
SI (22 Areas of Concern) (EPR # FM0092F029)	1,000.0 K	
RA (UST Cleanup) (EPR # FM0094F087)	375.0 K	**1,375.0 K**
FY 95		
SI (COE - S & A Funding) (EPR # FM0092F029)	56.0 K	
IRA (CW-3 Site/FTMM-24) (EPR # FM0094F086)	75.0 K	
IRA (CW-6 Site/FTMM-28) (EPR # FM0095F107)	33.0 K	**164.0 K**
FY 96		
SI (COE - S & A Funding) (EPR # FM0092F029)	12.7 K	
RA (M-15 Site/FTMM-15) (EPR # FM0096F119)	10.0 K	
RA (M-16 Site/FTMM-16) (EPR # FM0096F120)	105.0 K	
RA (CW-4 Site/FTMM-26) (EPR # FM0096F121)	12.0 K	
LTM (Multiple Sites) (EPR # FM0096F118)	270.0 K	**409.7 K**
FY 97		
RD (CW-1 Site/FTMM-22) (EPR # FM0096F133)	50.0 K	
RA (CW-1 Site/FTMM-22) (EPR # FM0096F133)	60.0 K	
RA (M-15 Site/FTMM-15) (EPR # FM0096F119)	45.9 K	
RA (M-16 Site/FTMM-16) EPR # FM0096F120)	98.9 K	
RA (CW-7 Site/FTMM-29) (EPR # FM0096F137)	49.9 K	
RI (M-2, M-3, M-4, M-5, M-8, M-12, M-14, M-18, & CW-3A Sites/FTMM-02, 03, 04, 05, 08, 12, 14, 18 & 25) (EPR # FM0097F151)	102.2 K	
LTM (Multiple Sites) (EPR # FM0096F118)	285.1 K	**692.0 K**
FY 98		
LTM (Multiple Sites) (EPR # FM0096F118)	250.0 K	
SI (CW-3A/FTMM-25) (EPR # FM0092F029)	6.9 K	
RI (M-2, M-3, M-4, M-5, M-8, M-12, M-14, M-18 & CW-3A Sites/FTMM-02, 03, 04, 05, 08, 12, 14, 18 & 25) (EPR # FM0097F151)	673.0 K	
RD (M-2, M-3, M-4, M-5, M-8, M-12, M-14, M-18, CW-2 & CW-6 Sites/FTMM-02, 03, 04, 05, 08, 12, 14, 18, 23, 28) (EPR # FM0098F162)	50.0 K	
RA (M-16 Site/FTMM-16) (EPR # FM0096F120)	18.5 K	
RA (CW-1 Site/FTMM-22) (EPR # FM0096F133)	6.9 K	

PRIOR YEAR FUNDING

Year	Expenditures	FY Total
FY 98		
RD (M-2, M-12 & M-14 Sites/FTMM-02, 12 &14) (EPR # FM0097F152)	48.0 K	**1,053.3 K**
FY 99		
LTM (Multiple Sites) (EPR # FM0096F118)	298.0 K	
RI (M-2, M-3, M-4, M-5, M-8, M-12, M-14, M-18 & CW-3A Sites/FTMM-02, 03, 04, 05, 08, 12, 14, 18 & 25) (EPR # FM0097F151)	634.0 K	
RD (Bldg. 699/FTMM-53) (EPR # FM0089F012)	15.0 K	
RA (Bldg. 699/FTMM-53) (EPR # FM0089F012)	29.3 K	
RA(O) (Bldg. 699/FTMM-53) (EPR # FM0089F012)	20.0 K	
RA (M-2, M-12 & M-14 Sites/FTMM-02, 12 &14) (EPR # FM0097F153)	1,004.2 K	
RD (M-5 Site/FTMM-5)	20.0 K	
RA (M-5 Site/FTMM-5)	5.5 K	
RA (M-15 Site/FTMM-15) (EPR # FM0096F119)	10.0 K	
RA (M-16 Site/FTMM-16) (EPR # FM0096F120)	754.0 K	
RA(O) (CW-1 Site/FTMM-22) (EPR # FM0096F133)	17.0 K	**2,807.0 K**
FY 00		
LTM (Multiple Sites)	397.0 K	
RI (M-2, M-3, M-4, M-5, M-8, M-12, M-14, M-18 & CW-3A Sites/FTMM-02, 03, 04, 05, 08, 12, 14, 18 & 25) (EPR # FM0097F151)	783.8 K	
RD (M-2 Site/FTMM-02)	51.0 K	
RA (M-2 Site/FTMM-02)	178.2 K	
RA (M-5 Site/FTMM-05)	48.0 K	
RA (M-8 Site/FTMM-08)	165.0 K	
RD (M-12 Site/FTMM-12)	27.6 K	
RD (M-18 Site/FTMM-18)	32.4 K	
RA(O) (CW-1 Site/FTMM-22)	19.0 K	
RD (Site 699/FTMM-53)	82.6 K	
RA (Site 699/FTMM-53)	630.4 K	
RA(O) (Site 699/FTMM-53)	21.0 K	
RD (Site 80/FTMM-56)	29.2 K	
RD (Site 108/FTMM-57)	29.2 K	
RD (Site 2567/FTMM-58)	29.2 K	
RD (Site 1122/FTMM-59)	29.2 K	
RD (Site 283/FTMM-61)	29.2 K	
RD (Site 812/FTMM-63)	37.0 K	

PRIOR YEAR FUNDING

Year	Expenditures	FY Total
FY 00		
RA (Site 812/FTMM-63)	23.8 K	
RA (M-2, M-12 & M-14 Sites/FTMM-02, 12 &14)	241.2 K	**2,884.0 K**
FY 01		
LTM (Multiple Sites)	236.0 K	
RA(O) (M-2 Site/FTMM-02)	134.0 K	
RA(O) (M-5 Site/FTMM-05)	80.0 K	
RA(O) (CW-1 Site/FTMM-22)	56.0 K	
RA(O) (Site 699/FTMM-53)	130.0 K	
RA(O) (Site 812/FTMM-63)	80.0 K	**716.0K**
FY 02		
LTM (Multiple Sites)	203.0 K	
RA(O) (M-2 Site/FTMM-02)	144.0 K	
RA(O) (M-5 Site/FTMM-05)	116.0 K	
RA(O) (CW-1 Site/FTMM-22)	88.0 K	
RA(O) (Site 699/FTMM-53)	95.0 K	
RA(O) (Site 812/FTMM-63)	70.0 K	
RA(C) (Site 886/FTMM-66)	200.0 K	**916.0 K**
FY 03		
LTM (Multiple Sites)	182.0 K	
RA(O) (M-2 Site/FTMM-02)	138.0 K	
RA(O) (M-5 Site/FTMM-05)	115.0 K	
RA(O) (CW-1 Site/FTMM-22)	88.0 K	
RA(O) (Site 699/FTMM-53)	77.0 K	
RA(O) (Site 812/FTMM-63)	70.0 K	
RA(O) (Site 886/FTMM-66)	41.0 K	**711.0 K**
FY 04		
LTM (Multiple Sites)	224.0K	
RA(O) (M-2 Site/FTMM-02)	138.0K	
RA(O) (M-5 Site/FTMM-05)	115.0K	
RA(O) (CW-1 Site/FTMM-22)	88.0K	
RA(O) (Site 699/FTMM-53)	77.0K	
RA(O) (Site 812/FTMM-63)	70.0K	
RA(O) (Site 866/FTMM-66)	41.0K	**753.0 K**

TOTAL FUNDING 1994-2004: $12,481.0K

CURRENT YEAR FUNDING

FY 05 = $711.0K

FUTURE YEAR FUNDING

TOTAL FUTURE REQUIREMENTS: **$1,729.0K**
TOTAL IRP PROGRAM COSTS: **$14,921.0K**

Fort Monmouth
Installation Action Plan
Cost-To-Complete

AEDB-R #	Site Name	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	Phase total	Site Total	Description of Work	Cost Estimate Source	Cost Estimator and date prepared	Supporting Documentation
FTMM-02	M-2 Landfill	RA(O)	33										**33**	**139**	Monitoring of 16 wells (quarterly) and surface water samples for 2 years for compliance monitoring of ORC injection.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM		33	33	40							**106**		Monitoring of 16 wells (quarterly) and surface water samples for 2 years for compliance monitoring of ORC injection. Site close out.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-03	M-3 Landfill	LTM	22	29									**51**	**51**	MNA Monitoring of 8 wells (quarterly) and surface water for 1 year.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-05	M-5 Landfill	RA(O)	24										**24**	**103**	Montoring of 10 wells (quarterly) and surface water samples for 2 years for compliance monitoring of HRC injection. Historic costs.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM		24	24	31							**79**		Montoring of 10 wells (quarterly) and surface water samples for 2 years for compliance monitoring of HRC injection.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-08	M-8 Landfill	RA(O)	24										**24**	**104**	MNA of 13 wells (quarterly) and surface water samples for 3 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM		24	24	32							**80**		MNA of 13 wells (quarterly) and surface water samples for 3 years. Site close out.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-12	M-12 Landfill	LTM	25	25	34								**84**	**84**	MNA of 11 wells (quarterly) and surface water samples for 3 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002

Fort Monmouth
Installation Action Plan
Cost-To-Complete

AEDB-R #	Site Name	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	Phase total	Site Total	Description of Work	Cost Estimate Source	Cost Estimator and date prepared	Supporting Documentation
FTMM-18	M-18 Former Training Area	LTM	12	12	26								**50**	**50**	MNA of 9 wells (quarterly) and surface water. Reduction of wells over time.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-22	CW-1 Wastewater Treatment Lime Pit	RA(O)	20										**20**	**100**	Monitoring of 12 wells (quarterly) and surface water samples for 2 years for compliance monitoring. Historic costs.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM		20	20	40							**80**		Monitoring of 12 wells (quarterly) and surface water samples for 2 years for compliance monitoring. Historic costs. Site close out.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-53	Building 699	RA(O)	87	87	87								**261**	**367**	Maintain air sparge/soil vapor extraction/pump and treat system.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM				30	30	46					**106**		Monitor of 13 wells (quarterly) for 2 years after system shutdown.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-54	Building 296	LTM	17	17	28								**62**	**62**	MNA of 7 wells (quarterly) for 2 years for compliance monitoring.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-55	Building 290	LTM	9	9	26								**44**	**44**	MNA of 2 wells (quarterly) for 2 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-56	Building 80	LTM	19	19	27								**65**	**65**	MNA of 6 wells (quarterly) for 2 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-57	Building 108	LTM	14	14	27								**55**	**55**	MNA of 4 wells (quarterly) for 2 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-58	Building 2567	IMP(O)	21										**21**	**91**	MNA of 7 wells (quarterly) for 2 years for compliance monitoring.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM		21	21	28							**70**		MNA of 7 wells (quarterly) for 2 years for compliance monitoring. Site close out.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002

Fort Monmouth
Installation Action Plan
Cost-To-Complete

AEDB-R #	Site Name	Phase	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	Phase total	Site Total	Description of Work	Cost Estimate Source	Cost Estimator and date prepared	Supporting Documentation
FTMM-59	Building 1122	RA(O)	14										**14**	**69**	MNA of 5 wells (quarterly) for 3 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM		14	14	27							**55**		MNA of 5 wells (quarterly) for 3 years. Site close out.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-61	Building 283	RA(O)	55	55									**110**	**153**	Injection of ORC for 2 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM			7	7	29						**43**		Monitoring of 2 wells (quarterly) and surface water samples for 2 years for compliance monitoring. Site Close out. Historic costs.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-64	Building 812	IMP(O)	18										**18**	**87**	Monitoring of 8 wells (quarterly) for 2 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM		18	18	33							**69**		Monitoring of 8 wells (quarterly) for 2 years. Site close out.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FTMM-66	Building 886	RA(O)	25	25									**50**	**105**	Maintain automated product recovery system. Monitor of 5 wells (quarterly) for 2 years.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
		LTM			11	11	33						**55**		Maintain automated product recovery system. Monitor of 5 wells (quarterly) for 2 years. Site Close out.	H	Doug Guenther 1/28/05	CTSC Contract # DAAB07-02-C-P617; Contract Date 3/29/2002
FY Total in Thousands $			**439**	**446**	**427**	**279**	**92**	**46**	**0**	**0**	**0**	**0**	**1729**	**1729**				
POM			**448**	**448**	**299**	**126**	**126**							**1447**				
DIFFERENCE			**9**	**2**	**-128**	**-153**	**34**							**-282**				

Community Involvement

All final remedies were completed in February 2003; Currently no risk to human health or the environment is evident, therefore, a restoration advisory board (RAB) will not be established for the IRP. The DPW will continue to keep both the Fort Monmouth and surrounding communities apprised of restoration activity updates through the use of public notices and the continued maintenance of our information repositories located at the Van Deusen Library (On-Post) and at the Monmouth County Public Library-Shrewsbury Branch in Shrewsbury, NJ.

FORT MONMOUTH

MILITARY MUNITIONS RESPONSE PROGRAM

MMRP Summary

STATUS: Non-NPL

AEDB-R SITES/SITES RC: 1/0

AEDB-R SITE TYPES:
1 Small Arms Range

CONTAMINANTS OF CONCERN: Arsenic, Lead, MEC/MC

MEDIA OF CONCERN: Soil

COMPLETED REM/IRA/RA: None

IDENTIFIED POSSIBLE REM/IRA/RA: RA soil removal at FTMM-001-R-01

TOTAL ER,A FUNDING:

PRIOR YEAR	$25,000
CURRENT	$0
FUTURE	$1,320,000

DURATION OF MMRP:

Year of MMRP Inception:	2003
Year of RA Completion:	2017
Year of MMRP Completion:	2017

MMRP Contamination Assessment

Assessment Overview:

The Phase 3 Army Range Inventory was completed at Fort Monmouth in January 2003. It identified one site as eligible for the MMRP, the Former Outdoor Small Arms Range. The Phase 3 Inventory serves as the Preliminary Assessment under the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). A Site Inspection is scheduled in FY08 to determine if further action is necessary.

Cleanup Exit Strategy:

The installation plans to complete the SI by 2007 and execute follow on phases/actions as required in the individual site cleanup strategies.

FORT MONMOUTH

MILITARY MUNITIONS RESPONSE PROGRAM

SITE DESCRIPTION

FTMM-001-R-01
FORMER MAIN POST FIRING RANGE (FTMM-21)

SITE DESCRIPTION

Evidence of an outdoor pistol range located in the 1200 area of the Main Post was uncovered during preparation of the PA report. The former range was located just east of Bldg. 1220, along North Drive. A long-term DPW employee indicated that the pistol range was operational between the late 1930s and the early 1950s. The range was closed with the onset of construction activities in the 1200 area. The small arms training was moved to Naval Weapons Station Earle following closure of the Main Post facility. The former location of the pistol range has been developed for approximately forty years with no evidence of the former range exists at this time. Grounds in the general vicinity of the former range, which were not affected by construction, are completely grass covered.

STATUS

RAC Score: Negligible

CONTAMINANTS OF CONCERN:
Lead, Arsenic, MEC/MC

MEDIA OF CONCERN:
Soil

PHASES	Start	End
PA	200305	200309
SI	200507	200709
RI	201410	201509
RD	201510	201609
RA(C)	201610	201709
RC:	**201709**	

"No Further Action" determination approved by the NJDEP. This site has been reclassified for possible further investigation under MMRP.

CLEANUP STRATEGY

An SI is scheduled in 2007 that will include an Archive Search Report and limited surface soil sampling investigation to determine if further action is necessary. It may be determined that the installation of groundwater monitoring wells and further soil sampling is necessary to delineate the extent of soil contamination and to determine if groundwater contamination exists. It is estimated that approximately 333 cy of contaminated soil may be excavated and disposed of to an off-site disposal facility.

Schedule

PAST MILESTONES

Start Date of MMRP at Installation: 200305

Past Phase Completion Milestones: PA - 200309

Projected Phase Completion Milestones: SI – 200709, RI/FS – 201509, RD – 201609, RA(C) – 201709

IAG/FFA Driven Milestones: NA

PROJECTED MILESTONES

Projected ROD/DD Approval Date: NA

Projected construction complete and NPL Deletion Date: NA

Estimated Completion Date of All RA(C) Activities: 2017

Estimated Completion Date of IRP at Installation (include LTM phase): Indefinite LUCs

Schedule

Fort Monmouth MMRP Installation Action Plan Schedule
(Based on Cost-to-Complete)

PHASE SCHEDULE

AEDB-R#	SITE NAME	PHASE	FY06	FY07	FY08	FY09	FY10	FY11+
FTMM-001-R-01	FORMER OUTDOOR FIRING RANGE	SI						
		RI/FS						
		RD						
		RA						

Cost

PRIOR YEAR FUNDING

FY03 - FY04 **TOTAL: $25,000**

CURRENT YEAR FUNDING

FY05 = $0

FUTURE YEAR FUNDING

TOTAL FUTURE REQUIREMENTS: $1,295,000

TOTAL MMRP PROGRAM COSTS: $1,320,000

Fort Monmouth MMRP
Unconstrained
Cost-To-Complete

AEDB-R#	SITE TITLE	PHASE	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15+	PHASE TOTAL	SITE TOTAL	ACTIVITY DESCRIPTION	Cost Est. Source	Supporting Documentation	Estimator & Date Prepared
FTMM-001-R-01	FORMER OUTDOOR FIRING RANGE	SI		282									282		MEC ARCHIVES SEARCH REPORT. SITE INSPECTION, SURFACE SOIL	R	INVENTORY REPO	DEJESUS 02/05
		RIFS										888	888		REMEDIAL INVESTIGATION, 5 GW WELLS, FEASIBILITY STUDY			
		RD										4	4		REMEDIAL DESIGN-PERCENT	R	INVENTORY REPO	DEJESUS 02/05
		RA(C)										121	121	1,295	EXCAVATION AND OFFSITE TRANSPORTATION 333 C.Y.	R	INVENTORY REPO	DEJESUS 02/05
TOTALS IN THOUSANDS OF $			**0**	**282**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1,013**	**1,295**	**1,295**				
			FY06	**FY07**	**FY08**	**FY09**	**FY10**	**FY11**	**FY12**	**FY13**	**FY14**							