

FY2012

JOINT BASE LEWIS-MCCHORD
Army Defense Environmental Restoration Program
Installation Action Plan

Printed 24 January 2013

Table of Contents

Statement Of Purpose.....	1
Acronyms.....	2
Site Alias List.....	5
Installation Information.....	6
5-Year / Periodic Review Summary.....	8
Land Use Control (LUC) Summary.....	9
Cleanup Program Summary.....	15
Installation Restoration Program.....	19
IRP Summary.....	20
IRP Contamination Assessment.....	22
IRP Previous Studies.....	23
Installation Restoration Program Site Descriptions.....	25
FTLE-33 LOGISTICS CENTER.....	26
FTLE-46 ILLICIT PCB DUMP SITE.....	28
FTLE-54 LANDFILL 1.....	29
FTLE-57 LANDFILL 4.....	30
FTLE-62 LANDFILL 9.....	31
FTLE-73 MILLER HILL.....	32
MF-ALGT-LF-05 American Lake Garden Tract.....	34
MF-DP-60 Floating Fuel at Washrack/Treatment.....	35
MF-SS-34 Spill Site Beside POL Storage Area.....	36
MF-SS-34N TCE Cantonment Area Spill Site.....	37
MF-WP-44 Vehicle Maintenance Leach Pit.....	38
PBC@FortLewis PBC at Fort Lewis.....	39
Installation Restoration Program Site Closeout (No Further Action) Sites Summary.....	40
Installation Restoration Program Schedule.....	42
Installation Restoration Program Milestones.....	42
IRP Schedule Chart.....	45
Military Munitions Response Program.....	46
MMRP Summary.....	47

Table of Contents

MMRP Contamination Assessment.....	48
MMRP Previous Studies.....	49
Military Munitions Response Program Site Descriptions.....	50
FTLEW-008-R-01 FORMER SKEET RANGE.....	51
FTLEW-015-R-01 B Range.....	52
Military Munitions Response Program Site Closeout (No Further Action) Sites Summary.....	53
Military Munitions Response Program Schedule.....	54
Military Munitions Response Program Milestones.....	54
MMRP Schedule Chart.....	55
Compliance Restoration.....	56
CR Summary.....	57
CR Contamination Assessment.....	58
CR Previous Studies.....	59
Compliance Restoration Site Descriptions.....	60
CC FL04 Former Gas Station A1033 (AOC 9-2).....	61
CC FL05 GAAF Fuel Facility (AOC 10-8).....	62
CC FL08 Bldg 4131 Leaking Tank Site (AOC 8-2).....	63
CC FL10 Bldg A0111 Leaking Tank Site (AOC 8-4).....	64
CC FL22 Non-FLAO Leaking Tank Sites.....	65
Compliance Restoration Site Closeout (No Further Action) Sites Summary.....	66
Compliance Restoration Schedule.....	67
Compliance Restoration Milestones.....	67
CR Schedule Chart.....	68

Statement of Purpose

The purpose of the Installation Action Plan (IAP) is to outline the total multiyear cleanup program for an installation. The plan identifies environmental cleanup requirements at each site or area of concern (AOC), and proposes a comprehensive, installation-wide approach, along with the costs and schedules associated with conducting investigations and taking the necessary remedial actions (RA).

In an effort to coordinate planning information between the restoration manager, the US Army Environmental Command (USAEC), Joint Base Lewis-McChord (JBLM), the executing agencies, the 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.

Acronyms

AEDB-R	Army Environmental Database-Restoration
AFB	Air Force Base
AGLT	American Lake Garden Tract
AOC	Area of Concern
AVGAS	aviation gasoline
BRAC	Base Realignment and Closure
CAP	Cleanup Action Plan
CC	Compliance-related Cleanup
CD	Consent Decree
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
cis-DCE	cis-dichloroethene
CMI(C)	Corrective Measures Implementation (Construction)
CMI(O)	Corrective Measures Implementation (Operations)
CMS	Corrective Measures Study
COC	Contaminants of Concern
CR	Compliance Restoration
CSE	Comprehensive Site Evaluation
CTT	Closed, Transferred and Transferring
DD	Decision Document
DMM	Discarded Military Munitions
DoD	Department of Defense
DRMO	Defense Reutilization and Marketing Office
Ecology	Washington State Department of Ecology
EGDY	East Gate Disposal Yard (Landfill 2)
ER,A	Environmental Restoration, Army
ERP	Environmental Restoration Program
ESD	Explanation of Significant Difference
FFA	Federal Facility Agreement
FLAO	Fort Lewis Agreed Order
FRA	Final Remedial Action
FS	Feasibility Study
FTLE-	AEDB-R site naming convention for former Fort Lewis IRP sites
FUDS	Formerly Used Defense Site
GAAF	Gray Army Air Field
GWM	Groundwater Monitoring
HRR	Historical Records Review
IAP	Installation Action Plan
IMCOM	Installation Management Command
IR	Installation Restoration
IRA	Interim Remedial Action
IRP	Installation Restoration Program
IWTP	Industrial Wastewater Treatment Plant
JBLM	Joint Base Lewis-McChord
JBLM North	The former North Fort Lewis
JBLM-Main	The former Fort Lewis Main Post

Acronyms

K	thousand
LF	Landfill
LSI	Limited Site Investigation
LTM	Long-Term Management
LUC	Land Use Control
MAMC	Madigan Army Medical Center
MC	Munitions Constituents
MCA	Military Construction, Army
McChord Field	The former McChord Air Force Base
MCL	Maximum Contaminant Level
MEC	Munitions and Explosives of Concern
MF	McChord Field
mg/kg	milligrams per kilogram
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement
MRS	Munitions Response Site
MTCA	Model Toxics Control Act
MW	Monitoring Well
N/A	Not Applicable
NFA	No Further Action
NPL	National Priority List
O&M	Operations and Maintenance
OMA	Operations and Maintenance, Army
P&T	Pump-and-Treat
PA	Preliminary Assessment
PAH	Polycyclic Aromatic Hydrocarbon
PBA	Performance-Based Acquisition
PCB	Polychlorinated Biphenyl
POL	Petroleum, Oil, and Lubricants
RA	Remedial Action
RA(C)	Remedial Action - Construction
RA(O)	Remedial Action - Operations
RAB	Restoration Advisory Board
RC	Response Complete
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
RI	Remedial Investigation
RIP	Remedy-in-Place
RIWP	Remedial Investigation Work Plan
ROD	Record of Decision
SI	Site Inspection
SLA	Sea Level Aquifer
SRCPP	Solvent Refined Coal Pilot Plant

Acronyms

SWMU	Solid Waste Management Unit
TAPP	Technical Assistance for Public Participation
TCE	Trichloroethene
TCLP	Toxicity Characteristic Leaching Procedure
TRC	Technical Review Committee
USACE	US Army Corps of Engineers
USAEC	US Army Environmental Command
USEPA	US Environmental Protection Agency
UXO	Unexploded Ordnance
VOC	Volatile Organic Compound
WSDOE	Washington State Department of Ecology
WSDOT	Washington State Department of Transportation
WTA	Washrack Treatment Area
WW II	World War II
WWI	World War I

Site Alias List

AEDB-R Site ID to Alias List

AEDB-R #	Alias
CC FL04	
CC FL05	
CC FL08	
CC FL10	
CC FL22	
FTLE-33	FTLE-33
FTLE-46	FTLE-46
FTLE-54	FTLE-54
FTLE-57	FTLE-57
FTLE-62	FTLE-62
FTLE-73	FTLE-73
FTLEW-008-R-01	
FTLEW-015-R-01	
MF-ALGT-LF-05	LF005
MF-DP-60	DP060
MF-SS-34	SS034
MF-SS-34N	SS034
MF-WP-44	WP044
PBC@FortLewis	PBC @ FTLE

Installation Information

Installation Locale

Installation Size (Acreage): 90837

City: Joint Base Lewis-McChord

County: Pierce and Thurston

State: Washington

Other Locale Information

JBLM includes the former Fort Lewis and McChord Air Force Base as of Oct. 1, 2010. The joint base was part of the 2005 Base Realignment and Closure (BRAC). The base encompasses an area of 90,837 acres within Pierce County, Washington (72,311 acres) and Thurston County, Washington (18,526 acres). Approximately 36,000 personnel work at JBLM-Lewis, and 5,000 work at JBLM-McChord Field, not including civilian and contractor employees. Significant adjacent population centers include the city of Lakewood to the north (population 58,000), unincorporated Spanaway/Parkland to the east, Olympia, Lacey, and Tumwater to the south (population 86,000), and DuPont (population 7,500) to the west.

Installation Mission

The mission of JBLM-Lewis is to provide logistical support and maneuver areas, ranges, and facilities for I Corps and JBLM-Lewis supporting units.

The mission of JBLM-McChord Field is to provide worldwide military airlift capability.

Lead Organization

Lead Executing Agencies for Installation

Joint Base Lewis-McChord Environmental Restoration Program (within Public Works)

Regulator Participation

Federal

US Environmental Protection Agency (USEPA), Region 10

State

Washington State Department of Ecology (WSDOE), Hazardous Waste and Toxics Reduction Program, Southwest Regional Office

National Priorities List (NPL) Status

A score of 72 was recorded on 01-JUL-87.

Date for RA(C) Completion: 201609

Date for NPL Deletion: 199609

Installation Restoration Advisory Board (RAB)/Technical Review Committee (TRC)/Technical Assistance for Public Participation (TAPP) Status

The community has expressed no sufficient, sustained interest in a RAB.

Installation Information

Installation Program Summaries

IRP

Primary Contaminants of Concern: Metals, Petroleum, Oil and Lubricants (POL), Polychlorinated Biphenyls (PCB), Volatiles (VOC)

Affected Media of Concern: Groundwater, Soil

MMRP

Primary Contaminants of Concern: Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Affected Media of Concern: Soil

CR

Primary Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Affected Media of Concern: Groundwater, Soil

5-Year / Periodic Review Summary

5-Year / Periodic Review Summary

Status	Start Date	End Date	End FY
Complete	200706	200709	2007
Complete	201201	201209	2012
Complete	199509	199709	1995
Complete	200209	200209	2002

Last Completed 5-Year / Periodic Review Details

Associated ROD/DD Name	Sites
American Lake Garden Tract	MF-ALGT-LF-05
Battery Acid Pit DD	FTLE-16
DRMO Yard DD	FTLE-31
IWTP ESD	FTLE-51
Illicit PCB Dump Site ESD	FTLE-46
Landfill 1 DD	FTLE-54
Landfill 4/SRCPD ROD	FTLE-32, FTLE-57
Landfill 5 ROD	FTLE-58
Landfill 6 ESD	FTLE-59
Logistics Center DD for Drum Removal	FTLE-33
Logistics Center DD for LF2 Soil	FTLE-33
Logistics Center DD for Thermal Treatment	FTLE-33
Logistics Center ESD (1998)	FTLE-33
Logistics Center ESD (SLA P&T)	FTLE-33
Logistics Center ROD	FTLE-16, FTLE-31, FTLE-33, FTLE-51, FTLE-59, FTLE-67
PRA, SW Outfalls, and FTP DD	FTLE-10, FTLE-16, FTLE-17, FTLE-28, FTLE-46

Results Remedies at JBLM are expected to be protective in the long term. Short term protectiveness is deferred. Further evaluation of vapor intrusion pathway at the Log Center is required. The Lower Vashon plume may not be contained by the I-5 P&T system.

Actions Implement a vapor intrusion study of Logistics Center. Evaluate the performance of the I-5 system.

Plans A vapor intrusion study is underway. Results expected in 2013. Conduct a capture analysis of the I-5 system in 2013 through 2014.

Recommendations and Implementation Plans:

--

Land Use Control (LUC) Summary

LUC Title: Battery Acid Pit LUC

Site(s): FTLE-16

ROD/DD Title: Battery Acid Pit DD

Location of LUC

Site boundary

Land Use Restriction: Media specific restriction - Prohibit, or otherwise manage excavation, Restrict land use - No residential use

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Restrictions on land use

Date in Place: 200709

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS

Additional Information

LUC Title: DRMO Yard LUC

Site(s): FTLE-31

ROD/DD Title: DRMO Yard DD

Location of LUC

Site boundary

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Restrictions on land use

Date in Place: 200709

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS, PETROLEUM HYDROCARBON

Additional Information

N/A

LUC Title: IWTP LUC

Site(s): FTLE-51

Land Use Control (LUC) Summary

ROD/DD Title: IWTP ESD

Location of LUC

Site boundary

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Restrictions on land use

Date in Place: 200809

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200809

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS, PETROLEUM HYDROCARBON

Additional Information

N/A

LUC Title: Illicit PCB Dump Site LUC

Site(s): FTLE-46

ROD/DD Title: Illicit PCB Dump Site ESD

Location of LUC

Site boundary

Land Use Restriction: Landfill restriction - Restrict access to the site, Media specific restriction - Prohibit, or otherwise manage excavation, Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits, Restrictions on land use

Date in Place: 199909

Modification Date: 200709

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: PCBs

Additional Information

N/A

LUC Title: LAND USE CONTROL PLAN Joi

Site(s): MF-ALGT-LF-05

ROD/DD Title: American Lake Garden Tract

Location of LUC

American Lake Garden Tract OU

Land Use Control (LUC) Summary

Land Use Restriction: Media specific restriction - prohibit use of groundwater for consumption or domestic purposes, Restrict land use - No daycare/hospital/school use, Restrict land use - No residential use

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Notations in Master Plan, Restrictions on Groundwater Withdrawal, Restrictions on land use

Date in Place: 201108

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: N/A

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: VOC

Additional Information

N/A

LUC Title: LF2 Soil LUC

Site(s): FTLE-33

ROD/DD Title: Logistics Center DD for LF2 Soil

Location of LUC

Landfill 2 boundary.

Land Use Restriction: Landfill restriction - Restrict access to the site, Media specific restriction - Prohibit, or otherwise manage excavation, Restrict land use - No residential use

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits, Restrictions on land use

Date in Place: 200409

Modification Date: 200709

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: METALS, PETROLEUM HYDROCARBON, VOC

Additional Information

N/A

LUC Title: Landfill 1 LUC

Site(s): FTLE-54

ROD/DD Title: Landfill 1 DD

Location of LUC

1000 feet around site boundary

Land Use Restriction: Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - restrict drinking water well installation, Restrict land use - No residential use

Land Use Control (LUC) Summary

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Restrictions on Groundwater Withdrawal, Restrictions on land use

Date in Place: 200709

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: VOC

Additional Information

N/A

LUC Title: Landfill 4 LUC

Site(s): FTLE-57

ROD/DD Title: Landfill 4/SRCPP ROD

Location of LUC

1000 feet around site boundary

Land Use Restriction: Landfill restriction - Prohibit activities that would impact the LF cap (or cover system) and drainage system, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - restrict drinking water well installation, Restrict land use - No residential use

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Restrictions on Groundwater Withdrawal, Restrictions on land use

Date in Place: 200709

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: VOC

Additional Information

N/A

LUC Title: Logistics Center LUC

Site(s): FTLE-33

ROD/DD Title: Logistics Center ROD

Location of LUC

1000 feet around site boundary

Land Use Restriction: Landfill restriction - Restrict access to the site, Media specific restriction - Prohibit, or otherwise manage excavation, Media specific restriction - restrict drinking water well installation, Restrict land use - No residential use

Land Use Control (LUC) Summary

Types of Engineering Controls: Fences, Signs

Types of Institutional Controls: Dig Permits, Restrictions on Groundwater Withdrawal, Restrictions on land use

Date in Place: 200709

Modification Date: N/A

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: VOC

Additional Information

N/A

LUC Title: Pesticide Rinse Area

Site(s): FTLE-28

ROD/DD Title: PRA, SW Outfalls, and FTP DD

Location of LUC

Site boundary.

Land Use Restriction: Restrict land use - No residential use

Types of Engineering Controls: None

Types of Institutional Controls: Dig Permits, Restrictions on land use

Date in Place: 200012

Modification Date: 200709

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: PESTICIDES

Additional Information

N/A

LUC Title: SRCPP LUC

Site(s): FTLE-32

ROD/DD Title: Landfill 4/SRCPP ROD

Location of LUC

Site boundary

Land Use Restriction: Media specific restriction - restrict drinking water well installation

Types of Engineering Controls: None

Types of Institutional Controls: Restrictions on Groundwater Withdrawal

Date in Place: 199903

Land Use Control (LUC) Summary

Modification Date: 200709

Date Terminated: N/A

Inspecting Organization: Installation

Record of LUC: Master Plan or Equivalent

Documentation Date: 200709

LUC Enforcement: Annual Inspections, 5 Year Reviews

Contaminants: PAH

Additional Information

N/A

Cleanup Program Summary

Installation Historic Activity

JBLM consists of the former Fort Lewis and the former McChord Air Force Base. These facilities were combined as a result of the 2005 Defense BRAC. The environmental cleanup program at JBLM-Lewis consists of the Installation Restoration Program (IRP), the Military Munitions Response Program (MMRP) and the Compliance Restoration (CR) program. The IRP program at JBLM-McChord includes all of the sites in the non-munitions environmental program. All munitions (MMRP) sites at JBLM-McChord are closed. For easy reference, the following description of the overall JBLM cleanup program is divided into JBLM-Lewis (Fort Lewis) and JBLM-McChord Field (McChord AFB).

JBLM-LEWIS INSTALLATION RESTORATION PROGRAM

JBLM- Lewis began operation as Camp Lewis in 1917 to serve the needs of World War I (WW I) and later World War II (WW II). In 1927 it became Fort Lewis, and it has been in continuous operation since. In 2010 it was combined with McChord Air Force Base to become JBLM.

In 1987, Landfill 5, located on the west edge of JBLM-Lewis, was listed on the National Priorities List (NPL) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The listing was the result of organics and metals concentrations in groundwater. In 1989 the Logistics Center on the north edge of JBLM-Lewis was also listed on the NPL. Reason for listing was chlorinated hydrocarbons in groundwater in downgradient drinking water wells.

In January 1990, in response to the NPL listing and a 1986 Resource Conservation and Recovery Act (RCRA) facility assessment (RFA), a Federal Facility Agreement (FFA) was signed by the Army, USEPA, and the WSDOE. The FFA addresses 16 contaminated areas on the facility including Landfill 5 and the Logistics Center.

Later in 1990 a record of decision (ROD) issued for the Logistics Center (FTLE-33) included six specific sub-areas. One of the sub-areas, Landfill 2 (FTLE-67), was identified as the ultimate source of elevated concentrations of organic constituents, primarily TCE. The remedy for the Logistics Center included groundwater treatment.

In 1992, a no further action (NFA) ROD was issued for Landfill 5. The site was delisted from the NPL in 1995.

In 1993, a ROD was issued for two other sites in the FFA including Landfill 4 (FTLE-51) and the former Solvent Refined Coal Pilot Plant (SRCCP) (FTLE-32). RA at Landfill 4 included groundwater treatment by air sparging and long-term monitoring. RA at the SRCCP included soil excavation and treatment and land use control (LUC). The remedies for Landfill 4 and SRCCP are in place.

Also in 1993 Fort Lewis submitted a RCRA Part B permit application for a hazardous waste storage unit. In 1997 an RFA was completed as a result of the permit application.

In 2001 an Agreed Order between Fort Lewis and the WSDOE was signed to address the sites listed in the 1997 RFA. Work included remedial investigations (RI), feasibility studies (FS), and a cleanup action plan (CAP) in accordance with the state Model Toxics Control Act (MTCA) regulations. Eleven Solid Waste Management Units (SWMUs) and nine AOCs were identified. These sites are being administered by the WSDOE outside of the NPL sites on JBLM-Lewis.

Over the years since the first listings, extensive investigations and RAs have been implemented. The RAs included soil removal and disposal, soil vapor extraction (SVE), air sparging, groundwater treatment, electrical resistive heating, biodegradation, long-term monitoring, and LUC.

In 2010 Explanations of Significant Differences (ESDs) were prepared for five non-NPL sites in which NFA or LUC are proposed. These are currently under review by USEPA. The following sites, which were listed in the 1990 ROD, were not formally addressed in decision documents (DDs):

- Storm Water Outfalls (FTLE-10),
- Landfill 6 (FTLE-59),
- LC6 and Pit Area [no Army Environmental Database-Restoration (AEDB-R) designator]
- Industrial Wastewater Treatment Plant (FTLE-51), and
- Battery Acid Pit (FTLE-16).

Cleanup Program Summary

Installation Historic Activity

Also in 2010, technical memoranda for five additional non-NPL sites were prepared and submitted to USEPA. These sites were listed in the 1990 FFA but were not formally addressed in DDs. LUCs are proposed for these sites:

- Illicit Polychlorinated Biphenyls (PCB) Dump Site (FTLE-46),
- Landfill 1 (FTLE-54),
- Park Marsh (FTLE-18),
- Fire Training Pit (FTLE-17), and
- Pesticide Rinse Area (FTLE-28).

As of 2011, all IRP sites are either Remedy-in-place (RIP) or Response complete (RC) except the Former Miller Hill Ranges (FTLE-73), and Landfill 9 (FTLE-62). Cleanup for Miller Hill is under contract and is expected to be completed in 2012. A FS for Landfill 9 is under review by Ecology. Proposed remedy is to cover the landfill with a two-and-a-half-foot soil cover.

Remediation is expected to be completed in 2012. RIP tasks include operation and maintenance of two groundwater P&T systems, long-term monitoring, and implementation of LUCs.

JBLM-LEWIS MILITARY MUNITIONS RESPONSE PROGRAM (MMRP)

The MMRP program was established to investigate and clean up former ranges outside of the active ranges area. In 2002 and 2003 a range inventory and a historical records search was conducted at JBLM-Lewis. Two hundred and twenty-six ranges were identified. Of these, 15 were located outside of active ranges of JBLM-Lewis and were included in the AEDB-R database. An NFA was recommended for all but two of the sites in the April 2007 MMRP site investigation (SI) report. These are the Skeet Range (FTLEW-008-R-01) and the B range (FTLEW-015-R-01). The Skeet Range is being addressed under the Agreed Order with the WSDOE.

Cleanup of the Skeet Range is expected to be completed by 2012. In 2011, a remedial investigation of B-Range was completed. Final cleanup is estimated to be complete by 2016.

JBLM-COMPLIANCE RESPONSE PROGRAM

The compliance response program originally addressed sites on JBLM-Lewis that were not funded by the Defense Environmental Restoration Program (DERP). This included a number of RCRA sites; and in JBLM's case included most of the sites covered under the 2001 Agreed Order with Ecology.

An RI was completed in 2003 for RCRA sites covered under the Agreed Order. NFA was determined for all but nine sites. An FS was prepared for the nine sites. LUC was determined for two of the sites. The remaining sites are:

- Landfill 9 (FTLE-62) (existing IRP site),
- Former Miller Hill Ranges (FTLE-73) (existing IRP site),
- Former Skeet Range (FTLEW-008-R-01) (existing MMRP site),
- Bldg A1033 Underground Storage Tank (UST) Site (CC FL04),
- Gray Army Airfield Fuel Facility (CCFL05),
- Bldg 04131 UST Site (CC FL08), and
- Bldg A0111 UST Site (CC FL10)

In 2009 sites CC FL04 through CC FL10 became eligible for Defense Environmental Restoration Program (DERP) funding and were consequently transferred from the compliance program to AEDB-R. These sites are awaiting approval of the FS and implementation of the RA.

Sites listed above in the CR program are scheduled to reach RIP or RC by FY14.

JBLM-McCHORD FIELD IRP

JBLM-McChord Field began operation in 1938 as McChord Field. It became McChord Air Force Base in 1947. In 2010 the facility was combined with Fort Lewis to become Joint Base Lewis McChord. The real property and facility infrastructure of McChord Field are owned and maintained by the Army. The tenant Air Force 62nd Airlift Wing continues to operate and maintain mission equipment and flight operations. Environmental obligations for the facility were transferred from the Air Force to the Army on Oct. 1, 2010.

Cleanup Program Summary

Installation Historic Activity

In August 1982, a Phase I records search identified 62 sites at the installation, including fire training areas, spill areas, landfills, and waste pits. Three additional sites were identified in 1984, 1989 and 1991. Two sites were placed on the NPL: Area D/American Lake Garden Tract (ALGT) and the Washrack/Treatment Area (WTA). In 1989 a FFA was signed by McChord, USEPA Region 10, and the WSDOE.

The installation completed an RI/FS for the ALGT NPL site in 1991. TCE was discovered in the groundwater that required remediation. A ROD was issued to install a groundwater P&T system. The system was constructed and began operation in 1994. The treatment system consists of three groundwater extraction wells which pump TCE-contaminated water to a series of granular activated carbon treatment cells. After treatment, clean water is infiltrated. Operation of the system is ongoing.

An RI/FS and a ROD for the WTA NPL site were completed in FY92. The ROD specified cleanup of fuel-contaminated groundwater and soil, and groundwater monitoring of the leach pits. Further investigation and a pilot project field evaluation found limited contamination. The WTA was deleted from the NPL on Sept. 26, 1996.

In 1992 a Consent Decree was issued by the WSDOE to evaluate 29 sites that were not addressed by the USEPA in the 1982 Records Search. Of these 29 sites, 25 were deemed NFA. The remaining four sites plus two more were included on the Washington State Hazardous Sites List. From 1996 to 2010 six sites remained on the State Hazardous Sites List and were included in the installation's Long-Term Management (LTM) program (LF-01, LF-02, SS-34, WP-44, DP-61, and WP-64). In 2010 sites LF-01, LF-02, DP-61 and WP-64 were removed from the State list.

In 2001, the installation initiated an RI/FS in response to TCE found in groundwater in the northern segment of Site SS-34. TCE was also detected in monitoring wells (MW) in a residential neighborhood adjacent to the installation. The area was designated SS-34N and comprised approximately 350 acres. Private residential wells in the subdivision were decommissioned, and the residences were connected to the municipal water supply. The RI/FS was finalized in 2003, and a state Cleanup Action Plan (CAP) was issued in 2004. The selected RA was in situ chemical remediation. Injections and monitoring continue at this site.

As of 2011 all sites at McChord Field are either RIP or RC. Two sites are RIP: MF-ALGT-LF-05 and MF-SS-34N. P&T operations continue at MF-ALGT-LF-05, and chemical oxidation treatment and monitoring of TCE continue at MF-SS-34N. The remaining three sites are RC with long-term monitoring of groundwater for fuels and volatile organic compounds (VOC). They include: MF-DP-60, MF-SS-34, and MF-WP-44.

McCHORD FIELD MILITARY MMRP

In 2001 a comprehensive range inventory was initiated. The draft McChord Field Range Inventory Report was issued in November 2001. A Comprehensive Site Investigation for MMRP sites was conducted in 2008. Five sites: Three ordnance burn areas (AB-343, AB-350 and AB-351) and two lead-contaminated sites (SR-347 and TS-616) required ordnance clearing or cleanup. During the summer of 2010 all the identified munitions-related contamination was cleared and cleaned up. Consequently, no MMRP sites remain on McChord Field.

COMPLIANCE RESPONSE PROGRAM

JBLM-McChord Field does not have any CR sites. All sites are addressed by the IRP.

Installation Program Cleanup Progress

IRP

Prior Year Progress: IRP sites on JBLM were either RIP or RC except Miller Hill (FTLE-73), and Landfill 9 (FTLE-62). Operation and maintenance (O&M) continued at three groundwater P&T systems at Lewis and one at McChord. Chemical oxidation continued at one site.

LTM was conducted at FTLE-33, FTLE-46, FTLE-54, FTLE-57, MF-ALGT-LF-05, MF-SS-34, MF-DP-60, and MF-WP-44. LUCs for MF-ALGT-LF-05 were approved by EPA.

LUCs continued to be implemented at Lewis. An interim CAP for Miller Hill was approved.

Cleanup Program Summary

Future Plan of Action: USEPA and JBLM will finalize closure documents for the 1990 ROD for sites listed in the Lewis ROD or the FFA but not closed per CERCLA. A new state Agreed Order will be negotiated. The RAs at Miller Hill and Landfill 9 will be completed.

RA will continue at the chemical oxidation site and at four P&T sites. A pilot test will be conducted at McChord to determine if bioremediation is feasible to meet cleanup goals and eliminate its P&T system.

LTM and LUCS will continue.

MMRP

Prior Year Progress: At Lewis-North, the RA at the Skeet Range was delayed by regulatory negotiations. Unexploded ordnance (UXO) Construction Support was provided for ongoing construction work on the former B Range. The Remedial Investigation (RI) for the future development areas in B Range was completed. A non-time critical removal action consisting of LUCs was implemented for the B-Range.

Future Plan of Action: The FS for B Range will be conducted. UXO construction support will be continued for new construction in FY13. LUCs will continue to be implemented.

CR

Prior Year Progress: Sites CCFL04, 05, 08, and 10 were transferred from state RCRA to the state's voluntary cleanup program. The pilot test for CCFL04 was completed. An SI for 55 UST sites (CCFL22) was completed. NFA was proposed for the majority of the sites.

Future Plan of Action: RA consisting of bioremediation will be implemented at Sites CCFL05, 08, and 10. The proposed RA at CCFL04 consisting of air sparging/vapor extraction will be implemented. NFA will be approved for the majority of the 55 UST sites. LTM will be implemented for the remaining sites. Additional UST sites will be investigated as they are encountered.

JOINT BASE LEWIS-MCCHORD
Army Defense Environmental Restoration Program
Installation Restoration Program

IRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 57/45

Installation Site Types with Future and/or Underway Phases

5	Contaminated Ground Water (FTLE-33, MF-ALGT-LF-05, MF-DP-60, MF-SS-34, MF-SS-34N)
1	Disposal Pit/Dry Well (MF-WP-44)
1	Firing Range (FTLE-73)
3	Landfill (FTLE-54, FTLE-57, FTLE-62)
1	Small Arms Range (PBC@FortLewis)
1	Spill Site Area (FTLE-46)

Most Widespread Contaminants of Concern

Metals, Petroleum, Oil and Lubricants (POL), Polychlorinated Biphenyls (PCB), Volatiles (VOC)

Media of Concern

Groundwater, Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FTLE-46	ILLICIT PCB DUMP SITE	IRA	WASTE REMOVAL - SOILS	1984
FTLE-46	ILLICIT PCB DUMP SITE	IRA	CAPPING	1985
MF-DP-60	Floating Fuel at Washrack/Treatment	FRA	NATURAL ATTENUATION	1992
FTLE-70	UNDERGROUND GAS SUPPLY PIPING	FRA	WASTE REMOVAL - SOILS	1993
FTLE-70	UNDERGROUND GAS SUPPLY PIPING	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1993
MF-ALGT-LF-05	American Lake Garden Tract	FRA	CARBON ADSORPTION	1994
MF-SS-34	Spill Site Beside POL Storage Area	FRA	NATURAL ATTENUATION	1995
FTLE-57	LANDFILL 4	FRA	AIR SPARGING	1996
FTLE-57	LANDFILL 4	FRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1996
FTLE-57	LANDFILL 4	FRA	SOIL VAPOR EXTRACTION	1996
FTLE-66	(2) UST (NEVADA & 41ST DIVISION)	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	1997
FTLE-16	BATTERY ACID PIT	FRA	CAPPING	1999
FTLE-32	SOLVENT REFINED COAL PILOT PLANT	FRA	THERMAL DESORPTION	1999
FTLE-32	SOLVENT REFINED COAL PILOT PLANT	FRA	WASTE REMOVAL - SOILS	1999
FTLE-32	SOLVENT REFINED COAL PILOT PLANT	FRA	CAPPING	1999
FTLE-40	MIXED WASTE STORAGE (BLDG. S9749)	FRA	REMOVAL	1999
FTLE-46	ILLICIT PCB DUMP SITE	FRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	1999
FTLE-33	LOGISTICS CENTER	IRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	2001

IRP Summary

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FTLE-30	BUILDING 9507 (TRANSFORMER STORAGE)	FRA	WASTE REMOVAL - SOLIDS (NON-SOILS)	2002
FTLE-67	LANDFILL 2	FRA	WASTE REMOVAL - DRUMS, TANKS, BULK CONTAINERS	2002
MF-WP-44	Vehicle Maintenance Leach Pit	IRA	WASTE REMOVAL - SOILS	2003
MF-WP-44	Vehicle Maintenance Leach Pit	FRA	NATURAL ATTENUATION	2003
FTLE-33	LOGISTICS CENTER	IRA	THERMALLY ENHANCED SVE	2004
FTLE-33	LOGISTICS CENTER	IRA	INSTITUTIONAL CONTROLS	2004
FTLE-73	MILLER HILL	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	2004
MF-SS-34N	TCE Cantonment Area Spill Site	FRA	CHEMICAL REDUCTION/OXIDATION	2004
FTLE-31	DRMO YARD	FRA	INSTITUTIONAL CONTROLS	2005
FTLE-33	LOGISTICS CENTER	FRA	GROUND WATER TREATMENT	2007
PBC@FortLe wis	PBC at Fort Lewis	FRA	OTHER	2012

Duration of IRP

Date of IRP Inception: 198008

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201309/203009

Date of IRP completion including Long Term Management (LTM): 203009

IRP Contamination Assessment

Contamination Assessment Overview

Contamination at both Lewis-Main and McChord Field consists primarily of chlorinated hydrocarbons in groundwater originating from disposed solvents, and fuel in soil and groundwater from former UST. Groundwater contamination affects principally the upper water table aquifer with TCE concentrations of up to 250 micrograms/liter (ug/l). Aerial affect of the plumes from all sources is about 2000 acres; 1800 acres of this is attributable to the Logistics Center on JBLM-Lewis.

Metals contamination consists of one site with lead in soil from small arms fire.

In spite this widespread contamination, all IRP sites at JBLM are RIP/RC except Landfill 9 (FTLE-62), and Miller Hill (FTLE-73).

Landfill 9 is a 15-acre former landfill, which received some municipal solid waste and medical solid waste, in addition to its primary waste, which was vegetation. Maximum concentrations of metals and carcinogenic polycyclic aromatic hydrocarbons (PAH) are above MTCA cleanup levels for unrestricted use. An FS is being conducted for soils in the landfill. Capping and LUCs are proposed for the site. RIP is scheduled for FY12.

Miller Hill is a former small arms range. The hillside was used as a firing backstop. Lead is the contaminant of concern (COC) and has been detected at concentrations above 100,000 milligrams per kilogram (mg/kg). An LUC is in place to limit access to the sites, using fences and signs.

An interim action plan for soil treatment, removal to active ranges and LUCs has been approved by the WSDOE and is currently under public review. A new Agreed Order to implement the remedy is being negotiated between Army and the WSDOE. RIP is scheduled for FY12.

Cleanup Exit Strategy

See the individual site narrative pages for more specific details on the individual site exit strategies.

IRP Previous Studies

Year	Title	Author	Date
1982	Phase I Records Search Report - McChord AFB	CH2MHill	AUG-1982
1983	Installation Assessment for Fort Lewis, YTC, Camp Bonneville and Vancouver Barracks	Environmental Science & Engineering, Inc.	NOV-1983
1985	Final IRP Phase II Confirmation/Quantification Stage I Report for American Lakes Garden Tract	Science Applications International Corp	DEC-1985
1986	GW Contamination Investigation at Logistics Center	USACE	MAY-1986
	RCRA Facility Assessment - 1986 Fort Lewis	EPA	SEP-1986
1988	RI Report for Logistics Center	Envirosphere/Shannon & Wilson, Inc	NOV-1988
1990	Risk Assessment for Log Center	Ebasco Environmental, Inc	FEB-1990
	FS for Logistics Center	Shannon & Wilson	MAY-1990
	SI Report for Park Marsh Landfill	Shannon & Wilson	JUL-1990
	SI Report for Landfills 1 and 4 - Fort Lewis	Pacific Northwest National Laboratories	AUG-1990
1991	Feasibility Study Report, McChord Air Force Base	Ebasco Environmental, Inc.	MAR-1991
	Remedial Investigation Report, McChord Air Force Base	Ebasco, Environmental, Inc	MAR-1991
1992	Washrack/Treatment Area RI/FS	Ebasco Environmental	JUL-1992
	Final Design - Area D/ American Lake Garden Tract Groundwater Treatment, McChord AFB	US Corps of Engineers, Seattle District	OCT-1992
1993	RI Report for Landfill 4/SRCPP - Fort Lewis	AGI, Inc	FEB-1993
	FS for Landfill 4/SRCPP - Fort Lewis	AGI, Inc	MAY-1993
	Sea Level Aquifer Study Report	Ebasco/Shannon & Wilson	JUL-1993
1995	SI Report for Old EOD - Fort Lewis	Ecology & Environment	FEB-1995
	Revised Draft RI/FS Report, Site WP-44 - McChord AFB	Foster Wheeler Environmental Corp	JUN-1995
	Final Phase II Field Summary Report - McChord AFB	Ebasco Environmental	SEP-1995
1997	SI Report for EGDY Expanded SI: Site History & Conceptual Site Model	Woodward Clyde	OCT-1997
1999	SI Report for Expanded EGDY Investigation	URS	OCT-1999
2000			

IRP Previous Studies

Year	Title	Author	Date
2000	SI Report for DRMO Yard - Fort Lewis	Shannon & Wilson	MAR-2000
2001	EE/CA for Log Center (EGDY)	URS	JAN-2001
	EDGY Interim Action Report (Drum Removal)	Gary Struthers & Associates	DEC-2001
2002	RI Report for Logistics Center - Phase II	URS	JUN-2002
2003	Final Site SS-34N RI/FS	Foster Wheeler Environmental Corp	SEP-2003
2005	RA Completion Report for Thermal Remediation _ Fort Lewis	Thermal Remediation Services	APR-2005
	SI Report for Landfill 6	Fort Lewis	AUG-2005
2006	Sea Level Aquifer FS	Pacific Northwest National Laboratories	FEB-2006
	MAMC Condenser Water System Study Report	TN & Associates, Inc	APR-2006
	FY06 EGDY Thermal Remediation Performance Assesment Data Summary Report	U.S. Army Corps of Engineers, Seattle District	SEP-2006
2007	EGDY NAPL Area 1 Flux Test Report - Fort Lewis	ESTCP	SEP-2007
	SI Report for Madigan Housing Indoor Air	KTA/TEC	SEP-2007
	SI Report for IWTP	Fort Lewis	DEC-2007
2008	Performance Assessment After Action Report	Fort Lewis et al	APR-2008
	Sea Level Aquifer Pump & Treat System Extraction Well Installation Report	Pacific Northwest National Laboratories	JUN-2008
	Sea Level Aquifer Pump & Treat System Design - Fort Lewis	J&J Maintenance, Inc.	OCT-2008
2009	Fort Lewis Agreed Order, Feasibility Study, Former Miller Hill and Skeet Ranges	Kemron, Inc.	DEC-2009
2010	Draft Final Interim Remedial Action Report, Sea Level Aquifer Pump and Treat System	JBLM- Public Works Environmental Division	JUL-2010
	Interim Action Plan, Former Miller Hill and Skeet Ranges	Kemron, Inc	NOV-2010
2011	Bioenhancement Pilot Study Summary Report, Area D/American Lake Garden Tract (Draft)	Tetra Tech EC, Inc.	APR-2011
	Additional Soil Investigation, Landfill 9 (draft)	Versar, Inc.	NOV-2011
2012	Interim Action Work Plan, Former Miller Hill and Skeet Ranges	Kemron, Inc.	FEB-2012

JOINT BASE LEWIS-MCCHORD
Installation Restoration Program
Site Descriptions

Site ID: FTLE-33
Site Name: LOGISTICS CENTER
Alias: FTLE-33

STATUS

Regulatory Driver: CERCLA
RRSE: HIGH
 Contaminants of Concern: Volatiles (VOC)
 Media of Concern: Groundwater, Soil

Phases	Start	End
PA.....	198205.....	198309
SI.....	198205.....	198309
RI/FS.....	198702.....	200409
RD.....	199201.....	200608
IRA.....	200010.....	200409
RA(C).....	199505.....	200709
RA(O).....	199508.....	203009
RIP Date:	200709	
RC Date:	203009	

SITE DESCRIPTION

The Logistics Center NPL site has widespread groundwater contamination resulting from the disposal of solvents which occurred from the 1940s to the 1970s at the East Gate Disposal Yard (EGDY), also known as Landfill 2. The primary COC is TCE, which is present in both the Vashon Aquifer and Sea Level Aquifer (SLA).

In the late 1980s, as a result of off-post Vashon Aquifer contamination, impacted domestic water wells in the community of Tillicum were shut down. In 1995, in accordance with a 1990 ROD, two groundwater P&T systems in the Vashon Aquifer, one at the EGDY source area and one downgradient system near the installation boundary (referred to as the Interstate 5 system), began operation.

Between 1998 and 2007, following the determination that the original EGDY P&T System was ineffective at treating the TCE source, a number of investigations and actions were undertaken in the EGDY source area. Between 1998 and 2011 the five most significant actions at EGDY, in terms of long-term importance for the remedy, were:

- 1) Signing an ESD to the 1990 ROD in 1998: The ESD focuses on accelerated cleanup of the source area, and completion of additional contaminant transport studies;
- 2) Removing over 400 waste drums containing 29,000 pounds of TCE from the EGDY subsurface in 2001 in accordance with a 2000 DD;
- 3) Treating three nonaqueous phase liquid sources areas; approximately one acre each, with electrical resistivity heating between 2003 and 2007 per a 2002 DD;
- 4) Completing reconfiguration of the EGDY P&T System; between 2004 and 2006, with eight new extraction wells and new infiltration gallery locations. In November 2004 the USAEC granted RIP status.
- 5) Installing the SLA P&T system near Madigan Army Medical Center (MAMC) in 2008 and 2009 per a 2007 ESD to the 1990 ROD. Construction was completed in September 2009, and full operation was achieved in March 2010. Following groundwater treatment, the system pumps water to Madigan Hospital, where it is re-used as cooling water for the air conditioning system.

In 2010 JBLM submitted draft ESDs and technical memoranda to the USEPA. The documents will close out 11 NFA sites that were listed in the original 1990 ROD and/or FFA but do not have specific closure documents. NFA beyond the long-term monitoring is proposed.

In 2010 a pilot bioremediation test was started at Landfill 2. The purpose is to determine the viability of biologically further reducing contaminant concentrations in areas that were not thermally treated. Objective is to reduce the time required for P&T operations.

In December 2010 an optimization team evaluated the P&T systems and the Landfill 2 remedy. A key recommendation was to eliminate the cover proposed for the landfill in 2013. JBLM has requested USEPA concurrence.

JBLM has submitted draft ESDs and technical memos to USEPA Region 10. Documents will close out 12 NFA sites listed in the

Site ID: FTLE-33
Site Name: LOGISTICS CENTER
Alias: FTLE-33

original 1990 ROD, but not specifically mentioned in ensuing ESDs.

A five-year review is being conducted for the Logistics Center in FY12.

CLEANUP/EXIT STRATEGY

The ROD-required remedy will be maintained as follows:

- Operate and maintain the Landfill 2 and Interstate 5 P&T systems;
- Conduct groundwater monitoring including the Sea Level Aquifer P&T system;
- Maintain LUCs, the administrative record, and the Community Involvement Program;
- Complete five-year reviews in FY17 and FY22; and
- Decommission unnecessary MWs.

Site ID: FTLE-46
Site Name: ILLICIT PCB DUMP SITE
Alias: FTLE-46

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Polychlorinated Biphenyls (PCB)

Media of Concern: Soil

Phases	Start	End
PA.....	198311.....	198411
SI.....	199302.....	199909
IRA.....	198311.....	198410
RA(C).....	199903.....	199909
LTM.....	199909.....	201709

RIP Date: N/A

RC Date: 199909

SITE DESCRIPTION

As a result of an illicit dump of PCBs and trichlorobenzenes in November 1983, the Illicit PCB Dump Site SWMU 43 was included in the 1990 FFA as a non-NPL 1980 CERCLA site. The approximately 1.4-acre site is located within an active training area in the eastern portion of Fort Lewis.

In 1983 an emergency response action included removal and off-site disposal of 1,869 tons of contaminated soil. In 1984 a low-permeability clay cap and a perimeter fence were installed. The November 1994 Woodward-Clyde limited field investigation report concluded that there are no complete exposure pathways now, or in the future, because of the soil removal, clay cap, and perimeter fence.

An April 2006 DD selected LTM of the cap, fence, and LUC as the remedy for the site. The LTM is performed by base personnel as part of normal roads and grounds maintenance at no cost to the restoration program.

CLEANUP/EXIT STRATEGY

Continue maintenance and annual inspections of the cap, fence, and LUCs. A technical memorandum for LUCs is being reviewed by the USEPA.

Site ID: FTLE-54
Site Name: LANDFILL 1
Alias: FTLE-54

STATUS

Regulatory Driver: CERCLA

RRSE: MEDIUM

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater, Soil

Phases	Start	End
PA.....	198205.....	198309
SI.....	198309.....	199909
LTM.....	199910.....	202209

RIP Date: N/A

RC Date: 199910

SITE DESCRIPTION

Landfill 1 (SWMU 32), consisting of approximately 15 acres, was reportedly used for disposal of solid waste between 1946 and the early 1970s. The site, which is included in the 1990 FFA (as a non-NPL CERCLA site), is located in the southern portion of the cantonment area, approximately one-half mile southwest of Gray Army Airfield. The site is a concern because of the presence of a former solid waste landfill and the elevated concentrations of VOCs in shallow groundwater around the site.

Investigation activities at the site include the installation of four MWs in 1984, a limited site investigation (LSI) by Pacific Northwest National Laboratories in 1988 (which included installation of four MWs), another LSI by Woodward-Clyde Group Inc. in 1994, installation of seven MWs in 1995, and various groundwater monitoring (GWM) events between 1997 and 2003. Additional site background information is included in the April 2004 Landfill 1 GWM Plan. In April 2004 Fort Lewis IRP began conducting annual GWM at Landfill 1, in accordance with the April 2004 GWM Plan.

An April 2006 DD selected LUCs and long-term GWM as the remedy for the site. As of February 2012, a technical memorandum memorializing the DD in relation to the FFA is being reviewed by USEPA Region 10. Proposed action is continued monitoring of low level TCE in groundwater.

CLEANUP/EXIT STRATEGY

Continue LTM including annual GWM through FY22 or until all VOC concentrations are below maximum contaminant levels (MCLs) for three consecutive years, in accordance with the April 2004 Monitoring Plan. Monitoring has been optimized. Maintain LUCs.

Apart from maintenance of LUCs, no action is planned beyond FY22.

Site ID: FTLE-57
Site Name: LANDFILL 4
Alias: FTLE-57

STATUS

Regulatory Driver: CERCLA
RRSE: HIGH
 Contaminants of Concern: Volatiles (VOC)
 Media of Concern: Groundwater, Soil

Phases	Start	End
PA.....	198205.....	198309
SI.....	198805.....	199008
RI/FS.....	199009.....	199310
RD.....	199311.....	199605
RA(C).....	199402.....	199609
RA(O).....	199610.....	199912
LTM.....	200001.....	202209
RIP Date:	199610	
RC Date:	200001	

SITE DESCRIPTION

Landfill 4 (SWMU 35), consisting of approximately 52 acres, was reportedly used for the disposal of municipal solid waste between 1951 and 1967. The landfill consists of three cells, all located north of Sequatchew Lake on North Fort Lewis. The site (along with an SRCPP) was added as an operable unit to the Logistics Center NPL site, and is, therefore, a CERCLA site on the NPL. The site is a concern because of the presence of a former solid waste landfill and elevated concentrations of TCE and vinyl chloride in the Vashon Aquifer.

Investigation and assessment activities, prior to the October 1993 ROD, include installation of five MWs in 1981, an SI in 1990, an RI, a Risk Assessment, and an FS in 1993. The pre-ROD investigations concluded that the source of groundwater contamination does not appear to be the landfill itself, but rather a discrete hot spot adjacent to the landfill, where other activities, such as vehicle maintenance, likely occurred. Additional site background information is included in the 1993 RI report, the 1993 ROD, and a September 2004 GWM Plan.

The selected remedy specified in the October 1993 ROD was to complete three years of air sparging and SVE in the discrete hot spot, implement and maintain LUCs, and conduct long-term GWM.

Between October 1996 and October 1999, in accordance with the ROD, an air sparging and SVE system was operated in the hot spot. The JBLM IRP has implemented LUCs for the site that were memorialized in the 2007 Fort Lewis LUC Plan. Post-ROD GWM has included events conducted between 1994 and the present.

The most recent monitoring optimization occurred in 2007. The current monitoring plan is the October 2007 plan.

CLEANUP/EXIT STRATEGY

Continue LTM including annual groundwater monitoring through FY22 if required cleanup levels are not attained. Maintain LUCs.

Site ID: FTLE-62
Site Name: LANDFILL 9
Alias: FTLE-62

STATUS

Regulatory Driver: RCRA

RRSE: LOW

Contaminants of Concern: Metals, Petroleum, Oil and Lubricants (POL)

Media of Concern: Soil

Phases	Start	End
RFA.....	198609.....	198609
CS.....	199501.....	199510
RFI/CMS.....	200004.....	201209
CMI(C).....	201209.....	201309

RIP Date: N/A

RC Date: 201309

SITE DESCRIPTION

Landfill 9 (SWMU 40), consisting of approximately 15 acres, was apparently used for disposal of vegetation, municipal waste, and medical waste from about 1932 to the 1950s. Approximately five acres in the northwest portion of the landfill is located within an Interstate 5 easement and has already been remediated. Approximately 10 acres in the southeast portion of the landfill is located in active Fort Lewis Training Area 4, immediately southeast of the Interstate 5 Exit 118 interchange. The southeast portion of the landfill is a Fort Lewis Agreed Order (FLAO) site as a result of RCRA corrective action, recommended in a 1997 RFA.

Although no further RCRA corrective action was recommended for the landfill following the 1986 RFA, some municipal and medical waste was discovered by the Washington State Department of Transportation (WSDOT) in the mid-1990s in the northwest portion of the landfill during construction of an interchange. Between 1995 and 1996 the WSDOT conducted an SI of the landfill. The SI included collection and analysis of soil samples from test pits and within the landfill boundary. The MWs were also installed and sampled. Low concentrations of landfill constituents were detected in soils, and low concentrations of manganese were found in the groundwater. The remedy selected by the WSDOT and approved by the WSDOE for the northwest portion of the landfill included a two-foot gravel cover in locations where interchange construction had already occurred or was to occur, planting grasses and/or shrubs in locations where the cover was applied, implementing LUCs on groundwater use, and decommissioning the four MWs installed during the WSDOT SI. The selected remedy was implemented in 1996.

An SI was conducted in 2002 for the remaining portion of the site. Soil samples were collected and analyzed from six test pits excavated within the landfill boundary to complement the data collected during the 1995 to 1996 SI. In general, the concentrations of contaminants were lower than the 1995 to 1996 studies.

An FS is currently underway. Additional soil sampling was conducted in 2010 and 2011. The results of sampling conducted for an ecological terrestrial evaluation indicate higher concentrations of metals than previous studies in the landfill area, but low concentrations outside the landfill boundary.

Ecological receptors and human direct contact with the soil are both potentially complete and significant exposure pathways at the site area. The maximum detected concentrations of lead and total carcinogenic PAHs are above the state cleanup levels.

Based on the risk to ecological receptors, the proposed remedy is capping and LUC's.

CLEANUP/EXIT STRATEGY

Cap the site and implement LUCs on future residential land use and unauthorized excavations.

Site ID: FTLE-73
Site Name: MILLER HILL
Alias: FTLE-73

STATUS

Regulatory Driver: RCRA
RRSE: MEDIUM
 Contaminants of Concern: Metals
 Media of Concern: Soil

Phases	Start	End
RFA.....	199601.....	199706
CS.....	200001.....	200006
RFI/CMS.....	200010.....	201011
IRA.....	200305.....	200409
CMI(C).....	200803.....	201212

RIP Date: N/A
RC Date: 201212

SITE DESCRIPTION

The Miller Hill Site (AOC 4-2) is a former small arms range complex located on the south side of Miller Hill. The site was used for range activity from about 1917 until the 1960s. Former ranges identified at the site are Pistol Range 62, Pistol Range 67, Subcaliber Tank Range 54, Machine Gun Range 42, and another unnumbered pistol range. At each former range, small arms were fired from firing lines on flat ground at targets placed in front of the undisturbed hillside (which served as the backstop). The impact area (i.e., south-facing hillside) is approximately 0.5 miles long.

Miller Hill is located within the cantonment area in an area currently zoned for open space in the Fort Lewis Master Plan. Although the site itself is not used for recreation, Miller Hill is a common outdoor recreation area within Fort Lewis. In addition, a residential housing area is located west of the site. As a result of RCRA corrective action recommended in a 1997 RFA, this is a Fort Lewis Agreed Order (FLAO) site.

Investigation and assessment activities at the site include a June 2000 preliminary investigation, a more extensive SI in June 2001, a draft April 2002 risk assessment, a draft November 2002 limited FS, a February 2004 treatability study, additional soil sampling for delineation purposes between 2005 and 2007, and inclusion in the February 2008 FLAO RI report. The investigation activities detected a maximum lead concentration over 100,000 mg/kg in surface soil along the hillside.

In accordance with an April 2004 DD, a four-strand wire perimeter fence was installed as an interim remedial action (IRA) in FY04 to limit potential human direct contact with surface soil.

The FS and RA are being conducted under a Performance Based Contract (PBC) awarded in FY08.

In October 2008 an interim action was conducted at the Hillside housing area just west of the Miller Hill ranges. Soil with lead in residential yards was removed to state cleanup levels.

In November 2010 an interim action plan was approved by the WSDOE. The proposed cleanup is to remove soils with lead on the flatlands portion of the site, but to leave the steep hillsides undisturbed. Ecological studies indicate that the steep slopes would suffer more environmental impact from cleanup than they presently do from the presence of lead in soil.

The project has been delayed approximately one year by negotiations between the Army and the WSDOE in developing an Agreed Order to implement the RA.

A performance-based acquisition (PBA) is being conducted which includes an FS and implementing the study's proposed plan. The FS was approved by the WSDOE in January 2010.

A Cleanup Action Plan was approved by Ecology in November 2011. Soil remediation is scheduled to begin in Spring 2012 and should take about three months to complete.

Site ID: FTLE-73
Site Name: MILLER HILL
Alias: FTLE-73

CLEANUP/EXIT STRATEGY

Exit strategy is excavation of impacted soil located on the flat lands of Miller Hill, followed by treatment and recycling of excavated soil at an active range. LUCs will be implemented for the steep slopes on the site.

Site ID: MF-ALGT-LF-05
Site Name: American Lake Garden Tract
Alias: LF005

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Volatiles (VOC)

Media of Concern: Groundwater

Phases	Start	End
PA.....	198205.....	198208
SI.....	198705.....	198708
RI/FS.....	199003.....	199103
RD.....	199109.....	199212
RA(C).....	199302.....	199402
RA(O).....	199402.....	202209

RIP Date: 199402

RC Date: 202209

SITE DESCRIPTION

The ALGT was placed on the USEPA NPL in 1984. The Air Force, the USEPA and the WSDOE entered into an FFA, effective Oct. 23, 1989 and a ROD, effective Sept. 19, 1991. During the RI, TCE, cis-dichloroethene (cis-DCE) concentrations in the groundwater were found to exceed allowable limits. A groundwater P&T system was installed and has been under continuous operation since February 1994. The system utilizes granular activated carbon to remove the organic contaminants from the groundwater emanating from sites LF-05 and OT-39, which are now located under the base golf course.

The primary source of contamination for ALGT is Landfill 5 (LF-05), which was a major base landfill from 1951 until 1961. A waste oil burn pit was operated at the site from 1952 to 1964. The landfill also had a concrete trench used for burning liquid wastes, reportedly including petroleum, oil and lubricants (POL), solvents and fuels. Open burning was conducted until the landfill was closed. A TCE plume extended approximately 1,500 feet downgradient and was approximately 400 feet wide as of September 2002. The plume has been steadily shrinking as a result of groundwater treatment.

In 2010 a pilot project was started to determine if bioremediation is a viable alternative to reduce remaining TCE concentrations to cleanup levels.

CLEANUP/EXIT STRATEGY

The ROD required remedy will be implemented as follows:
 -Conduct O&M and groundwater sampling at the P&T system, and
 -Implement LUCs.

A pilot study will determine if bioremediation will reduce the already low concentrations of TCE to cleanup levels.

Site ID: MF-DP-60

Site Name: Floating Fuel at Washrack/Treatment

Alias: DP060

STATUS

Regulatory Driver: CERCLA

RRSE: LOW

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
PA.....	198008.....	198208
SI.....	198505.....	198708
RI/FS.....	199206.....	199207
RA(C).....	199207.....	199207
RA(O).....	199207.....	199408
LTM.....	199408.....	202209
RIP Date:	199207	
RC Date:	199408	

SITE DESCRIPTION

Site DP-60 was part of the WTA NPL site, which is located in the northern industrial and operational portion of McChord Field along the western portion of the runway. Site DP-60 includes the storm drainage infiltration ditches (now backfilled) and fuel floating on the shallow groundwater just north of Building 1197, the jet engine test facility.

Floating fuel underlying about 300,000 square feet of the WTA was identified in the RI and previous studies. The thickness of the floating fuel layer ranged from less than one to seven inches. The fuel consisted of Number Two diesel or a mixture of diesel and some lighter fuel. Results from the RI and the Baseline Risk Assessment indicated that no CERCLA RA was necessary for soil, surface water or sediments to ensure protection of human health or the environment. The FS indicates the fuel was not migrating off-site and was prevented from impacting drinking water sources by the Vashon Till aquitard.

A remedial design (RD) pilot study was completed in 1994 to evaluate the selected alternative in the ROD, which was passive skimming of the floating fuel. The pilot study concluded that passive removal of the floating fuel was not feasible because of the limited amount of fuel present. The original investigations had overestimated the volume of fuel present. The pilot study also concluded that there are adequate bacteria to naturally biodegrade the site without additional RA.

Evaluation of the RI and the Baseline Risk Assessment determined that no RA under CERCLA was necessary for soil, surface water, or sediment to ensure protection of human health and the environment. The ESD specified the changes made to the selected remedy in the ROD. Populations of petroleum-degrading bacteria were present in the fuel-contaminated soils at DP-60. Natural bioremediation of the floating fuel was occurring and was allowed to continue. No further RA was recommended for Site DP-60. In 1994, Site DP-60 was included in McChord's Basewide Long-Term Monitoring Program. The site will remain in the Long-Term Monitoring Program until two consecutive rounds of samples have been collected that are below action levels.

On Aug. 17, 1994, the DD was issued with NFA planned. In September 1996, the WTA site was removed from the NPL by the USEPA. In September 2004, McChord completed the second five-year review for this site. The USEPA and the WSDOE concurred with the recommendation that this review would be the last five-year review conducted on the site.

CLEANUP/EXIT STRATEGY

Continued groundwater sampling to monitored natural attenuation (MNA). Monitoring will continue until state cleanup levels are met.

Site ID: MF-SS-34
Site Name: Spill Site Beside POL Storage Area
Alias: SS034

STATUS

Regulatory Driver: OTHER

RRSE: LOW

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
PA.....	198008.....	198208
SI.....	199301.....	199401
RA(C).....	199406.....	199509
LTM.....	199509.....	202209

RIP Date: N/A

RC Date: 199509

SITE DESCRIPTION

SS-34 is a one-acre parcel located on the north side of the McChord Field bulk fuel storage area near the western base boundary. Site access is restricted by a fence. The site was reportedly used from 1956 to 1982 for disposal of fuel tank sludge, JP-4 and leaded fuel. Spills (approximately 300 to 500 gallons each) were reported to have occurred in the past. 15,000 gallons of aviation gas (AVGAS) was reported to have occurred in 1973. No information is available concerning the fate of this spill, but it was reported that the spill was contained within the diked area surrounding the tanks. The WSDOE conducted a Model Toxics Control Act (MTCA) initial investigation. Additional sampling was performed in 1992. Historic information and site inspections revealed that contaminants reportedly released at this site are not adversely impacting human health or the environment. NFA was indicated. A DD was issued in February 1996, which recommended NFA for SS-34. This site is also being sampled on an annual basis as part of the Basewide Long-Term Monitoring Program.

The WSDOE is the regulatory agency for the site, which is included on the state's hazardous sites list.

CLEANUP/EXIT STRATEGY

Continued groundwater sampling to MNA. Monitoring will be discontinued when state cleanup levels are met.

Site ID: MF-SS-34N
Site Name: TCE Cantonment Area Spill Site
Alias: SS034

STATUS

Regulatory Driver: OTHER
RRSE: LOW
 Contaminants of Concern: Volatiles (VOC)
 Media of Concern: Groundwater

Phases	Start	End
PA.....	198008.....	198208
SI.....	199301.....	200101
RI/FS.....	200010.....	200309
RD.....	200309.....	200403
RA(C).....	200404.....	200404
RA(O).....	200404.....	201609
LTM.....	201610.....	202209
RIP Date:	200404	
RC Date:	201609	

SITE DESCRIPTION

SS-34N is a three-acre site on the north side of Site 34. Historic maps show more than 20 dormitories/dining facilities were located in the area. TCE was first detected in 1993, but a discrete source of TCE contamination was not identified. Presumably the contamination resulted from multiple, small-volume surface spills. The plume extends approximately 1500 feet in length with an average width of 350 to 400 feet.

In September 2002, McChord conducted a pilot test to determine if in situ treatment using potassium permanganate would be effective. The results indicated TCE levels were immediately reduced. After successful community outreach and positive public response, McChord developed a CAP in September 2003. Commencement of full-scale potassium permanganate treatment began in April 2004 with injection into the shallow aquifer via a network of 32 injection wells. The treatment progress is monitored quarterly. Additional treatment occurred in 2005, 2007, 2009, and 2011. Permanganate injection was expanded to the Springbrook neighborhood downgradient of the base in 2005. Additional permanganate injection in 2013 and 2016 is anticipated to eliminate the off-base portion of the TCE plume. The WSDOE is the regulatory agency for the site, which is included on the state's Hazardous Sites List.

CLEANUP/EXIT STRATEGY

Conduct up to two additional chemical oxidation injections to reduce TCE concentrations to cleanup levels; continue groundwater monitoring until cleanup levels are achieved.

Site ID: MF-WP-44
Site Name: Vehicle Maintenance Leach Pit
Alias: WP044

STATUS

Regulatory Driver: OTHER

RRSE: LOW

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
PA.....	198008.....	198208
SI.....	199301.....	199401
RI/FS.....	199401.....	199405
IRA.....	200002.....	200212
RA(C).....	200212.....	200212
LTM.....	200212.....	202209

RIP Date: N/A

RC Date: 200212

SITE DESCRIPTION

WP-44 site occupies approximately 11 acres and is used as the vehicle maintenance and repair facility for Air Force vehicles. The site is bounded on the north by Battery Drive, on the south by 5th Street, on the west by A Street, and on the east by 4th Street. It consists of 13 buildings used for vehicle maintenance/repair and washing. The site is almost entirely paved.

In February 2000, McChord excavated and recycled approximately 427 tons of petroleum-contaminated soils associated with an inactive dry well near Building 779. The dry well was a concrete tile structure, approximately 10 feet deep with a maximum diameter of approximately four feet. Excavation, dry well removal, and soil sampling were completed on Dec. 18, 2002.

Examination of historic information and inspection of the site indicates no further investigation is necessary. The site was closed out but was included in the Basewide Long-Term Monitoring Program. A DD recommending NFA was issued in February 1996. This site is sampled on an annual basis as part of the Basewide Long-Term Monitoring Program. The WSDOE is the regulating agency for WP-44, which is listed on the state's Hazardous Sites List.

CLEANUP/EXIT STRATEGY

Continued groundwater sampling to MNA. Monitoring will be discontinued when state cleanup levels are met.

Site ID: PBC@FortLewis
Site Name: PBC at Fort Lewis
Alias: PBC @ FTLE

STATUS

Regulatory Driver: RCRA
RRSE: LOW

Phases	Start	End
RFA.....	199601.....	200312
CS.....	201001.....	201103
RFI/CMS.....	201001.....	201203
CMI(C).....	200803.....	201209
RIP Date:	N/A	
RC Date:	201209	

SITE DESCRIPTION

In March 2008 this PBC site was created to track the funding for the PBC sites FTLE-73 and FTLEW-008-R-01. In March 2010 sites CCFL22 and FTLEW-015-R-01 were also added. Please refer to the individual site for descriptions and phase schedules.

An FS was approved by the WSDOE in January 2010 for FTLE-73 and FTLEW-008-R-01. In late 2010 agency oversight was transferred from the WSDOE to USEPA Region 10.

Details of FTLE-73, FTLEW-015-R-01, FTLEW-008-R-01, which this contract covers, can be found in the individual site descriptions.

CLEANUP/EXIT STRATEGY

This contract is expected to be completed in FY12.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTLE-01	BUILDING 9580 (MAINTENANCE)	198309	Not eligible for ER.A funding
FTLE-02	HANGAR 3039 (MAINTENANCE)	198309	Not eligible for ER.A funding
FTLE-03	PHOTO SECT (BLDG. 5208)	199706	Not eligible for ER.A funding
FTLE-10	STORM WATER OUTFALLS	199909	Not eligible for ER.A funding
FTLE-11	MAMC HEALTH PHYSICS OFFICE (BLDG 9909C)	198309	Not eligible for ER.A funding
FTLE-12	MAMC INCINERATOR (BLDG. 3152)	199703	Not eligible for ER.A funding
FTLE-13	HOBBY PHOTO LAB (BLDG. 5308)	198309	Not eligible for ER.A funding
FTLE-15	BUILDING 9500	198309	Not eligible for ER.A funding
FTLE-16	BATTERY ACID PIT	200604	April 2006 Decision Document. Although no funding needed, maintenance of LUCs is a remaining action
FTLE-17	OLD FIRE FIGHTING TRAINING PIT	200212	December 2000 Decision Document
FTLE-18	PARK MARSH LANDFILL	200604	April 2006 Decision Document
FTLE-19	SMALL ARMS FIRING RANGES	198309	Not eligible for ER.A funding
FTLE-20	ARTILLERY IMPACT AREA	198309	Not eligible for ER.A funding
FTLE-21	MORTAR RANGES	198309	Not eligible for ER.A funding
FTLE-26	OLD RECYCLING SEPARATION BUILDING #1214	199606	No evidence of a release. Bldg was deconstructed.
FTLE-28	PESTICIDE RINSE AREA - BUILDING 2054	200101	December 2000 Decision Document. Although no funding needed, maintenance of LUCs is a remaining action.
FTLE-29	BLDG 9570 (WEAPONS REPAIR/ INDOOR)RANGE	199706	Active test-fire range. Not eligible for ER,A funding.
FTLE-30	BUILDING 9507 (TRANSFORMER STORAGE)	200112	1997 RFA. Bldg 9507 was deconstructed.
FTLE-31	DRMO YARD	200604	April 2006 Decision Document. Although no funding needed, maintenance of LUCs is a remaining action.
FTLE-32	SOLVENT REFINED COAL PILOT PLANT	200003	July 1999 Remedial Action Report. Although no funding needed, maintenance of LUCs is a remaining action.
FTLE-34	BUILDING 9556 (HAZ MAT STORAGE)	199703	March 1997 TSDF clean closure verification by WSDOE
FTLE-35	BUILDING 9557 (HAZ MAT STORAGE)	199703	March 1997 TSDF clean closure verification by WSDOE
FTLE-36	BUILDING 9558 (HAZ MAT STORAGE)	199703	March 1997 TSDF clean closure verification by WSDOE
FTLE-38	MOBILITY FUEL TANKS - (BLDG. 4176)	198309	Not eligible for ER.A funding
FTLE-40	MIXED WASTE STORAGE (BLDG. S9749)	199812	Not eligible for ER.A funding
FTLE-41	WASTEWATER TREATMENT PLANT (BLDG 7500)	198309	Not eligible for ER.A funding
FTLE-44	BUILDING 9513 (RAD STORAGE)	198309	Not eligible for ER.A funding
FTLE-47	BUILDING 3034 (UST)	198309	Not eligible for ER.A funding
FTLE-49	BUILDING 9589 (BATTERY SHOP)	198309	Not eligible for ER.A funding
FTLE-51	OUTFALL #7/ SETTLING BASIN (BLDG. 9586)	200810	
FTLE-53	OLD VEHICLE WASHRACK(S)	198309	Not eligible for ER.A funding

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTLE-56	LANDFILL 3	198309	1986 RFA
FTLE-58	LANDFILL 5	200308	1992 ROD
FTLE-59	LANDFILL 6	200609	Feb 2007 Decision Document
FTLE-60	LANDFILL 7 (CONSTRUCTION RUBBLE)	198309	1986 RFA
FTLE-61	LANDFILL 8 (CONSTRUCTION RUBBLE)	198309	1986 RFA
FTLE-63	LANDFILL 10 (CONSTRUCTION DEBRIS)	198309	1986 RFA
FTLE-66	(2) UST (NEVADA & 41ST DIVISION)	200112	1986 RFA
FTLE-67	LANDFILL 2	200206	Administratively combined with FTLE-33
FTLE-69	OLD EXPLOSIVE ORDNANCE DEMOLITION SITE	200506	09 JUN 05 Memo from Rich Wilson
FTLE-70	UNDERGROUND GAS SUPPLY PIPING	199211	Removal action was completed with OMA funds.
FTLE-71	VEHICLE WASHRACKS	200109	Not eligible for ER.A funding
FTLE-72	EMERGENCY FUEL USTS	198309	Not eligible for ER.A funding
FTLE-74	ENGINEER BLUFF	200711	Oct 2007 letter from Fort Lewis to WSDOE and Nov 2007 response letter from WSDOE
FTLE-75	UNDERGROUND GASOLINE PIPELINE	200610	Aug 2006 Cleanup Action Report

IRP Schedule

Date of IRP Inception: 198008

Past Phase Completion Milestones

1982

PA (MF-ALGT-LF-05 - American Lake Garden Tract, MF-DP-60 - Floating Fuel at Washrack/Treatment, MF-SS-34 - Spill Site Beside POL Storage Area , MF-SS-34N - TCE Cantonment Area Spill Site, MF-WP-44 - Vehicle Maintenance Leach Pit)

1983

RFA (FTLE-01 - BUILDING 9580 (MAINTENANCE), FTLE-02 - HANGAR 3039 (MAINTENANCE), FTLE-13 - HOBBY PHOTO LAB (BLDG. 5308), FTLE-15 - BUILDING 9500, FTLE-19 - SMALL ARMS FIRING RANGES, FTLE-20 - ARTILLERY IMPACT AREA, FTLE-21 - MORTAR RANGES, FTLE-30 - BUILDING 9507 (TRANSFORMER STORAGE), FTLE-34 - BUILDING 9556 (HAZ MAT STORAGE), FTLE-35 - BUILDING 9557 (HAZ MAT STORAGE), FTLE-36 - BUILDING 9558 (HAZ MAT STORAGE), FTLE-49 - BUILDING 9589 (BATTERY SHOP))

PA (FTLE-10 - STORM WATER OUTFALLS, FTLE-11 - MAMC HEALTH PHYSICS OFFICE (BLDG 9909C), FTLE-16 - BATTERY ACID PIT, FTLE-28 - PESTICIDE RINSE AREA - BUILDING 2054, FTLE-31 - DRMO YARD, FTLE-32 - SOLVENT REFINED COAL PILOT PLANT, FTLE-33 - LOGISTICS CENTER, FTLE-40 - MIXED WASTE STORAGE (BLDG. S9749), FTLE-41 - WASTEWATER TREATMENT PLANT (BLDG 7500), FTLE-44 - BUILDING 9513 (RAD STORAGE), FTLE-51 - OUTFALL #7/ SETTLING BASIN (BLDG. 9586), FTLE-53 - OLD VEHICLE WASHRACK(S), FTLE-54 - LANDFILL 1, FTLE-56 - LANDFILL 3, FTLE-57 - LANDFILL 4, FTLE-58 - LANDFILL 5, FTLE-59 - LANDFILL 6, FTLE-60 - LANDFILL 7 (CONSTRUCTION RUBBLE), FTLE-61 - LANDFILL 8 (CONSTRUCTION RUBBLE), FTLE-63 - LANDFILL 10 (CONSTRUCTION DEBRIS), FTLE-67 - LANDFILL 2)

ISC (FTLE-38 - MOBILITY FUEL TANKS - (BLDG. 4176), FTLE-47 - BUILDING 3034 (UST), FTLE-72 - EMERGENCY FUEL USTS)

SI (FTLE-31 - DRMO YARD, FTLE-33 - LOGISTICS CENTER, FTLE-59 - LANDFILL 6, FTLE-67 - LANDFILL 2)

1985

PA (FTLE-46 - ILLICIT PCB DUMP SITE)

IRA (FTLE-46 - ILLICIT PCB DUMP SITE)

1986

RFA (FTLE-62 - LANDFILL 9)

1987

SI (MF-ALGT-LF-05 - American Lake Garden Tract, MF-DP-60 - Floating Fuel at Washrack/Treatment)

1988

SI (FTLE-58 - LANDFILL 5)

RFA (FTLE-70 - UNDERGROUND GAS SUPPLY PIPING)

1989

PA (FTLE-18 - PARK MARSH LANDFILL)

1990

SI (FTLE-57 - LANDFILL 4)

1991

RI/FS (MF-ALGT-LF-05 - American Lake Garden Tract)

1992

RA(C) (MF-DP-60 - Floating Fuel at Washrack/Treatment)

RI/FS (FTLE-58 - LANDFILL 5, MF-DP-60 - Floating Fuel at Washrack/Treatment)

1993

ISC (FTLE-66 - (2) UST (NEVADA & 41ST DIVISION))

SI (FTLE-32 - SOLVENT REFINED COAL PILOT PLANT)

RD (MF-ALGT-LF-05 - American Lake Garden Tract)

CMI(C) (FTLE-70 - UNDERGROUND GAS SUPPLY PIPING)

IRP Schedule

1994

PA (FTLE-69 - OLD EXPLOSIVE ORDNANCE DEMOLITION SITE)
RI/FS (FTLE-32 - SOLVENT REFINED COAL PILOT PLANT, FTLE-57 - LANDFILL 4, MF-WP-44 - Vehicle Maintenance Leach Pit)
RA(O) (MF-DP-60 - Floating Fuel at Washrack/Treatment)
SI (MF-SS-34 - Spill Site Beside POL Storage Area , MF-WP-44 - Vehicle Maintenance Leach Pit)
RA(C) (MF-ALGT-LF-05 - American Lake Garden Tract)

1995

RA(C) (MF-SS-34 - Spill Site Beside POL Storage Area)
RD (FTLE-32 - SOLVENT REFINED COAL PILOT PLANT)
CS (FTLE-34 - BUILDING 9556 (HAZ MAT STORAGE), FTLE-35 - BUILDING 9557 (HAZ MAT STORAGE), FTLE-36 - BUILDING 9558 (HAZ MAT STORAGE))
SI (FTLE-69 - OLD EXPLOSIVE ORDNANCE DEMOLITION SITE)

1996

RFA (FTLE-26 - OLD RECYCLING SEPARATION BUILDING #1214)
RD (FTLE-57 - LANDFILL 4)
CS (FTLE-62 - LANDFILL 9)
RA(C) (FTLE-57 - LANDFILL 4)

1997

PA (FTLE-17 - OLD FIRE FIGHTING TRAINING PIT)
RFA (FTLE-03 - PHOTO SECT (BLDG. 5208), FTLE-12 - MAMC INCINERATOR (BLDG. 3152) , FTLE-29 - BLDG 9570 (WEAPONS REPAIR/ INDOOR)RANGE, FTLE-71 - VEHICLE WASHRACKS, FTLE-73 - MILLER HILL, FTLE-74 - ENGINEER BLUFF)
RI/FS (FTLE-31 - DRMO YARD)
IMP(C) (FTLE-66 - (2) UST (NEVADA & 41ST DIVISION))

1999

RI/FS (FTLE-16 - BATTERY ACID PIT)
RFI/CMS (FTLE-30 - BUILDING 9507 (TRANSFORMER STORAGE))
RA(C) (FTLE-16 - BATTERY ACID PIT, FTLE-32 - SOLVENT REFINED COAL PILOT PLANT, FTLE-40 - MIXED WASTE STORAGE (BLDG. S9749), FTLE-46 - ILLICIT PCB DUMP SITE)
CS (FTLE-30 - BUILDING 9507 (TRANSFORMER STORAGE))
SI (FTLE-10 - STORM WATER OUTFALLS, FTLE-16 - BATTERY ACID PIT, FTLE-28 - PESTICIDE RINSE AREA - BUILDING 2054, FTLE-46 - ILLICIT PCB DUMP SITE, FTLE-54 - LANDFILL 1)

2000

LTM (FTLE-32 - SOLVENT REFINED COAL PILOT PLANT)
RA(O) (FTLE-57 - LANDFILL 4)
RFA (FTLE-75 - UNDERGROUND GASOLINE PIPELINE)
CS (FTLE-73 - MILLER HILL, FTLE-74 - ENGINEER BLUFF, FTLE-75 - UNDERGROUND GASOLINE PIPELINE)

2001

RFI/CMS (FTLE-71 - VEHICLE WASHRACKS)
SI (FTLE-17 - OLD FIRE FIGHTING TRAINING PIT, MF-SS-34N - TCE Cantonment Area Spill Site)
DES (FTLE-30 - BUILDING 9507 (TRANSFORMER STORAGE))

2002

LTM (FTLE-66 - (2) UST (NEVADA & 41ST DIVISION))
CMI(C) (FTLE-30 - BUILDING 9507 (TRANSFORMER STORAGE))
RA(C) (FTLE-67 - LANDFILL 2)

2003

SI (FTLE-18 - PARK MARSH LANDFILL)
 IRA (MF-WP-44 - Vehicle Maintenance Leach Pit)
 RI/FS (MF-SS-34N - TCE Cantonment Area Spill Site)
 LTM (FTLE-58 - LANDFILL 5)
 RA(C) (MF-WP-44 - Vehicle Maintenance Leach Pit)

2004

RI/FS (FTLE-33 - LOGISTICS CENTER)
 RA(C) (MF-SS-34N - TCE Cantonment Area Spill Site)
 RFA (PBC@FortLewis - PBC at Fort Lewis)
 RD (MF-SS-34N - TCE Cantonment Area Spill Site)
 IRA (FTLE-33 - LOGISTICS CENTER, FTLE-73 - MILLER HILL)

2005

RA(C) (FTLE-31 - DRMO YARD)
 RI/FS (FTLE-18 - PARK MARSH LANDFILL, FTLE-59 - LANDFILL 6, FTLE-69 - OLD EXPLOSIVE ORDNANCE DEMOLITION SITE)

2006

RD (FTLE-33 - LOGISTICS CENTER)

2007

RFI/CMS (FTLE-75 - UNDERGROUND GASOLINE PIPELINE)
 RA(C) (FTLE-33 - LOGISTICS CENTER)

2008

RFI/CMS (FTLE-74 - ENGINEER BLUFF)
 SI (FTLE-51 - OUTFALL #7/ SETTLING BASIN (BLDG. 9586))

2011

CS (PBC@FortLewis - PBC at Fort Lewis)
 RFI/CMS (FTLE-73 - MILLER HILL)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

Site ID	Site Name	ROD/DD Title	ROD/DD Date
FTLE-46	ILLICIT PCB DUMP SITE	Illicit PCB Dump Site ESD	20120630
FTLE-51	OUTFALL #7/ SETTLING BASIN (BLDG. 9586)	IWTP ESD	20120630
FTLE-59	LANDFILL 6	Landfill 6 ESD	20120630

Final RA(C) Completion Date: 201309

Schedule for Next Five-Year Review: 2012

Estimated Completion Date of IRP at Installation (including LTM phase): 203009

JOINT BASE LEWIS-MCCHORD IRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLE-33	LOGISTICS CENTER	RA(O)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLE-46	ILLICIT PCB DUMP SITE	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLE-54	LANDFILL 1	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLE-57	LANDFILL 4	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLE-62	LANDFILL 9	CMI(C)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLE-73	MILLER HILL	CMI(C)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
MF-ALGT-LF-05	American Lake Garden Tract	RA(O)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
MF-DP-60	Floating Fuel at Washrack/Treatment	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
MF-SS-34	Spill Site Beside POL Storage Area	LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
MF-SS-34N	TCE Cantonment Area Spill Site	RA(O)						
		LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
MF-WP-44	Vehicle Maintenance Leach Pit	LTM						

JOINT BASE LEWIS-MCCHORD
Army Defense Environmental Restoration Program
Military Munitions Response Program

MMRP Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 15/13

Installation Site Types with Future and/or Underway Phases

- 1 Firing Range
(FTLEW-015-R-01)
- 1 Small Arms Range
(FTLEW-008-R-01)

Most Widespread Contaminants of Concern

Metals, Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern

Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
FTLEW-008-R-01	FORMER SKEET RANGE	IRA	FENCE OR OTHER SITE ACCESS CONTROL MEASURES	2004

Duration of MMRP

Date of MMRP Inception 200212

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201609/201609

Date of MMRP completion including Long Term Management (LTM): Indefinite

MMRP Contamination Assessment

Contamination Assessment Overview

In 2001 the Department of Defense (DoD) created the MMRP to address human health, safety, and environmental concerns at defense sites that were once used to develop, test, and deploy weapons systems and military munitions. The FY02 Defense Authorization Act required an inventory of all defense sites known or suspected to contain UXO, discarded military munitions (DMM), or munitions constituents (MC) at all active and BRAC properties, and formerly used defense sites (FUDS).

Military munitions include all ammunition products and components produced for or used by the armed forces for national defense and security, including confined gaseous, liquid, and solid propellants, explosives, pyrotechnics, chemical and riot control agents, smokes, and incendiaries, including bulk explosives and chemical warfare agents, chemical munitions, rockets, guided and ballistic missiles, bombs, warheads, mortar rounds, artillery ammunition, small arms ammunition, grenades, mines, torpedoes, depth charges, cluster munitions and dispensers, demolition charges, and devices and components thereof. The term does not include wholly inert items, improvised explosive devices, and nuclear weapons, nuclear devices, and nuclear components, except that the term does include non-nuclear components of nuclear devices that are managed under the nuclear weapons program of the Department of Energy after all required sanitization operations under the Atomic Energy Act of 1954 (42 USC, 2011 et seq.) have been completed.

At Lewis-Main and Lewis-North, the Army range inventory identified 14 MMRP-eligible sites. The Phase III Closed, Transferred and Transferring (CTT) Range Inventory Report, which was completed in FY03, is considered the preliminary assessment (PA). SI fieldwork was completed in summer 2006. The final SI report was approved in FY07. All sites were considered low hazard.

Construction work in 2005 and early 2011 in B Range (FTLEW-015-R-01) excavated a few munitions and explosives of concern (MEC). Subsequent to that, an RI for the range was completed in 2011. Except for a former mortar training area, it recommended a low probability of encountering MEC. The former mortar area was 100 percent investigated; all MEC were removed. In 2012 an action memorandum implemented LUCs for B Range, which includes MEC awareness training and UXO construction support during excavation activities.

Another MMRP site, the former Skeet Range (FTLEW-008-R-01), is being remediated for lead concentrations. No military munitions were identified on the site.

In 2006, a Phase I Comprehensive Site Evaluation (CSE) at JBLM-McChord Field identified seven munitions sites. The CSE Phase I is analogous to a CERCLA PA. A CSE Phase II evaluation (comparable to a CERCLA SI) was conducted in 2008. The Phase II work concluded that two sites required NFA, three sites required further evaluation for potential MEC, and two sites contained lead concentrations exceeding state limits for unrestricted use. In 2010, a munitions clearance was conducted for the three MEC sites, and lead remediation was effected at the remaining two sites. As of 2011, no further MMRP response actions are required.

Cleanup Exit Strategy

At Lewis-Main in FY12, a PBC for lead removal is being completed at the Skeet Range (FTLEW-008-R-01). Lead soils are being excavated and re-used as berms material at the active ranges. An FS for FTLEW-015-R-01 also will be initiated in FY12. LUCs will continue to be implemented.

In 2011, McChord Field has completed all MMRP-related cleanups; future MMRP responses are not anticipated.

MMRP Previous Studies

	Title	Author	Date
2001	McChord Air Force Base Range Inventory Report	Air Mobility Command	NOV-2001
2002	US Army Active/Inactive Range Inventory - Fort Lewis	Forces Command	FEB-2002
	Historical Records Report, Munitions, Fort Lewis	Tetra Tech EM	AUG-2002
2003	Closed, Transferring, and Transferred Ranges, Fort Lewis & Vancouver Barracks	ERM, Inc	DEC-2003
2006	Work Plan SI Fort Lewis Military Munitions Response Program	URS	SEP-2006
2007	SI Report Fort Lewis Military Munitions Response Program	URS	APR-2007
	Final McChord AFB Comprehensive Site Evaluation, Phase I	URS Corp	SEP-2007
2009	Final Comprehensive Site Evaluation Phase II Report, McChord AFB	U.S, Army Corps of Engineers	NOV-2009
2010	Final Qualitative Assessment Report Munitions Constituent Migration at AMC Operational Reanges, McChord AFB	Weston Solutions, Inc	MAR-2010
	McChord Soil and Anomaly Investigation Completion Report	Versar/ Jacobs Engineering	AUG-2010
2012	B Range Remedial Investigation	Kemron, Inc	JAN-2012

JOINT BASE LEWIS-MCCHORD
Military Munitions Response Program
Site Descriptions

Site ID: FTLEW-008-R-01
Site Name: FORMER SKEET RANGE
Alias: None

STATUS

Regulatory Driver: RCRA
MRSPP Score: 05
Contaminants of Concern: Metals
Media of Concern: Soil

Phases	Start	End
RFA.....	200212.....	200312
CS.....	200506.....	200704
RFI/CMS.....	200704.....	200912
IRA.....	200305.....	200407
CMI(C).....	200803.....	201212

RIP Date: N/A
RC Date: 201212

SITE DESCRIPTION

The former Skeet Range (AOC 4-3) comprises approximately 16 acres located on JBLM-North (former North Fort Lewis). Apparently, between 1963 and 1972 the site was used as a recreational skeet range. Shot was fired toward the northwest without a backstop. The site is located in an area currently zoned for residential development in the Fort Lewis Master Plan. Prior to 2004 it was used for recreational purposes. As a result of RCRA corrective action recommended in a 1997 RFA, this is an FLAO site.

The site chronology includes an Operations and Maintenance, Army (OMA)-funded 2004 SI/RI, an OMA-funded 2004 installation of a perimeter fence, a 2007 MMRP SI, and inclusion in the February 2006 FLAO RI. Lead is the only COC. An FS was approved by the WSDOE in January 2010.

The RA is being conducted under a PBC. The remedy will remove soils containing lead above state residential standards and re-use them at the active ranges.

Regulatory negotiations between Army and the State have delayed the remedial for about one year.

An interim action plan for site cleanup was approved by the WSDOE in November 2011. Soil removal will begin in spring 2012 and is expected to take about a month to complete.

CLEANUP/EXIT STRATEGY

Remedial action will remove soils that contain lead above state residential standards. The material will be used to construct berms at the active ranges. At the conclusion of the removal, the site will be available for unrestricted use.

Site ID: FTLEW-015-R-01

Site Name: B Range

Alias: None

STATUS

Regulatory Driver: CERCLA

MRSPP Score: 04

Contaminants of Concern: Munitions and explosives of concern (MEC), Munitions constituents (MC)

Media of Concern: Soil

Phases	Start	End
PA.....	200212.....	200312
SI.....	200506.....	200704
RI/FS.....	201002.....	201303
IRA.....	201009.....	201609
RA(C).....	200910.....	201609

RIP Date: N/A

RC Date: 201609

SITE DESCRIPTION

In 2006, during MMRP SI activities, the B Range was discovered as a munitions response site (MRS). The boundary of the approximately 2,208-acre site encompasses all of Lewis North (former North Fort Lewis), excluding the land within the operational range area. The site boundary was conservatively estimated based on a pamphlet from about 1925 containing a rudimentary sketch of the area. Current and anticipated future land use within Lewis North is a mix of residential, commercial, and industrial. The southern portion (about 1,000 acres) of Lewis North was heavily developed during WW II and is in the process of being completely redeveloped.

According to the April 2007 MMRP SI Report for Fort Lewis, 37mm projectiles, machine guns, and light mortars may have been used at the B Range. The SI Report also documents the discovery of six sand-filled, three-inch Stokes mortars during construction activities on North Fort Lewis between February 2006 and June 2006.

Subsequent to the April 2007 MMRP SI Report, additional MEC was encountered during construction activities on Lewis-North. Munitions included sand-filled three-inch Stokes mortars and other inert MEC items, such as fragments from rifle grenades, as well as training items not associated with the B Range (e.g., practice land mines). A few unfused Stokes containing high explosives were excavated and removed by the installation's explosive ordnance detachment.

In 2011, regulatory involvement for B Range transferred from the WSDOE to Region 10, USEPA. This changed the regulatory authority from RCRA to CERCLA.

An RI was conducted in 2010-2011 to characterize B Range. During the RI the site was divided into two MRSs. The northern undeveloped portion of B Range was designated MSR-1, and the southern cantonment area of Lewis North was designated as MRS-2. Both hand-held and towed-array ground penetrating radar was utilized to investigate the area. Based on the findings of the RI, both areas have a low probability of encountering MEC.

In FY11 a non-time-critical response action consisting of LUCs was initiated. In addition to land use controls, the response action will provide UXO construction support for MRS-2 when intrusive construction occurs.

CLEANUP/EXIT STRATEGY

An FS will be conducted. The anticipated final action is LUCs that will require UXO construction support for future construction in MRS-2 and UXO construction training for MRS-1.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
FTLEW-001-R-01	110-B DAWN ATTACK COURSE	200705	April 2007 Final Site Inspection Report
FTLEW-002-R-01	222 DEMOLITIONS AREA	200705	April 2007 Final Site Inspection Report
FTLEW-003-R-01	DUD AREA	200705	April 2007 Final Site Inspection Report
FTLEW-004-R-01	EVERGREEN FIRING RANGE COMPLEX	200705	April 2007 Final Site Inspection Report
FTLEW-005-R-01	EVERGREEN INFILTRATION RANGE	200409	Cleanup complete using OMA funds. No Further Action obtained from WSDOE in accordance with FLAO.
FTLEW-006-R-01	FORMER MINES AREA	200705	April 2007 Final Site Inspection Report
FTLEW-007-R-01	FORMER MUSTARD GAS AREA	200409	Sept 2004 Final FLAO Remedial Investigation Work Plan
FTLEW-009-R-01	MACHINE GUN RANGE	200705	April 2007 Final Site Inspection Report
FTLEW-010-R-01	MILLER HILL FIRING RANGE COMPLEX	200312	Being addressed under IRP Program
FTLEW-011-R-01	MORTAR RANGE	200705	April 2007 Final Site Inspection Report
FTLEW-012-R-01	POPPING KETTLE	200409	Sept 2004 Final FLAO Remedial Investigation Work Plan
FTLEW-013-R-01	PRACTICE GRENADE RANGE	200705	April 2007 Final Site Inspection Report
FTLEW-014-R-01	SMALL ARMS IMPACT AREA	200705	April 2007 Final Site Inspection Report

MMRP Schedule

Date of MMRP Inception 200212

Past Phase Completion Milestones

2004

IRA (FTLEW-008-R-01 - FORMER SKEET RANGE)

RFA (FTLEW-001-R-01 - 110-B DAWN ATTACK COURSE, FTLEW-002-R-01 - 222 DEMOLITIONS AREA, FTLEW-003-R-01 - DUD AREA, FTLEW-004-R-01 - EVERGREEN FIRING RANGE COMPLEX, FTLEW-005-R-01 - EVERGREEN INFILTRATION RANGE, FTLEW-006-R-01 - FORMER MINES AREA, FTLEW-007-R-01 - FORMER MUSTARD GAS AREA, FTLEW-008-R-01 - FORMER SKEET RANGE, FTLEW-009-R-01 - MACHINE GUN RANGE, FTLEW-010-R-01 - MILLER HILL FIRING RANGE COMPLEX, FTLEW-011-R-01 - MORTAR RANGE, FTLEW-012-R-01 - POPPING KETTLE, FTLEW-013-R-01 - PRACTICE GRENADE RANGE, FTLEW-014-R-01 - SMALL ARMS IMPACT AREA)

PA (FTLEW-015-R-01 - B Range)

2007

SI (FTLEW-015-R-01 - B Range)

CS (FTLEW-001-R-01 - 110-B DAWN ATTACK COURSE, FTLEW-002-R-01 - 222 DEMOLITIONS AREA, FTLEW-003-R-01 - DUD AREA, FTLEW-004-R-01 - EVERGREEN FIRING RANGE COMPLEX, FTLEW-006-R-01 - FORMER MINES AREA, FTLEW-008-R-01 - FORMER SKEET RANGE, FTLEW-009-R-01 - MACHINE GUN RANGE, FTLEW-011-R-01 - MORTAR RANGE, FTLEW-013-R-01 - PRACTICE GRENADE RANGE, FTLEW-014-R-01 - SMALL ARMS IMPACT AREA)

2010

RFI/CMS (FTLEW-008-R-01 - FORMER SKEET RANGE)

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

To Be Determined

Final RA(C) Completion Date: 201609

Schedule for Next Five-Year Review: 2012

Estimated Completion Date of MMRP at Installation (including LTM phase): Indefinite

JOINT BASE LEWIS-MCCHORD MMRP Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLEW-008-R-01	FORMER SKEET RANGE	CMI(C)						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
FTLEW-015-R-01	B Range	RI/FS						
		IRA						
		RA(C)						

JOINT BASE LEWIS-MCCHORD
Army Defense Environmental Restoration Program
Compliance Restoration

CR Summary

Installation Total Army Environmental Database-Restoration (AEDB-R) Sites/Closeout Sites Count: 5/0

Installation Site Types with Future and/or Underway Phases

5 Underground Storage Tank
 (CC FL04, CC FL05, CC FL08, CC FL10, CC FL22)

Most Widespread Contaminants of Concern

Petroleum, Oil and Lubricants (POL)

Media of Concern

Groundwater, Soil

Completed Remedial Actions (Interim Remedial Actions/ Final Remedial Actions (IRA/FRA))

Site ID	Site Name	Action	Remedy	FY
CC FL04	Former Gas Station A1033 (AOC 9-2)	FRA	AIR SPARGING	2012

Duration of CR

Date of CR Inception: 199601

Estimated Date for Remedy-In-Place (RIP)/Response Complete (RC): 201409/201409

Date of CR completion including Long Term Management (LTM): 201809

CR Contamination Assessment

Contamination Assessment Overview

The CR program originally addressed sites on JBLM-Lewis that were not funded by the DERP. The sites primarily include soil and groundwater contamination from former USTs.

In 2009 eligible Compliance Cleanup (CC) sites were transferred to the DERP program. Sites included in the transfer were CC FL04, CCF L05, CC FL08, CC FL10, and CC FL22. All sites were former USTs which contained either gasoline, diesel, or waste oil. The tanks were removed, and cleanup was conducted to the extent practicable. Because of physical constraints, however, some soil with petroleum hydrocarbons was left in place.

Sites were originally identified and investigated under the WSDOE's RCRA program, but in FY11 were transferred to the voluntary cleanup program. The voluntary cleanup program has significantly fewer administrative requirements, which are appropriate for the former UST sites.

Investigation is complete or nearly complete at all sites except CC FL22. As of February 2012, sites are awaiting determination from the WSDOE as to the cleanup criteria.

Cleanup Exit Strategy

In most instances, RA will consist of limited bioremediation with MNA of groundwater. At one site, cleanup will consist of air sparging and soil vapor extraction. Where remaining soil concentrations are above residential cleanup levels, LUCs will be implemented. See individual site descriptions for details.

CR Previous Studies

	Title	Author	Date
2008	Fort Lewis Agreed Order Remedial Investigation	Hart Crowser/US Army Corps of Engineers	FEB-2008
2009	Fort Lewis Agreed Order Design Report, Air Sparge and Soil Vapor Extraction System, Area of Concern 9-2, (CCFL04)	Versar, Inc	MAY-2009
	Fort Lewis Agreed Order Feasibility Study for Seven Sites	Versar, Inc.	NOV-2009
2011	Initial Investigation Report, Non-FLAO Leaking Tank Sites, Joint Base Lewis-McChord, Washington	Kemron, Inc/Pioneer Technologies	DEC-2011

JOINT BASE LEWIS-MCCHORD
Compliance Restoration
Site Descriptions

Site ID: CC FL04

Site Name: Former Gas Station A1033 (AOC 9-2)

Alias: None

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	199601.....	199706
RFI/CMS.....	200103.....	201209
CMI(C).....	201001.....	201209
CMI(O).....	201210.....	201403
LTM.....	201403.....	201703

RIP Date: 201210

RC Date: 201403

SITE DESCRIPTION

Two 4,000-gallon gasoline USTs were removed in 1990, two in 1994, one 10,000-gallon UST in 1998, and two 1,000-gallon heating oil tanks in 2009 from Building A1033, a former gas station (AOC 9-2). Approximately 1138 cy of soil was removed from an excavation that extended to a depth of 35 feet during the 1994 UST removal. The 1998 tank pull was clean closed. In 2010 a credit union was constructed over the former gas station site. This is an FLAO site as a result of RCRA corrective action recommended in a 1997 RFA.

Previous investigations included the 1994 tank pull activities, installation of six MWs between 1995 and 1996, a direct-push groundwater investigation in 2001, and semiannual GWM between 1995 and present. Benzene, toluene, ethylbenzene, and xylene (BTEX) and total petroleum hydrocarbons (TPH) concentrations in groundwater immediately downgradient of the former USTs is the only concern at the site. Potentially complete and significant pathways include future drinking water use and vapor intrusion. Concentrations of benzene and TPH in the gasoline range in the most impacted MW during the June 2009 groundwater monitoring event were 399 ug/l and 31,200 ug/LI respectively.

JBLM has submitted an FS to the WSDOE. In addition, JBLM has completed initial phases of a pilot study. The phases were successful and may comprise the final action. A state-approved interim action plan also will be prepared following FS approval.

CLEANUP/EXIT STRATEGY

Cleanup is expected to consist of combined air sparging and soil vapor extraction. LUCs will be implemented to prevent residential use.

Site ID: CC FL05
Site Name: GAAF Fuel Facility (AOC 10-8)
Alias: None

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	199601.....	199706
RFI/CMS.....	200103.....	201209
CMI(C).....	201210.....	201309
CMI(O).....	201310.....	201409
LTM.....	201410.....	201709
RIP Date:	201310	
RC Date:	201409	

SITE DESCRIPTION

Releases from the four former JP-4 USTs at the Gray Army Airfield (GAAF) Fuel Facility (AOC 10-8) include a reported spill in 1990 and a suspected spill in 1991. The COCs at this former UST site are petroleum-related compounds.

Investigation activities at the site have included a 1990 SI, a 1991 soil gas survey, installation of four MWs in 1993, quarterly GWM between 1993 and 1995, removal of the four USTs in 1998, removal of a heating oil UST in 2002, a FLAO SI (which included installation and sampling of a fifth MW) in 2004, and ongoing semiannual GWM. The only potential state cleanup level exceedances were the detections of TPH in the tank pull excavations and TPH concentrations in the fifth MW installed immediately adjacent to the UST excavation. Potentially complete and significant pathways include human direct contact and future drinking water use. In 2008 the entire former tank area was paved. Concentration of TPH in the diesel range in the only impacted MW during the September 2011 groundwater monitoring event was 3,400 ug/l.

JBLM has submitted an FS to the WSDOE, which is under review.

CLEANUP/EXIT STRATEGY

Proposed remedy is bioremediation with oxygen-rich compounds, and MNA of groundwater. LUCs will be implemented to prevent residential land use.

Site ID: CC FL08

Site Name: Bldg 4131 Leaking Tank Site (AOC 8-2)

Alias: None

STATUS

Regulatory Driver: RCRA
Contaminants of Concern: Petroleum, Oil and Lubricants (POL)
Media of Concern: Groundwater

Phases	Start	End
RFA.....	199601.....	199706
RFI/CMS.....	200103.....	201209
CMI(C).....	201210.....	201309
CMI(O).....	201310.....	201409
LTM.....	201410.....	201709
RIP Date:	201310	
RC Date:	201409	

SITE DESCRIPTION

A 500-gallon heating oil UST (AOC 8-2) was removed in August 1996. Clean closure was not obtained with the first excavation [TPH- Diesel (TPH-D) at 9,285 mg/kg in bottom sample at eight feet]. Clean closure was not obtained with the second excavation (TPH-D at 7,866 mg/kg in bottom sample underneath water main at 22 feet). Additional excavation was not conducted because of the proximity of the water main. No groundwater was encountered. Clean closure was achieved within the excavation to at least 15 feet.

This is a former UST site. The only potentially complete pathway is future drinking water use. The six existing MWs have delineated the extent of the limited TPH-D impact in shallow groundwater. Semiannual GWM is ongoing.

In January 2010, JBLM submitted a draft final FS to the WSDOE. A CAP will be prepared when the FS is approved.

CLEANUP/EXIT STRATEGY

The proposed remedy is bioremediation with oxygen-rich compounds and MNA of groundwater. LUCs will be implemented to prevent residential land use.

Site ID: CC FL10

Site Name: Bldg A0111 Leaking Tank Site (AOC 8-4)

Alias: None

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater

Phases	Start	End
RFA.....	199601.....	199706
RFI/CMS.....	200103.....	201209
CMI(C).....	201210.....	201309
CMI(O).....	201310.....	201409
LTM.....	201410.....	201709

RIP Date: 201310

RC Date: 201409

SITE DESCRIPTION

A 300-gallon heating oil UST (AOC 8-4) was removed from this site in May 1996. Clean closure was not obtained with first excavation (TPH-D at a concentration of 3,700 mg/kg in bottom sample at 11 ft). The second excavation was stopped because groundwater was encountered at 20 feet. Clean closure was not obtained with the second excavation (TPH-D at concentrations of 4,638 mg/kg and 8,403 mg/kg in 15-foot-deep north and southeast sidewall samples, respectively). No groundwater samples were collected. The third excavation was conducted in August 1996 after groundwater elevation decreased, but was stopped because of groundwater (depth not given). There were no potential MTCA Standard Method B exceedances in samples collected following the third excavation; however, the north sidewall (where a 4,638 mg/kg sample was collected following the second excavation) was not fully excavated, and additional north sidewall confirmation samples were not collected because of the presence of a water main. Clean closure was achieved within the excavation to at least 15 feet.

The only potentially complete pathway is future drinking water use. The five existing MWs have delineated the extent of the limited TPH-D impact in shallow groundwater. Semiannual GWM is ongoing. In 2010 a battalion headquarters was constructed on the site. Three existing MWs in the building footprint were abandoned and replaced at locations adjacent to the new building. Only one of the MWs has concentration of TPH-Diesel above the state cleanup level. A FS is under review by the WSDOE. Proposed remedy is bioremediation and MNA.

CLEANUP/EXIT STRATEGY

The proposed remedy is bioremediation with oxygen-rich compounds and MNA of groundwater. LUCs will be implemented to prevent residential land use.

Site ID: CC FL22
Site Name: Non-FLAO Leaking Tank Sites
Alias: None

STATUS

Regulatory Driver: RCRA

Contaminants of Concern: Petroleum, Oil and Lubricants (POL)

Media of Concern: Groundwater, Soil

Phases	Start	End
ISC.....	199601.....	199706
CAP.....	201110.....	201409
LTM.....	201409.....	201809

RIP Date: N/A

RC Date: 201409

SITE DESCRIPTION

JBLM and the WSDOE agreed to focus on the highest-priority leaking USTs under the FLAO and to address the remaining low-priority tanks as a voluntary cleanup action. Sites CC FL07 through CC FL21 are the 15 "high priority" tank sites that have been addressed. Site CC FL22 represents the lower-priority tank sites to be addressed in FY11.

An SI in FY11 identified one site at which the proposed action is continued GWM. An additional site will require some soil removal. Also in FY11, five USTs were removed, which left some contamination in place because of groundwater or structure foundations. Corrective action is not expected for these tank sites, as potential exposure pathways most likely are limited to the leaching to groundwater pathway. An SI will be conducted for these sites to determine if additional action will be required.

CLEANUP/EXIT STRATEGY

NFA is anticipated for the majority of the tanks. RA for other sites is expected to be MNA.

Site Closeout (No Further Action) Summary

Site ID	Site Name	NFA Date	Documentation
There are no NFA sites			

CR Schedule

Date of CR Inception: 199601

Past Phase Completion Milestones

1997

ISC (CC FL22 - Non-FLAO Leaking Tank Sites)

RFA (CC FL04 - Former Gas Station A1033 (AOC 9-2), CC FL05 - GAAF Fuel Facility (AOC 10-8), CC FL08 - Bldg 4131 Leaking Tank Site (AOC 8-2), CC FL10 - Bldg A0111 Leaking Tank Site (AOC 8-4))

Projected Phase Completion Milestones

See attached schedule

Projected Record of Decision (ROD)/Decision Document (DD) Approval Dates

To Be Determined

Final RA(C) Completion Date: 201309

Schedule for Next Five-Year Review: 2012

Estimated Completion Date of CR at Installation (including LTM phase): 201809

JOINT BASE LEWIS-MCCHORD CR Schedule

= phase underway

SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FL04	Former Gas Station A1033 (AOC 9-2)	CMI(O)						
		LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FL05	GAAF Fuel Facility (AOC 10-8)	CMI(C)						
		CMI(O)						
		LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FL08	Bldg 4131 Leaking Tank Site (AOC 8-2)	CMI(C)						
		CMI(O)						
		LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FL10	Bldg A0111 Leaking Tank Site (AOC 8-4)	CMI(C)						
		CMI(O)						
		LTM						
SITE ID	SITE NAME	PHASE	FY13	FY14	FY15	FY16	FY17	FY18+
CC FL22	Non-FLAO Leaking Tank Sites	CAP						
		LTM						

Community Involvement

Technical Review Committee (TRC): None

Community Involvement Plan (Date Published): 200510

Restoration Advisory Board (RAB): No

Reason Not Established: The community has expressed no sufficient, sustained interest in a RAB.

Community Interest Solicited on: 201112

Efforts Taken to Determine Interest

Typically, an open house is held every other year at JBLM-Lewis to update the public on the status of the investigations and cleanup of various sites. Advertisements announcing the meeting and how to get more information on this project are published in the Tacoma News Tribune and the JBLM Northwest Guardian. A JBLM community newsletter describing cleanup activities is published and placed at the Lakewood and Grandstaff libraries. The newsletter also includes a community information form requesting comments and questions, interest in future meetings and interest in a RAB.

Results

Attendance at the open house at JBLM-Lewis has been minimal and little feedback or interest has resulted from the newsletter. The community information forms that have been sent back reveal that there is interest in future open houses and updated cleanup information.

Follow-up Procedures

An open house will be scheduled for June or July 2013. In addition, the 2005 Community Involvement Plan is under revision as of February 2012.

Additional Community Involvement Information

N/A

Administrative Record is located at

Public Works-ED, IMWE-JLM-PWE, MS 17 (W. Myers),
Box 339500, Joint Base Lewis-McChord,
WA 98433-9500, (253) 477-3742

Information Repository is located at

Grandstaff Library, Building 2109 Pendleton Avenue,
Joint Base Lewis-McChord, WA 98433, and

Pierce County Library, Lakewood Branch
633 Wildaire Rd SE
Lakewood, WA 98499 (253) 582-6040

Current Technical Assistance for Public Participation (TAPP):N/A

TAPP Title: N/A

Potential TAPP: N/A

