

**Land Use Control Implementation Plan
For Properties Leaving Army Control**

**Umatilla Chemical Depot
Hermiston, Oregon**

Prepared by:

**Department of the Army
Office of the Deputy Chief of Staff, G-9
Base Realignment and Closure Division**

DRAFT FINAL

May 4, 2020

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Acronyms and Abbreviations

ACSIM	Assistant Chief of Staff for Installation Management
ARNG	Army National Guard
BEC	BRAC Environmental Coordinator
BRAC	Base Realignment and Closure
CDA	Columbia Development Authority
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CMA	Chemical Materials Agency
EE/CA	Engineering Evaluation/Cost Analysis
EES	Easement and Equitable Servitude
EPA	Environmental Protection Agency
ESD	Explanation of Significant Differences
EW	Extraction Wells
EWL	Explosive Washout Lagoon
FFA	Federal Facility Agreement
FS	Feasibility Study
GAC	Granular Activated Carbon
GB	Nerve chemical agent (sarin)
gpm	Gallons per minutes
HD	Mustard blister chemical agent
IF	Infiltration Fields
IRP	Installation Restoration Program
JBLM	Joint Base Lewis McCord
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MDAS	Material Documented as Safe
MDEH	Material Documented as Explosive Hazard
MEC	Explosives of Concern
Mg/kg	Milligram Per Kilogram
NFA	No Further Action
NPL	National Priorities List
OAR	Oregon Administrative Rules
ODEQ	Oregon Department of Environmental Quality
ODOT	Oregon Department of Transportation
OPS	Operating Properly and Successfully

ORARNG	Oregon Army National Guard
OU	Operable Unit
PCB	polychlorinated biphenyl
ppm	Parts per Million
QA	Quality Assurance
RA	Remedial Action
RCRA	Resource Conservation and Recovery Act
RDX	Hexahydro-1,3,5-trinitro-1,3,5-triazine
RI	Remedial Investigation
ROD	Record of Decision
SAA	Satellite Accumulation Area
SVOC	Volatile Organic Compounds
TAL	Target Analyte List
TDS	Total Dissolved Solids
TNT	2,4,6-Trinitrotoluene
µg/L	Microgram per liter
UMADRA	Umatilla Army Depot Reuse Authority
UMCD	Umatilla Chemical Depot
UMCDF	Umatilla Chemical Disposal Facility
UU/UE	Unlimited use/unrestricted exposure
US	United States
USACE	United States Army Corps of Engineers
VOC	Volatile Organic Compounds
VX	Nerve chemical agent

1.0 Background. The Umatilla Chemical Depot (UMCD) is located east of Hermiston, in Morrow and Umatilla counties, Oregon. It was established in 1941 on approximately 17,150 acres and closed in August 2012. After closure Command Authority was assigned to Joint Base Lewis McCord (JBLM), but is managed by the Department of the Army, Office of the Deputy Chief of Staff, G-9, Base Realignment and Closure (BRAC) Division Office. UMCD is located three miles south of the Columbia River near Hermiston, Oregon positioned at the intersection of Interstates 82 and 84.

1.1 Key Dates.

- 1941: UMCD was established as an Army ordnance depot in 1941. Activities at UMCD have included the disassembly, analysis, modification, reassembly, repacking, and storage of conventional munitions, and the storage of chemical agent-filled munitions and containerized chemical agents. Originally known as the Umatilla Ordnance Depot, the facility initially stored a variety of military items, from blankets to conventional munitions, in support of the United States entry into World War II. Over the years, the facility title transitioned to Umatilla Army Depot, then Umatilla Depot Activity, and finally the Umatilla Chemical Depot.
- 1961: The Army began storing chemical munitions at UMCD. This included HD (mustard agent) and the nerve agents VX and GB (sarin).
- 1987: The Explosives Washout Lagoons portion of UMCD were formally listed on the National Priorities List (NPL) in 49 FR 27620 on July 22, 1987.
- 1988: The BRAC Commission listed the facility for realignment in 1988.
- 1990 to 1994: The facility reorganized in preparation for eventual closure, shipping all conventional ammunition and supplies to other installations. The Chemical Materials Agency (CMA) was created for the purpose of storing and disposing of the remaining chemical agents.
- 2004: The Umatilla Chemical Agent Disposal Facility (UMCDF) was designed to destroy the nerve and mustard chemical agents stored at UMCD. A high-temperature incineration technology was used to destroy chemical agent beginning in 2004.
- 2005: The UMCD was placed on the BRAC closure list.
- 2011: Destruction of chemical agent was complete.
- 2012: UMCD was closed and transferred to inactive operational status in accordance with the Defense Base Closure and Realignment Act of 1990, Public Law 101–510, as amended, and the National Defense Authorization Act for Fiscal Year 2012, Public Law 112-81. UMCD was reassigned to the U.S. Army Assistant Chief of Staff for Installation Management (ACSIM). The JBLM Army Garrison Commander assumed command authority for UMCD and assumed property accountability pending disposal of excess property. The BRAC division manages the installation and oversees a caretaker operations of the facility pending disposal of the property.

- 2017: 7,500 acres was transferred to the Army National Guard (ARNG) and subsequently licensed to the Oregon Army National Guard (ORARNG).
- 2019: The Command for BRAC, ACSIM, was changed to Office of the Deputy Chief of Staff, G9.

1.2 Post Closure Reuse. The ARNG will retain control of 7,500 acres for a training enclave for the ORARNG. The Oregon Department of Transportation (ODOT) currently has an easement for use of 109 acres which includes the Highway 82/84 interchange and Highway 82 which runs along the east side of UMCD. The ownership of these 109 acres will be transferred to the ODOT. The ownership of the remaining 9,539 acres will be transferred to the local reuse authority, Columbia Development Authority (CDA). The U.S. Army Umatilla Chemical Depot Base Redevelopment Plan was created by the Umatilla Army Depot Reuse Authority (UMADRA) in August 2010. This Plan identifies the intended reuse of the CDA property to include a wildlife sanctuary, agricultural use, and private development. Table 1 lists the post closure reuse and Attachment 1 contains a maps of the reuse areas and land use control (LUC) areas. This Land Use Control Implementation Plan (LUCIP) addresses only the properties to be transferred to the CDA, as the ARNG will manage sites on the 7,500-acre National Guard property and the 109-acre ODOT parcel doesn't have any areas subject to LUCs.

**Table 1
Post Closure Reuse**

Post Closure Owner	Acres
CDA Area Future Land Use	
Wildlife Refuge 5,676.67	
Industrial 989.57	
Industrial/Restricted * 964.39	
Industrial/Unrestricted ** 888.32	
UMCDF (Industrial/CDA Demil Area)*** 276.56	
Agriculture 691.60	
Right-of-Way 52.34	
CDA Total:	9,539.45
ODOT for Hwy 82:	109.27
Total Acres Leaving Army:	9,648.72
Acres Being Retained by Army (National Guard):	7,500.00
Total Installation Acreage	17,148.72

- * Industrial/Restricted is defined in the UMCD Redevelopment Plan as industrial use that is limited to the utilization of igloos for storage.
- ** Industrial/Unrestricted is defined as general industrial uses of the land.
- *** The Industrial/CDA Demilitarization Area would also be utilized as an unrestricted industrial area, and is named as such only because of its use for chemical demilitarization activities, which ceased in 2012.

2.0 Purpose. This LUCIP addresses Army management of LUCs on the UMCD as some of property is restricted due to environmental contamination and past use. Restrictions on land use are coordinated with the United States Environmental Protection Agency (EPA) and the Oregon Department of Environmental Quality (ODEQ). The sites described in this LUCIP are either Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or Resource Conservation, and Recovery Act (RCRA) sites. Attachment 2 contains a table of the land use control sites and Attachment 3 contains more a detailed description of the sites. This LUCIP will remain in effect as part of a remedial design document under the Federal Facility Agreement under CERCLA Section 120, Administrative Docket Number: 1088-06-19-120 (FFA). This LUCIP is a primary document for purpose of the FFA. For property transferring out of Army ownership and control, LUCs will be documented in an Easement and Equitable Servitude (EES; Attachment 4) that is enforceable by the ODEQ and EPA.

The CERCLA sites were remediated under applicable Records of Decision (RODs). The RODs set forth the selected remedial actions, define the clean-up standards and, in some instances, select applicable LUCs to be implemented following active remediation. In other instances, LUCs are selected as a component of the remedial action in a modification to the ROD referred to as an explanation of significant differences (ESD). The CERCLA sites, also referred to as operable units, include:

- Site 24, Explosive Washout Lagoons Groundwater Contamination: The main source of contamination was the Munitions Washout Plant which was located on what is now National Guard property in the Center of the Installation. The 437.34 acre eastern plum extends into the property transferring to the CDA.
- Site 34, The Active Landfill (closed): The 17.49 acre Active Landfill was a permitted landfill used for the disposal operationally generated industrial waste.
- Site 39, The Quality Assurance (QA) Function Range: The QA Function Range was used for testing of conventional munitions, weapons and related materials, such as test flares, photo flash grenades, illumination and smoke canisters, and mines. Of the 635.68 acres, 259 acres will have LUCs.
- Site 47, The Deactivation Furnace: Remediation of the 15.97 acre Deactivation Furnace was completed in 1998. However, since then the lead exposure limits for unrestricted use have decreased and LUCs will be implemented to address these changes.

The UMCDF was the 276 acre multi-furnace incineration site that was used for the destruction of chemical agent stored at UMCD by CMA. The UMCD and UMCDF were both subject to a permit issued by ODEQ under RCRA for storage and disposal of agent munitions. A major portion of the former UMCDF has been demolished and the infrastructure disassembled in accordance with the closure requirements of the RCRA permit. In addition to the incineration

site, the RCRA permit authorized the use of J-Block igloos, 1735-1736; 1750-1752; 1765-1767; and 1780-1782 for the storage of agent related hazardous waste. See Attachment 1 for locations.

The UMCDF completed closure under RCRA permit ORQ 000 009 431 (ODEQ 1997a) of both the incineration site and storage igloos. The applicable LUCs were incorporated into RCRA permit OR6 213 820 917 (ODEQ 1997b) and Permit Modification Request (PMR) UMCD-14-002 PERMIT(2)(ODEQ 2014). That permit was then terminated with PMR UMCDF-14-001-MISC(IR)(ODEQ 2015) approved by the ODEQ.

RCRA permit OR6 213 820 917 (ODEQ 1997b) is for the storage of chemical agent and agent related waste in I-, J-, and K-Blocks and for non-agent waste storage in other locations throughout UMCD. The Army has completed the RCRA closure process for the permitted units, and applicable LUCs are identified in the RCRA permit. The applicable buildings for the CDA parcels are (see Attachment 1 for locations):

- a) J-Block Igloos, 1808-1810: Applies to buildings and six foot in front of the igloo
- b) Southwest Area Buildings:
 - 115 (demolished; foundation remains): Satellite accumulation Area
 - 203, North end; Permitted one year hazardous waste storage

3.0 Responsibility for the LUCIP. The BRAC Environmental Coordinator (BEC) is responsible for complying with the requirements of this LUCIP until the 9,539 acres of property is transferred out of BRAC ownership and control to CDA.

4.0 Land Use Controls Implementation.

4.1 Locations Subject to LUCs. See Attachment 1 for a map of the areas. See Attachment 3 for a detailed description of the sites and restrictions.

4.2 LUCs Duration and Modification.

- a. The restrictions continue in effect as long as contaminants remain on the sites in excess of unrestricted use standards.
- b. BRAC will initiate modification or termination procedures when necessary. EPA and ODEQ will be involved as per the FFA.
- c. Where use of groundwater is prohibited, the remedy may not be terminated until it has been demonstrated to the satisfaction of EPA that the remedial goals have been achieved.

4.3 LUCs Inspections. Inspections of restricted sites will be conducted by the BEC at least annually using the checklist included in Attachment 5 as a guideline. Periodic repairs or upgrades (e.g., damage to fences, warning signs, landfill cap) are categorized as routine maintenance and reporting a LUCs failure or such routine maintenance is required and will be documented on the checklist. Inspection responsibilities will transfer to the CDA through the

EES. The Army will remain responsible for conducting CERCLA 5 Year Reviews (§120(c)) for UMCD, which will include verification that the LUCs remain in place.

5.0 LUCs Documentation. LUCs for the CDA property will be documented in an EES which is enforceable by the ODEQ and EPA. The EES will be recorded at the time of property transfer from the Army to CDA. The LUCs will also be an attachment to the Quit Claim Deed executed by the Army as part of the Environmental Protection Provisions. This will include the CERCLA 120(h)(3) reservation of access rights to the property for the Army, EPA, and ODEQ, and their respective agents, officials, employees, contractors, and subcontractors for purposes consistent with the Army's FFA and CERCLA responsibilities.

6.0 LUCs Maintenance.

6.1 Responsibilities. BRAC is responsible for LUCs maintenance until the property is transferred by the Army to CDA. The ORARNG property is the responsibility of the ORARNG. When property is transferred to the CDA, the LUCs responsibilities for that property will be transferred as per the EES.

6.2 Site Approval Process. The CDA property will be managed by BRAC until transfer of ownership to CDA. The EES will be recorded with the applicable county land use planning departments. The EES provides ODEQ with oversight related to changes in land use.

6.3 Security. With the exception of Highway 82 and the Highway 82/82 interchange, public access to UMCD is restricted. Prior to the transfer of property to CDA, UMCD is fenced with one open gate, the "Main Gate" at exit 177 of Highway 84. The Main Gate is operated by security personnel. Roving guards patrol the installation to verify security. Prior to transfer of the property, BRAC is responsible for maintenance and security of the property. When the property is transferred to the CDA, the LUCs requirements will transfer via the EES and the property owners will be responsible for security.

6.4 Site Markings. Signs indicating restricted use may be posted, as needed. The signs shall be maintained and shall not be removed unless authorized by the ODEQ.

6.5 Internal Notification and Training. The BEC has oversight of the BRAC property until transfer of this property to the CDA. At that time, the new owners will have responsibility per the EES.

6.6 Regulatory Reviews. A review will be conducted to assess the effectiveness of the LUCs. The Army is responsible for verifying the LUCs remain in place, as part of CERCLA-selected remedies, in 5 Year Reviews.

7.0 LUCs Non-Compliance. The Army is responsible for implementing, maintaining, and reporting on the LUCs. CDA will assume these obligations via the EES, but the Army remains responsible for the integrity of the LUCs. Should there be non-compliance with the LUCs documented in the deed restrictions and EES, the Army will ensure that appropriate actions are taken to cure this non-compliance and maintain protectiveness of the remedial action. Nothing

in this LUCIP will limit any rights or authorities that the Army, EPA, or ODEQ may have to enforce, or respond to violations of, the LUCs.

7.1 Notification of LUCs Violations and Action to Correct Deficiencies. Any deficiencies or activities that are inconsistent with the LUCs objectives or use restrictions, or any other action that may interfere with the effectiveness of the LUCs will be addressed by the Army as soon as practicable, but in no case will the process be initiated later than 10 days after the Army becomes aware of the breach. The Army will notify EPA and ODEQ as soon as practicable, but not longer than 10 days after the Army becomes aware of the breach. The Army will notify EPA and ODEQ regarding how the Army has addressed or will address the breach within 10 business days of sending EPA and ODEQ notification of the breach. These reporting requirements do not preclude the Army from taking immediate action pursuant to its CERCLA authorities to prevent or remedy any actual or perceived risk(s) to human health or the environment. If EPA or ODEQ are not satisfied with the corrective action taken by the Army, EPA will so notify the Army Deputy Chief of Staff, G9 Installations.

7.2 Notification of Planned Property Use Change or Transfer. Prior to seeking approval from EPA or ODEQ, the landowner must seek approval from the Army to modify the use of the land or any buildings upon the land for any purpose less restrictive than what is imposed by the LUCs. Future property owners must seek approval from the Army, EPA, and ODEQ before any planned action that may disrupt the effectiveness of the LUCs or any action that may violate, alter, or negate the LUCs.

At least 60 days prior to changing the use of the property, the property owner will coordinate with the Army to provide notice to EPA and ODEQ of such intended use change. The notice will describe the current use and the proposed future use. The notice will also address how the proposed future use will meet, and be consistent with, the LUCs objective of nonresidential land use and will be protective of human health and the environment.

8.0 Modification or Termination of LUCs. The Army will not, without EPA and ODEQ concurrence, make a modification to or terminate LUCs, or make a land use change inconsistent with the LUCs objectives and use assumptions of the selected remedies. The Army will seek prior EPA and ODEQ concurrence before commencing actions that may disrupt the effectiveness of the LUCs, alter or negate the need for LUCs, or impact remedy integrity. In the case of an emergency action, the Army will obtain prior EPA and ODEQ concurrence as appropriate to the exigencies of the situation. At the time of transfer, the CDA assumes these responsibilities, which will run with the land through the EES and Quit Claim Deed Environmental Protection Provisions. Nevertheless, the Army retains responsibility for maintaining the protectiveness of the remedial action.

The LUCs will be maintained until the Army and EPA, in consultation with ODEQ, make a written determination that the concentrations of hazardous wastes, hazardous substances, pollutants or contaminants in the soil or groundwater are at levels that allow for unlimited use and unrestricted exposure.

9.0 References:

Defense Environmental Restoration Board, 1992. *Record of Decision, Umatilla Army Depot Activity Deactivation Furnace (Site 1) Soils Operable Unit Site Hermiston, Oregon*. December 1992.

Defense Environmental Restoration Board, 1993. *Final Record of Decision for Umatilla Depot Activity Active Landfill Operable Unit*. March 1993.

Defense Environmental Restoration Board, 1994. *Final Record of Decision: Umatilla Depot Activity, Ammunition Demolition Activity Area Operable Unit*. June 1994.

Defense Environmental Restoration Board, 1994. *Final Record of Decision for Umatilla Depot Activity Explosives Washout Plant Operable Unit*. June 1994.

Defense Environmental Restoration Board, 1994. *Final Record of Decision: Umatilla Depot Activity Miscellaneous Sites Operable Unit*. June 1994.

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ODEQ, 1997a. *Permit for the Storage and Treatment of Hazardous Waste*. Permittee U.S. Army Chemical Depot, Hermiston OR 97838. Permit # ORQ 000 009 431 for UMCDF. 1997.

ODEQ, 1997b. *Permit for the Storage and Treatment of Hazardous Waste*. Permittee U.S. Army Chemical Depot, Hermiston OR 97838. Permit # OR 6213820917 for UMCD. 1997.

ODEQ, 2011. *Groundwater Monitoring Reports 2009 and 2010 and Solid Waste Permit No. 320 termination and transfer to the DEQ Environmental Cleanup Program Umatilla Army Depot Landfill Umatilla County, Letter to USACE*. August 2011

ODEQ, 2013. Letter, *Permit Cancellation, Oregon Title V Operating Permit, Permit No. 25-0024-TV01, to US Army*, August, 2013.

ODEQ, 2014, *Approval of Class 2 Permit Modification Request UMCD 14-002-PERMIT(2), OR6 213-820-917*. October 2014.

ODEQ, 2015, *Approval of Class 2 Permit Modification Request UMCDF 14-001-MISC(IR), ORQ 000 009 431*. July 2015.

ODEQ, 2018. Letter, *Approval of Class 2 Permit Modification Request UMCD-18-001-CLOS(2), "Removal of UMCD Permitted Units and Land Transfer," Umatilla Chemical Depot (UMCD), OR6 213 820 917, DEQ Item No. 18-0019. Oregon Department of Environmental Quality (ODEQ) to US Army*. June 2018.

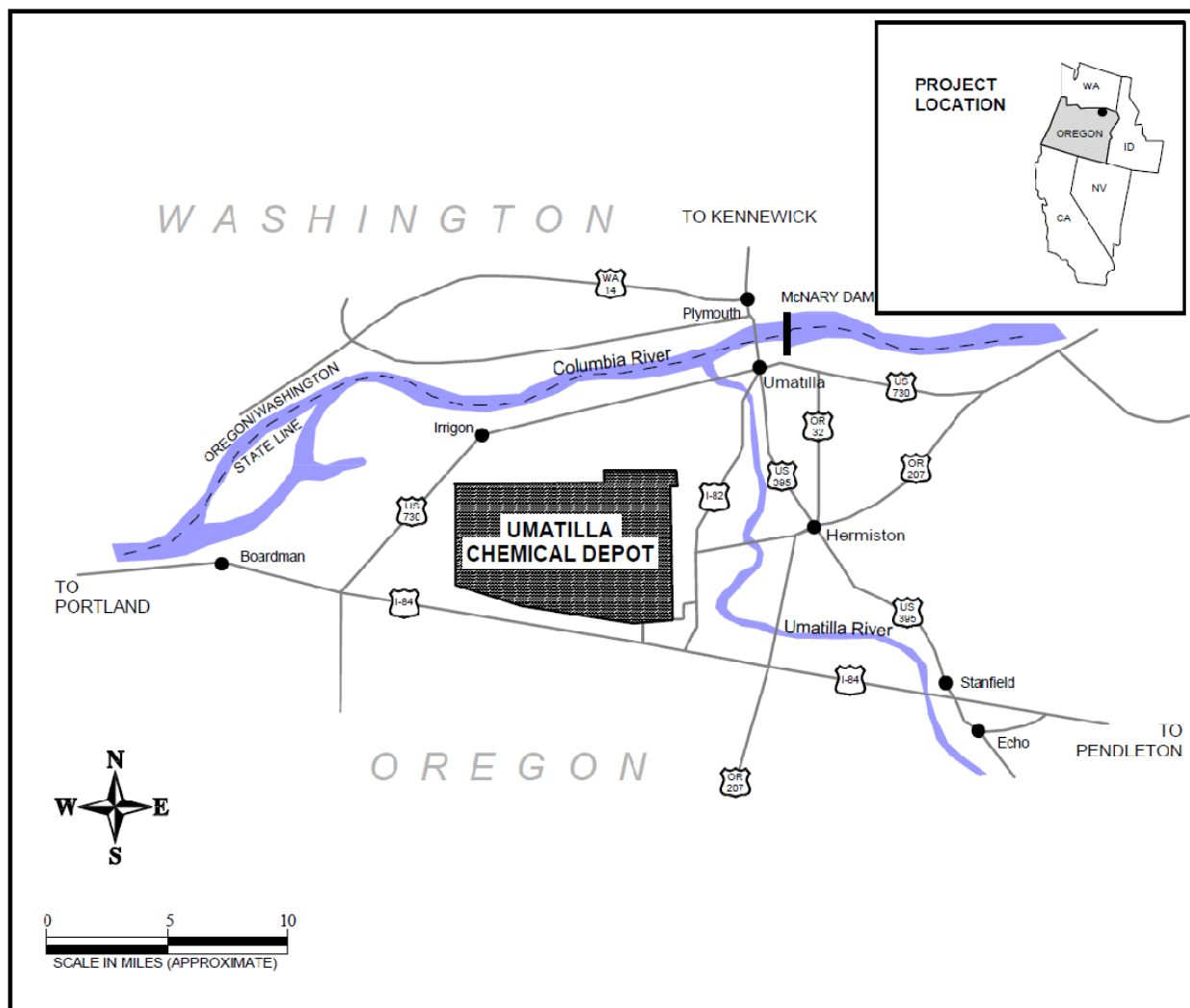
Umatilla Army Depot Reuse Authority, 2010. *U.S. Army Umatilla Chemical Depot Base Redevelopment Plan*. August 2010

U.S. Army, 1989. *Interagency Agreement Between United States Environmental Protection Agency, Region 10, Oregon Department of Environmental Quality, The United States Army, and the U.S. Army Depot Activity Umatilla* (Federal Facilities Agreement FFA). October, 1989

U.S. Army, 1995. *Explanation of Significant Difference for Umatilla Depot Activity Explosives Washout Plant Operable Unit*. August 1995.

U.S. Army, 1997. *Environmental Monitoring Plan for the Umatilla Chemical Depot Closed Landfill*. 1997.

Umatilla Chemical Depot
Land Use Control Implementation Plan
Attachment 1
Installation Reuse and Land Use Control Maps



UMATILLA CHEMICAL DEPOT, VICINITY MAP.



[illegible]

Prepared by:	CORPS OF ENGINEERS SEATTLE, WASHINGTON	Drawn by:	MM/DD/YYYY
		Checked by:	File #:
	REAL ESTATE DIVISION TECHNICAL RESOURCES CANDIDATE		SEE SE/RE/ETR
		Rev:	

UMATILLA CHEMICAL DEPOT
CDA RESTRICTIONS






Plate
number:
X-100

Sheet 1 of 1

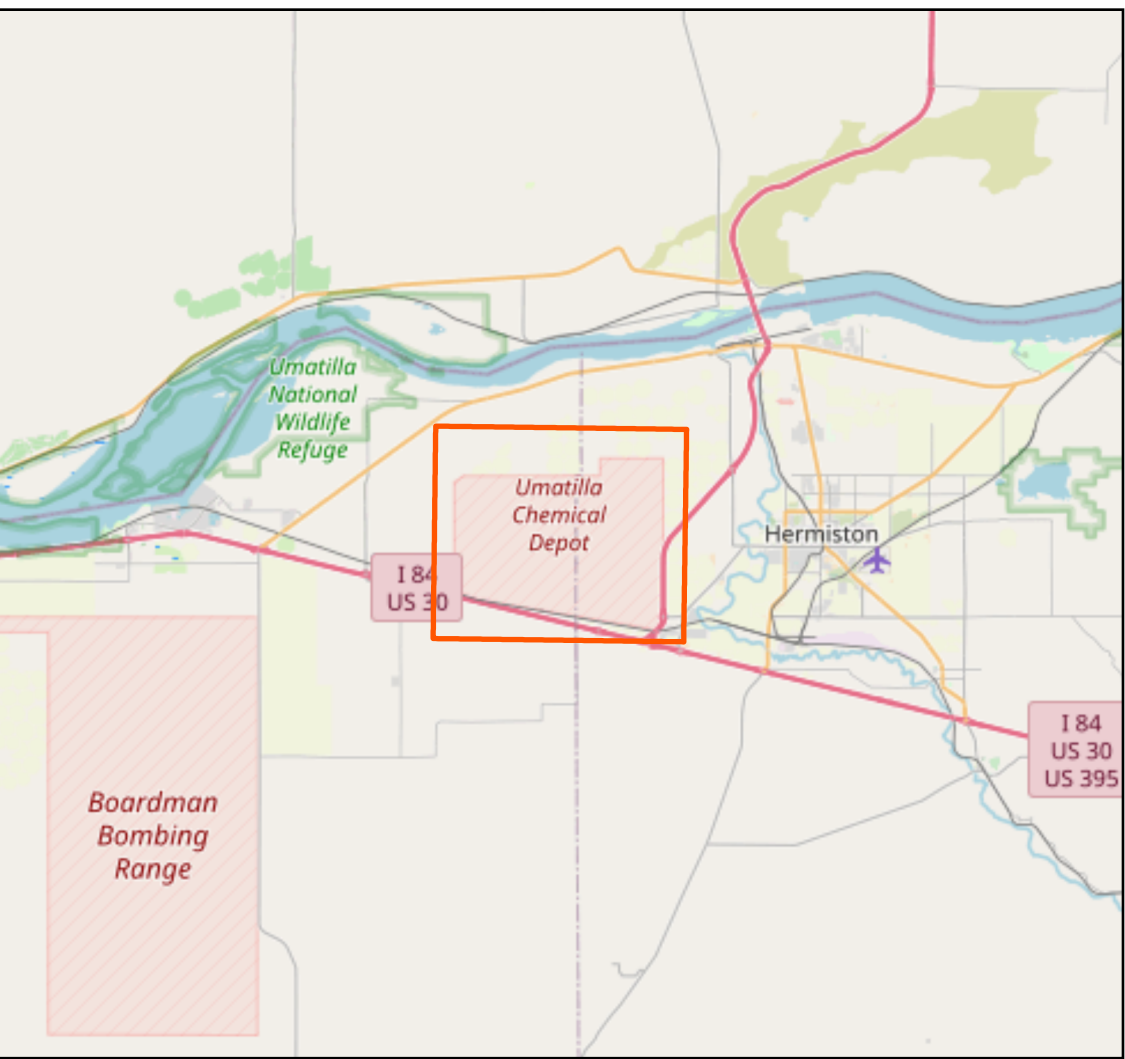


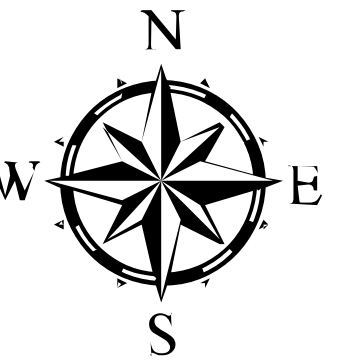
Legend

Wells

-  Boring (18)
-  Monitoring Well (159)
-  Extraction Well (6)
-  Decommissioned Well (34)
-  UMCD Outline

Location Map















0 0.4 0.8
Miles

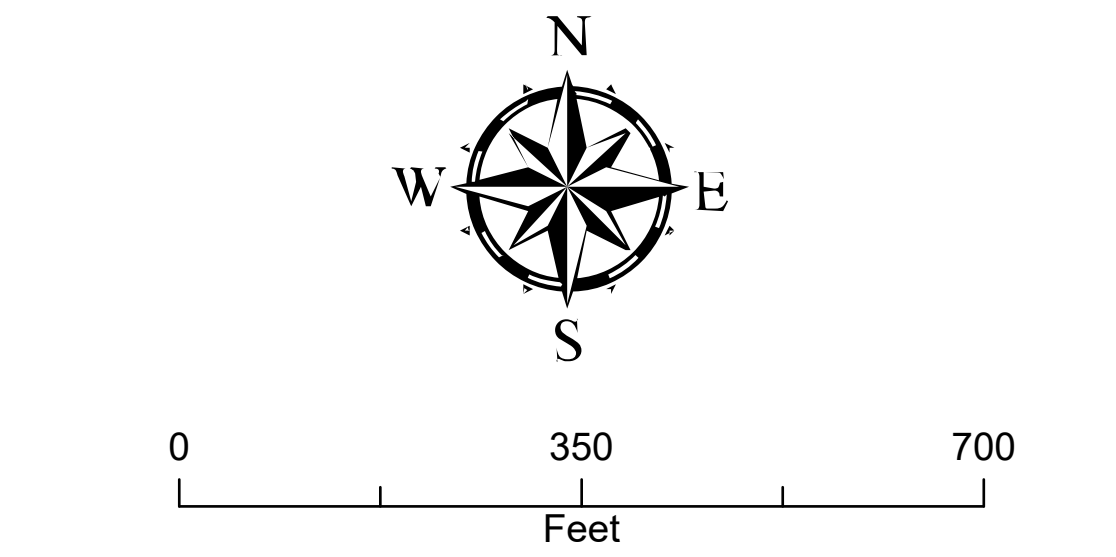
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Legend

- Wells
-  Boring
 -  Monitoring Well
 -  Extraction Well
 -  Decommissioned Well
- Pipes
-  4"
 -  6"
 -  8"
 -  10"
-  Infiltration
 -  Road

Location Map



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**Umatilla Chemical Depot
Land Use Control Implementation Plan**

**Attachment 2
CDA UMCD Land Use Control Locations**

Area	Site/Bldg #	Length	Width	Acres	Designation	RCRA or CERCLA	Comments
J-Block Igloos; center part of Installation, southwest of UMCDF area	1735-1736 1750-1752 1765-1767 1780-1782 1808-1810	82' 2"	28' 10"	N/A	HWMU	RCRA	14 Igloos. Includes 6' in front of igloo.
Southwest Area	115 Satellite Accumulation Area	320'	60'	N/A	SWMU	RCRA	Demolished. LUC for pad
Southwest Area	203	482.5'	181'	N/A	HWMU	RCRA	
Center of Depot	UMCDF	N/A	N/A	277	HWMU	RCRA	
Northeast Corner	Site 39, QA Function Range	N/A	N/A	259	Closed	CERCLA	Total site is 367.7 acres. Only 259 acres requires LUC
North of D-Block	Site 34, Active Landfill (closed)	N/A	N/A	17.49	SWMU, Closed	CERCLA/RCRA	Was originally a RCRA permitted facility. Transferred to CERCLA when closed
Center of Depot	Site 24, Groundwater pump and treat system	N/A	N/A	437.34	Remediation is in process	CERCLA	Applies until remediation is complete, including long term monitoring. Could be 20 years. Easement & deed restriction will be removed when complete with unrestricted use.
Depot wide	Site 24, Ground water wells	N/A	N/A	varies	Part of remediation process	CERCLA	Applies until long term monitoring is complete and wells are decommissioned.
Southwest Corner	Site 47, Deactivation furnace	N/A	N/A	15.97	Closed	CERCLA	

Umatilla Chemical Depot
Land Use Control Implementation Plan
Attachment 3
Site Descriptions

1.0 RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) SITES

RCRA Sites include:

- Umatilla Chemical Agent Disposal Facility (UMCDF; also call Demilitarization (Demil) Facility
- J-Block Igloos: 1735-1736; 1750-1752; 1765-1767; 1780-1782; 1808-1810: Applies to building and six foot in front of the igloo
- Building 115: (demolished; foundation remains): Satellite accumulation Area
- Building 203: North end; Permitted one year hazardous waste storage

1.1 The Umatilla Chemical Agent Disposal Facility

The UMCDF was the 276 acre multi-furnace incineration facility that disposed of chemical agent munitions stored at Umatilla Chemical Depot (UMCD) by the Chemical Material Agency (CMA). The UMCD and UMCDF were both permitted by the Oregon Department of Environmental Quality (ODEQ) under the RCRA for storage and disposal of agent munitions. The UMCDF consisted of numerous buildings for process support, maintenance, utilities, munitions handling and disassembly, agent destruction, and management of residual waste. Incineration of chemicals began in 2004 and was completed in 2011. The portion of the former UMCDF that handled chemical agent has been demolished and the infrastructure disassembled in accordance with the closure requirements of the RCRA permit.

Construction began in June 1997 on the UMCDF. UMCD's original chemical agent stockpile included nerve agents GB (sarin), VX, and blister agent HD (mustard). These chemical agents were stored in a variety of munitions, including:

- M55 rockets
- 155-millimeter and 8-inch artillery shells
- 500 and 750-pound bombs
- Land mines
- Ton containers
- Aerial spray tanks

The disposal facility construction was completed in 2001. Before disposal of the chemical warfare materials commenced, UMCDF had to first conduct "trial burns" using surrogate materials, which tested the incinerator's ability to meet performance standards under the most difficult conditions. Trial burn operations were conducted from 2003 to 2004.

On September 7, 2004, UMCDF began its chemical munitions disposal of GB munitions, which was completed on July 8, 2007. From October 26, 2007, to November 5, 2008, UMCDF completed disposal of chemical agent VX. On June 11, 2009, UMCDF began the HD disposal campaign. All stockpiled chemical agents were destroyed by October 2011. The facility destroyed 100 percent of the UMCD's stockpile via high-temperature incineration. This included 220,604 munitions and containers containing 3,717 tons of GB, HD and VX. All buildings directly associated with the demilitarization activities have been dismantled. All other buildings and utilities are to remain as they are viable for reuse.

The UMCDF was a RCRA permitted hazardous waste storage and treatment facility. The UMCDF RCRA permit included the disposal facility and J-Block igloos 1735-1736; 1750-1752; 1765-1767; 1780-1782. The UMCDF completed RCRA closure for permit ORQ 000 009 431 (ODEQ 1997a), which includes both the facility and the storage igloos. The applicable land use controls (LUC) were incorporated into the Umatilla Chemical Depot (UMCD) RCRA permit OR6 213 820 917 (ODEQ 1997b) with ODEQ's approval of Permit Modification Request (PMR) UMCD-14-002 PERMIT(2)(ODEQ 2014). The UMCDF permit was terminated with the ODEQ's approval of PMR UMCDF-14-001-MISC(IR)(ODEQ 2015).

The UMCD has RCRA permit, OR6 213 820 917 (ODEQ 1997b), for the storage of chemical agent and agent related waste in I-, J-, and K-Blocks (only J-Block Igloos apply to the property leaving Army control) and for non-agent waste storage in other locations throughout the depot. The Army has completed the RCRA closure process for the permitted units located on the Property, and applicable LUCs have been incorporated into the permit.

1.2 UMATILLA CHEMICAL ARMY DEPOT (UMCD) RCRA PERMIT

The UMCD responsible for the storage and maintenance of munitions containing nerve agents VX and GB (sarin) and mustard agent. The UMCD RCRA permit, OR6 213 820 917, provided oversight to agent storage activities, as well as agent related waste and conventional (non-agent related) waste. Agent related waste was stored in igloos 1808-1810. Building 203 was a year-long permitted hazardous waste storage facility. Building 115 was a maintenance shop satellite accumulation area (SAA). After the UMCDF permit was terminated the LUCs were incorporated into the UMCD permit.

2.0 COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) SITE

The UMCD CERCLA Site Include

- Site 24, Explosive Washout Lagoon Groundwater Contamination
- Site 34, The Active Landfill (closed)
- Site 39, The Quality Function Range
- Site 47, The Deactivation Furnace

2.1. SITE 24, EXPLOSIVE WASHOUT LAGOON (EWL) GROUNDWATER CONTAMINATION

From the mid-1950s to 1965, explosives, contaminated sludge, and liquid wastes generated at the UMCD Washout Plant were discharged and allowed to collect in unlined lagoons and infiltrate into the soil and groundwater at the South Lagoon Area, resulting in contamination of

Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) and 2,4,6-Trinitrotoluene (TNT). The Army initiated a Remedial Investigation (RI) in 1987 and the Record of Decision (ROD) was signed in 1994 (US Army 1994a).

The source of the groundwater contamination is located on the ORARNG parcel. The selected remedy for the contaminated soil source included excavation of the soils and treatment via composting from June 1994 to May 1997 in accordance with the Record of Decision (ROD) for Umatilla Depot Activity Explosives Washout Lagoons Soils Operable Unit (US Army 1992). The Environmental Protection Agency (EPA) approved the *Remedial Action Report Explosives Washout Lagoons, Soils Operable Unit* (USACE 1998a) that closed out the soil portion of the remedy.

The ROD identified pump and treat as the selected remedy for treatment of groundwater contamination. The contaminated groundwater remediation infrastructure, a pump and treat facility with extraction wells, was constructed in 1995 and brought online in 1996 to remove explosives from the groundwater. Attachment 1, shows the location of the plume and associated equipment.

The original extraction and injection system, constructed in 1995, included three extraction wells (EW-1, EW-3, and EW-4) capable of a combined pumping rate at 1,300 gallons per minute (gpm), a centralized treatment plant rated at 1,500 gpm consisting of four 20,000-pound granular activated carbon (GAC) filters, and four infiltration fields (IF-L, IF-1, IF-2, and IF-3). This original system began operation in January 1997. The approved design is presented in the three volume *95% Remedial Design Submittal Contaminated Groundwater Remediation Explosives Washout Lagoons Umatilla Depot Activity, Hermiston Oregon* (USACE 1995). In 2012, the remedy was expanded to include new extraction well, EW-6 in the Eastern Lobe.

The extraction and treatment system operated continuously (except for periodic maintenance and occasional unplanned down time) from 1997 until February 2009, during which time approximately 1,300 pounds of contaminant were removed in the treatment system. In 2009, the system began operating under a pulse-pumping scheme to evaluate whether cycling the extraction off and on could increase system efficiency. Pulse-pumping was found to be ineffective at increasing contaminant recovery rates. Groundwater extraction was temporarily suspended in 2009 in order to perform field testing of an alternative *in-situ* bioremediation remedy in the center part of the plume in the ORARNG parcel (USACE 2014a).

As of late 2013, most of the extraction and treatment capacity is being used to remedy the eastern part of the plume which is on property slated for transfer to the CDA. During 2014, the treatment plant processed approximately 336 million gallons of explosives contaminated groundwater through EW-6 which operated at approximately 700 gallons per minute. In 2015, groundwater was extracted through EW-4 and EW-6. Approximately 210 million gallons of explosives-contaminated groundwater was treated in 2015. Periodic shut-downs took place to allow for bioremediation field testing. All treated groundwater was returned to the aquifer through the infiltration fields IF-2 and IF-3.

On September 28, 2016 the Army requested EPA's approval of Army's demonstration that the groundwater remedial action (RA) for the eastern plume is operating properly and successfully (OPS) under CERCLA Section 120(h)(3)(B) (US Army 2016). On November 7, 2016 the EPA concurred with the Army's request and issued an OPS determination. The groundwater remediation on the CDA parcel of the property will continue after the property has been transferred to the CDA and until such time that the remediation criteria for RDX are achieved. Upon transfer out of Federal ownership, LUCs will be recorded on 437.34 acres in the CDA area with an EES and deed restrictions will be put in place to:

- Allow Army access to the extraction and monitoring wells.
- To protect the wells, piping, and other associated materials or equipment
- To prevent access to groundwater and disturbance of the groundwater plume.

The legal restrictions would be maintained until the ground water cleanup levels of 2.1 µg/L RDX groundwater RA objective are met or the site is determined not to pose a threat to human health or the environment (US Army BRAC 2016).

2.2 SITE 34, ACTIVE LANDFILL

The former Landfill is a 17.49 acre solid waste disposal area located in the northeastern portion of UMCD, approximately one-half mile east of the topographic feature known as Coyote Coulee, north of D-Block. Although known as the Active Landfill to distinguish from other disposal areas, this landfill was closed in 1997. The disposal area of this landfill consisted of a depression approximately 50 feet deep, which was a former gravel pit. Materials disposed at the site include garbage, demolition debris, asbestos from brake linings, dried sludge from the sewage treatment plant, possibly ash from the Deactivation Furnace, and dried sludges that contained explosive residuals.

The Army operated the landfill from 1968 to 1997. Oregon Department of Environmental Quality (ODEQ) issued a landfill permit to the Army in 1979, and the permit was renewed in 1982. Municipal wastes from the UMCD facility, including debris generated by maintenance such as clearing and renovation activities, were disposed of at the site and covered by soil on a weekly schedule. The peak work force at UMCD existed when the landfill was first opened. During the Vietnam Conflict, approximately 1,000 people were employed at UMCD. However, by 1970 the work force began to decline, and by 1987 the work force had fallen to 3 military and 250 civilian employees. The landfill ceased receiving municipal waste on October 3, 1993, but continued to receive treated soil from remediation of the Deactivation Furnace Operable Unit (OU), Miscellaneous Sites OU, and the Ammunition Demolition Activity OU.

An RI was conducted in 1992, with groundwater sampling activities performed at 10 adjacent monitoring wells. Analyses performed on the groundwater samples include: Target Analyte List (TAL) inorganics (which includes metals, non-metallic elements, and cyanide), volatile organic compounds (VOC), semi-volatile organic compounds (SVOCs), pesticides, polychlorinated biphenyls (PCB), explosive constituents, and nitrate/nitrite. The RI results found elevated nitrate/nitrite and selenium levels, which are believed to be unrelated to landfill activities.

The Record of Decision selected "No Action" as the remedy for the Active Landfill OU. This selection was based on information generated during the RI, which indicated that the OU did not

pose an unacceptable threat to human health and/or the environment. Under a future residential land use scenario, the potential carcinogenic risks and non-carcinogenic hazard quotient due to ingestion of groundwater at the Active Landfill OU were 5×10^{-5} and 2.0, respectively.

The Landfill was capped and closed in accordance with ODEQ Solid Waste Regulations in November 1997. In August 2000 the existing operating permit was reissued as a solid waste disposal closure permit.

Groundwater monitoring of the landfill was initiated in October 1996 and continued until 2010. The monitoring was to determine if releases from the landfill contents were evident and could impact groundwater quality. Monitoring was conducted in accordance with the Environmental Monitoring Plan approved by ODEQ in July 1997 and updated and approved in February 2007. With the exception of selenium, the results from the sampling have been compared to the Table 1, 2, and 3 values from the Oregon Administrative Rules, Department of Environmental Quality 340 Groundwater Quality Protection (OAR 340-040). For selenium, the results have been compared to a risk-based level of 50 ug/L established by the ODEQ Cleanup Department in January 2003.

DEQ terminated the landfill Permit, No. 320, in a letter on August 12, 2011 and transferred the site to the Environmental Cleanup Program.

Post-closure requirements required groundwater sampling to continue for four years after closure if no evidence of a release has been detected, and for the monitoring well network to be maintained for 10 years after the date of closure. The groundwater monitoring was implemented at all 12 landfill wells for selenium, total dissolved solids. Five of the 12 wells, which were used for Oregon's solid waste landfill permit compliance, also had sampling requirements for anions and cations, total metals, and volatile organic compounds.

The landfill was capped and closed in November 1997, in accordance with ODEQ Solid Waste Regulations. Four signs have been installed around the Landfill to help ensure protection from vehicular traffic. Monitoring wells were sampled quarterly until January 2004, then semi-annually up until the last sampling round was conducted in November 2010. The last sampling results indicated exceedances of water quality criteria for nitrate, selenium, and total dissolved solids (TDS) at one well. These parameters are national secondary drinking water criteria¹. Selenium and TDS were not elevated at sampled downgradient wells, only at cross-gradient and up-gradient wells. Nitrate concentrations exceeded the applicable standards in most permit-required compliance wells, as they have during the entire record of monitoring. Elevated nitrate and selenium concentrations are considered regionally elevated and are not associated with any landfill release.

As a condition of closure, the landfill will not be adversely disturbed in perpetuity. The Response Action Outcome, although not explicitly stated in the Active Landfill Record of Decision, were to minimize contact with landfill waste through installation of the low-permeability cap, and to ensure the landfill did not serve as a source for groundwater contamination, which would be

¹ Secondary drinking water regulations are considered to pose less health risk than a primary Contaminant of Concern.

determined by monitoring for at least four years after closure. Groundwater monitoring has been terminated by agreement between ODEQ and the Army.

Land Use Controls will include:

- No driving on site
- No digging, shoveling, auguring,
- No disturbing signage
- No disturbing adjacent monitoring wells
- No wells in adjacent area

2.3 SITE 39, QUALITY ASSURANCE FUNCTION RANGE

The 635.68-acre Quality Assurance (QA) Function Range is located north of the northern security fence of UMCD. While operational during the 1940s through the mid 1970s, Site 39 was the location of a former QA function range used for testing of conventional munitions, weapons and related materials, such as test flares, photo flash grenades, illumination and smoke canisters, and mines. The types of operations that took place at various locations throughout Site 39 were to test, rework, burn, disassemble, and disposal by demolition of the materials listed above. No chemicals were tested or used on the QA Function Range.

A 1990 Remedial Investigation/Feasibility Study (RI/FS) for UMCD identified Study Site 39 as an area with potential munitions areas of concern. In 1996, surface clearance of Munitions and Explosives of Concern (MEC) took place in the areas that were identified in the 1990 RI/FS. In 1999, an Engineering Evaluation/Cost Analysis (EE/CA) was conducted to characterize the presence, nature and distribution of the MEC below the ground surface. Anomalies discovered during this effort were investigated, and the potential for MEC existence verified. Based on its investigations, the Army determined that MEC potentially existed on approximately 176 acres within the Site 39 area.

In May 2005, a ROD was issued for the QA Function Range. The ROD defined the selected remedy and remedial objectives of the QA Function Range. The selected remedy required that the 107 acres associated with the Rifle Range Area and the 68 acres associated with the Test Pit Area undergo MEC clearance to a depth of two (2) feet, and the one acre associated with the Test Pad Area to be cleared to a depth of 6 feet. The remedy also required the soil around the three (3) former QA function test pads, where high-density geophysical anomalies were found to be sifted to a depth of two (2) feet. In addition, the ROD prescribed land use controls be implemented at the time of property transfer for the approximately 176 acres that was cleared. With respect to the remaining approximately 464 acre of Site 39, the Army and EPA determined that No Further Action (NFA) was necessary for investigation and clearance, but that land use controls would be needed if the property ever transferred out of federal control.

For the approximately 176 acres that were cleared, the ROD states,

Deed notification will be required to inform re-users that the property was used for testing of munitions. Cleanup was completed to meet the expected

future agricultural use. This notification will meet the requirements for State of Oregon real property deed notifications. This information will be included in the transfer documents and recorded at the time of transfer. (ROD, p. 50)

Note that the reasonably anticipated future uses includes agricultural use, incidental residential use (e.g., farm house and barns/utility buildings), and limited recreational use, such as hiking and hunting (ROD, p. 16).

For LUCs on the approximately 464 acres that is not suspected of containing MEC, the ROD states,

If the property is transferred, implement a deed notification to make future property owners aware of the past history of the property including its proximity to the former quality assurance function range and the results or previous investigations of the property known as Site 39. (ROD, p. 51)

The remedial actions as prescribed by the ROD began in October 2008, and were completed in November 2009. During the remediation, three items were discovered and determined to be Material Documented as Explosive Hazard (MDEH). They were: 1. Fragments containing TNT from M2 personnel mines; 2. A ground single flare, M52A1 and 3. Ground signal smoke, M129A1, candle and fin assembly. These identified items were detonated. In total, 860 pounds of cultural debris and 388 pounds of munition debris were certified as Material Documented as Safe (MDAS). These items were collected and recycled. The soil was screened around them. All clean-up actions have been completed for this site, and the required LUCs will be implemented at the time of property transfer.

The ROD lists the acreage for the two land-use control areas as approximately 176 acres for the clearance area and 464 acres for the area not suspected of containing munitions. The Army has simplified the LUC restricted area (the 176 acres) from the three distinct clearance areas to one larger area to which the land use restrictions will apply. The new land-use restriction area, which comprises only so much acreage as to cover the three response areas contiguously totals 259 acres. The remaining area of the QA Function Range, which is subject to a notice LUC, totals 376.68 acres.

With these clarifications, the Army and EPA have agreed that the Site 39 restrictions that will be placed in the deed and in the Easement and Equitable Servitude EES are:

- Agricultural use and incidental residential use (e.g., farm house and barns/utility buildings)
- Limited recreational use (e.g., hiking and hunting)

The 259 acres of Site 39, as shown and described in the Easement and Equitable Servitude (EES), shall not be used for residential use other than residential use incidental to agricultural use.

2.4 Site 47 DEACTIVATION FURNACE

The 15.97-acre Deactivation Furnace is located in the southwest corner of the UMCD installation. This OU consists of the two former buildings associated with Deactivation Furnace and the surrounding 8-acre area deemed contaminated from air pollution that accumulated during the life of the Deactivation Furnace. The Deactivation Furnace operated from 1950s to November 1988. It was used for the routine incineration of unserviceable or obsolete conventional munitions up to 50 caliber, comprising of Class A and B explosives (reactive wastes such as detonators) and Class C Explosives (non-reactive wastes such as small arms ammunition). During its operation, these munitions were fed into the retort through a conveyor belt system with operating temperatures between 1,200 to 1,500 degrees Fahrenheit (F). During the first 10 years of operation, exhaust gases were uncontrolled. In 1960, an addition of cyclone and baghouse air pollution control system was installed. This system was then replaced sometime between 1975 and 1980, and was used until the furnace was deactivated. The residual ash from the baghouse was temporarily stored on site in a Resource Conservation and Recovery Act (RCRA) permitted Hazardous waste storage facility, and then disposed of offsite at a RCRA permitted hazardous waste disposal facility.

This OU was first included in the Army's Installation Restoration Program (IRP) in 1978, which resulted in limited soil and groundwater sampling conducted in 1981. That investigation determined that there were high concentrations of lead, zinc, copper, and cadmium within the furnace soils. Following that investigation, a RCRA Facility Assessment was completed in 1987. An initial Remedial Investigation (RI) was completed in 1988, which results showed that the Deactivation Furnace soils had high bulk metal concentrations. Due to these results, a RCRA closure plan was developed, amended and approved in October 1990. This closure plan required that the furnace, related structures and contaminated soils from the furnace air emissions be removed. In July 1992, the actual furnace within the building was decontaminated, removed and disposed off-site during the RCRA closure actions as required by the RCRA closure plan. Two associated buildings remained, along with a 2,500 square feet concrete pad that surrounds the buildings.

Additional investigations were initiated in 1990, with additional soil investigations completed in 1991 and 1992. The final FS completed in 1992 determined that 12 metals exceeded soil background levels. The metals were: antimony, arsenic, barium, beryllium, cadmium, copper, lead, nickel, potassium, silver, thallium, and zinc. These metals showed increased soil concentrations downwind of the Deactivation Furnace. The RCRA Closure plan was amended to include actions related to the furnace equipment (completed in July 1992), and the larger soil contamination was addressed through the CERCLA process, resulting in an FS and subsequently a ROD.

The Army prepared an ESD to describe changes in reasonably foreseeable future land use upon which the remediation levels were based and to describe the proposed LUCs that will be implemented as part of the remedy given the change. These changes are being made to the ROD with the purpose to maintain the protection of human health and the environment.

At the time the ROD was signed, the reasonably anticipated future land use was residential and determined that the 500 mg/kg lead cleanup levels for soils was protective of residential uses and would allow for unlimited use/unrestricted exposure (UU/UE). The current lead cleanup level protective of residential use is 200 mg/kg and the reasonably anticipated re-use has also changed to industrial. Under the new use exposure scenario, the prior soil excavations address any unacceptable risk under the reasonable anticipated future exposure pathway but a LUC is required to prohibit residential reuse.

After the completion of the Tier II actions, the site-wide mean for lead is 174.3 and the upper 95th percentile confidence limit is 229.7 ppm, these confirmatory samples are combination of results from the Tier I and II efforts. This remediation is protective of the reasonably anticipated future reuse, which is industrial.

The revised remedy is described and evaluated within this section. There are two principal differences between the original ROD and the ESD. The first difference involves the reasonably anticipated future exposure pathway as a basis for the cleanup levels. The revised remedy is based on updated reasonably expected future land use for the OU. The second difference involves the incorporation of LUCs to maintain the industrial reuse limitations. Remediation consisted of demolition of the facility and treatment of contaminated soil. The soil remediation was complete in April 1998 and is protective of human health and the environment.

The new industrial use cleanup level for lead in soils is 400 mg/kg. The prior excavation activities met this standard. In order to remain protective in the future and after transfer, LUCs are required. LUCs are necessary to prevent human exposure to concentrations of lead in soil that do not allow for UU/UE. LUCs will be implemented through a restriction in the deed and the recording of the EES in Attachment 4 prior to transfer of the Site out of Federal control. The following LUCs will be placed on the Property:

Residential and Agricultural Use Restriction:

The area around the Deactivation Unit shall not be used for the following purposes

- Residential use of any type
- Agricultural (food crop) use of any type
- Child Care Facilities and nursing home or assisted living facilities; and
- Educational facilities for children/young adults in grades Kindergarten through 12th grade.

LUCs will be maintained for the entire site boundaries, until the concentrations of hazardous substances in the soil and groundwater are at such levels to allow for unrestricted use and exposure. The Army will be responsible for implementing, maintaining, reporting on, and enforcing the LUCs. Although the Army may later transfer these procedural responsibilities to

another party by contract, property transfer agreement, or through other means, the Army shall retain ultimate responsibility for remedy integrity.

Umatilla Chemical Depot
Land Use Control Implementation Plan
Attachment 4
Easement and Equitable Servitude

Note the Easement and Equitable Servitude will not be provided as an attachment to the LUCIP when sent for public review, as it is provided as a stand alone document.

Umatilla Chemical Depot
Land Use Control Implementation Plan
Attachment 5
Land Use Control Inspection Checklist

Print Name	Signature	Date
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