

State of Oregon  
Department of Environmental Quality

Memorandum

**Date:** July 23, 2010  
**To:** Environmental Quality Commission  
**From:** Dick Pedersen, Director  
**Subject:** Agenda item L, Informational item: Umatilla Chemical Demilitarization Program status update  
August 18-19, 2010 EQC meeting

**Purpose of item** This item will inform the commission about program updates, activities and project status at the Umatilla Chemical Agent Disposal Facility. Staff will also update the commission on permit modification requests at the facility and activities at other chemical agent disposal facilities.

**Program news** **Completion of HD mustard trial burn**  
The Umatilla Chemical Agent Disposal Facility started the HD mustard trial burn April 29, 2010. It completed its 59-day HD mustard trial burn June 27, 2010. Testing was conducted on the Metal Parts Furnace, Liquid Incinerator 1, and Liquid Incinerator 2.

The trial burn plan included the testing requirements for treating HD secondary wastes in the Metal Parts Furnace, but the Umatilla Chemical Agent Disposal Facility chose not to conduct a secondary waste trial burn. Instead, after the trial burn had concluded, the Umatilla facility proposed secondary waste operating parameters based on data from the surrogate trial burn and a non-HD secondary waste trial burn in lieu of conducting an HD secondary waste trial burn. DEQ has reviewed that data. The revised operating parameters for the treatment of secondary wastes in the Metal Parts Furnace will soon be transmitted to the Umatilla Chemical Agent Disposal Facility.

The Umatilla Chemical Agent Disposal Facility shut down for scheduled maintenance after the HD mustard trial burn concluded. As allowed by the permit, it resumed HD ton container Metal Parts Furnace treatment operations July 14, 2010, at 50 percent of the permitted feed limits. The facility will meet the requirements for increasing the feed rates to 75 percent after it submits, and the DEQ reviews and approves, preliminary data from the HD mustard trial burn and minor permit modification requests.

**Mutual agreement and order issued**

During a February 2010 meeting with the U.S. Environmental Protection Agency, the Umatilla Chemical Agent Disposal Facility identified that it deviated from its permitted laboratory procedures used to analyze chemical agent and made revisions to those procedures without following the regulatory permit modification process.

DEQ determined, with input from EPA and Oregon Department of Justice, this matter required immediate action. An order was determined to be the most expeditious means of resolving the

issue. While DEQ pursued and negotiated an appropriate order, it issued a letter April 2, 2010, directing the Umatilla facility to comply with the regulatory permitting requirements and submit a permit modification request no later than July 1, 2010, to revise its permit to comply with the regulatory permitting requirements.

DEQ issued a pre-enforcement notice June 25, 2010, to the Umatilla Chemical Agent Disposal Facility for its failure to comply with permitted laboratory procedures and making unauthorized revisions to those procedures. On June 26, 2010, DEQ and the Umatilla facility co-permittee, Washington Demilitarization Company, LLC, signed a mutual agreement and order. The mutual agreement and order settled the violations alleged in the pre-enforcement notice. It also provided an enforceable compliance schedule requiring the facility to submit the permit modification previously requested, and provided interim procedures under which the facility would operate pending a decision on the permit modification.

The mutual agreement and order provides a formal regulatory path to resolve permit deficiencies while ensuring compliance with the federal permitting requirements and resolving the enforcement action. Because the Umatilla facility met the requirement to submit a permit modification request by July 1, 2010, the agreement allows the facility to continue to operate under the interim procedures while the permit deficiencies and revisions are resolved through the permit modification process.

#### **Changes to Umatilla Chemical Depot permit allow reuse of igloo filtration systems**

An opportunity was identified to reuse the Umatilla depot igloo passive filter systems. The state of Colorado is requiring the Pueblo facility to add agent-migration controls with passive filter systems to its storage igloos, much like those required for the Umatilla depot. While many Umatilla igloos no longer store agent munitions, the filter units remain because of permit design requirements. DEQ worked with Umatilla Chemical Depot personnel to develop a Class 1 permit modification to revise the igloo design requirements to allow the removal and transfer of the passive filter systems to Pueblo to meet the facility's implementation deadline.

Reusing the filter units will result in waste reduction and cost savings to taxpayers, eliminating the need to landfill filters, and saving \$2 million dollars in new filter costs.

#### **Changes in Umatilla Chemical Agent Disposal Facility management**

Mr. Gary Anderson began his duties as the new site project manager for the Umatilla Field Office, U.S. Army, July 6, 2010.

#### **Agent processing at the Umatilla Chemical Agent Disposal Facility**

The Umatilla Chemical Agent Disposal Facility treated 100 ton containers since the last update report in June. As of July 13, 2010, the facility has destroyed 218,343 munitions, which represents 99 percent of all Umatilla munitions and bulk containers and 46 percent of the original Umatilla stockpile by agent weight.

#### **Mustard operations**

The mustard agent campaign began June 4, 2009. There were 2,635 ton mustard containers in the

original stockpile. This represents one percent of all facility munitions and bulk containers and 63 percent of the original stockpile by agent weight. The mustard agent testing period (shakedown and trial burn) was conducted for a little over a year, during which 374 of the original 2,635 ton containers were treated—a little over 14 percent of the stockpile. As of July 13, 2010, 374 containers have been treated containing 314 tons of mustard agent.

No mustard agent-contaminated wastes have been treated since February 2010. The Army is storing the wastes in containers and transporting them to J-Block permitted storage to be treated later.

#### Sarin operations

The facility completed sarin munitions and bulk items processing in July 2007. Sarin munitions and bulk items comprised 21.4 percent of the total Umatilla stockpile by agent weight. The facility destroyed 155,539 munitions and bulk containers filled with 2,028,020 pounds of sarin nerve agent. This represented 70.5 percent of all Umatilla munitions and bulk containers and 21.4 percent of the original Umatilla stockpile by agent weight. The only remaining sarin-related waste is used filter system carbon.

#### VX operations

The facility completed VX munitions processing Nov. 5, 2008. VX munitions and bulk items comprised 9.8 percent of the total Umatilla stockpile by agent weight. The facility destroyed 14,519 VX rockets and warheads, one VX ton container, 156 VX spray tanks, 32,313 155mm VX projectiles, 3,752 eight-inch VX projectiles, and 11,685 VX mines filled with over 720,000 pounds of agent.

Except for carbon, the facility has treated all VX-related wastes previously stored in J-Block igloos.

Umatilla  
Chemical  
Agent  
Disposal  
Facility  
permitting  
activity

May 19 through July 14, 2010

| Permit modification request submittals to DEQ<br>(Includes 10-013, which was rejected, and 10-014 and 10-015 and 10-018, which were accepted this period) |                                                            |           |           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------|-----------|-----------|
| Permit modification request number                                                                                                                        | Title                                                      | Submitted |           |
| UMCDF-10-014-INSP(1N)                                                                                                                                     | Inspection Schedule Correction                             | 05/24/10  |           |
| UMCDF-10-013-MISC(1N)                                                                                                                                     | Redline Annual Update for CHB, HVAC, and Misc. Systems     | 05/26/10  |           |
| UMCDF-10-017-MISC(2)                                                                                                                                      | Document Relocation into Permit (Procedures MAO)           | 07/01/10  |           |
| UMCDF-10-015-DMIL(1R)                                                                                                                                     | Demonstration of HTS Operations                            | 07/01/10  |           |
| UMCDF-10-021-MISC(1N)                                                                                                                                     | Redline Annual Update for the CHB, HVAC, and Misc. Systems | 07/13/10  |           |
| Rejected permit modification requests                                                                                                                     |                                                            |           |           |
| PMR #                                                                                                                                                     | Title                                                      | Received  | Decision  |
| UMCDF-10-013-MISC(1N)                                                                                                                                     | Redline Annual Update for CHB, HVAC, and Misc. Systems     | 05/26/10  | 06/30/10  |
| Withdrawn permit modification requests                                                                                                                    |                                                            |           |           |
| PMR #                                                                                                                                                     | Title                                                      | Received  | Withdrawn |
| UMCDF-07-006-DFS(3TA)                                                                                                                                     | Minimum Temperature Limit Change on the DFS                | 01/16/07  | 07/07/10  |
| UMCDF-08-037-MISC(1N)                                                                                                                                     | Annual Procedures Update (resubmittal of 08-013)           | 05/29/08  | 07/07/10  |
| Permit modification request approvals or acceptances by DEQ                                                                                               |                                                            |           |           |
| PMR #                                                                                                                                                     | Title                                                      | Received  | Decision  |
| UMCDF-10-019-CONT(1N)                                                                                                                                     | Update Contingency Plan Emergency Coordinator List         | 05/13/10  | 06/24/10  |
| UMCDF-09-018-PAS(1N)                                                                                                                                      | High Moisture Automatic Waste Feed Cut-off                 | 04/21/09  | 06/30/10  |
| UMCDF-10-014-INSP(1N)                                                                                                                                     | Inspection Schedule Correction                             | 05/24/10  | 06/30/10  |
| UMCDF-10-015-DMIL(1R)                                                                                                                                     | Demonstration of HTS Operations                            | 07/01/10  | 07/07/10  |
| UMCDF-09-017-MISC(1N)                                                                                                                                     | Redline Annual Update for DMIL, MDB, and Misc Systems      | 08/06/09  | 07/12/10  |

| <b>IN PROCESS:</b> The following permit modification notices and permit modification requests are under DEQ review<br>(includes 10-017 and 10-021, which were also submitted during this period)                                                                                                                                                                                                                         |                                                                                               |          |                             |                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------|-----------------------------|------------------------------|
| PMR #                                                                                                                                                                                                                                                                                                                                                                                                                    | Title                                                                                         | Received | Public Comment Period Close | Target Decision/ Review Date |
| Requests                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                               |          |                             |                              |
| UMCDF-09-006-CLOS(2)                                                                                                                                                                                                                                                                                                                                                                                                     | Amend Closure Plan                                                                            | 09/25/09 | 11/24/09 <sup>1</sup>       | 02/25/10                     |
| UMCDF-09-012-WAP(2)                                                                                                                                                                                                                                                                                                                                                                                                      | Spent Carbon Waste Determination                                                              | 10/28/09 | 12/28/09 <sup>1</sup>       | 03/30/10                     |
| UMCDF-10-017-MISC(2)                                                                                                                                                                                                                                                                                                                                                                                                     | Document Relocation into Permit<br>(Procedures MAO)                                           | 07/01/10 | 08/30/10 <sup>1</sup>       | 09/29/10                     |
| Notices                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                               |          |                             |                              |
| UMCDF-09-021-MISC(1N)                                                                                                                                                                                                                                                                                                                                                                                                    | Redline annual update for General, PAS, and MISC systems                                      | 10/13/09 | N/A                         | 08/31/10                     |
| UMCDF-09-023-MISC(1N)                                                                                                                                                                                                                                                                                                                                                                                                    | Redline Annual Update for Furnace and Misc. Systems                                           | 12/21/09 | N/A                         | 08/31/10                     |
| UMCDF-10-005-MISC(1N)                                                                                                                                                                                                                                                                                                                                                                                                    | Redline Annual Update for BRA, TANK, and MISC Systems                                         | 03/31/10 | N/A                         | 08/31/10                     |
| UMCDF-10-021-MISC(1N)                                                                                                                                                                                                                                                                                                                                                                                                    | Redline Annual Update for the CHB, HVAC, and Misc Systems<br>(resubmittal of rejected 10-013) | 07/13/10 | N/A                         | 08/31/10                     |
| <sup>1</sup> Initial (permittee) public comment period.<br><sup>2</sup> DEQ (draft permit) public comment period.<br><u>Acronyms/Abbreviations:</u><br><b>BRA</b> = Brine Reduction Area<br><b>DMIL</b> = Demilitarization System<br><b>MAO</b> = Mutual agreement and order<br><b>MISC</b> = Miscellaneous<br><b>PAS</b> = Pollution Abatement System<br><b>PMR</b> = Permit Modification Request<br><b>TANK</b> = Tank |                                                                                               |          |                             |                              |

| PMR #                 | Title                                                            | Received | Public Comment Period Close | Decision Date |
|-----------------------|------------------------------------------------------------------|----------|-----------------------------|---------------|
| Requests              |                                                                  |          |                             |               |
| UMCD-10-001-SUOMP(1R) | Removal of Passive Filtration Systems from Groups D and E Igloos | 06/21/10 | N/A                         | 06/30/10      |

**Significant  
events at  
other  
facilities**

As of July 1, 2010, 75 percent of the national chemical agent stockpile tonnage has been destroyed. In achieving this, the Tooele, Utah, facility surpassed 90-percent agent disposal and the Anniston, Alabama, facility surpassed 75-percent agent disposal.

**Tooele Chemical Agent Disposal Facility, Utah**

The Tooele facility started mustard disposal August 2006, and, as of July 11, 2010, has treated 62,407 HT mortars, 867 HD mortars, 4,984 HD ton containers, and 54,453 H 155mm projectiles. As of July 11, 2010, the Tooele facility has destroyed 90.7 percent of its original stockpile tonnage.

The Tooele facility plans to start treating 300 overpacked HD projectiles and mortars using explosive detonation technology in early 2010. The Tooele facility has also started plans to eliminate small stockpiles of Tabun and Lewisite blister agent.

**Anniston Chemical Agent Disposal Facility, Alabama**

The Anniston facility began processing HT and HD mustard 4.2-inch mortars July 2, 2009. It is currently processing HT 4.2-inch mortars. As of July 11, 2010, the facility has destroyed 139,833 HT mortars and 18,397 HD mortars. The Anniston facility has destroyed 76.6 percent of the original tonnage and its mustard campaign may end in early 2012.

The Anniston facility has ordered a static detonation chamber from the Swedish company DYNASAFE AB to process remaining mustard-filled munitions that have deteriorated over time. The chamber will be used to destroy small numbers of munitions as a means toward meeting the international treaty requirements, and will likely begin this summer.

**Pine Bluff Chemical Agent Disposal Facility, Arkansas**

The Pine Bluff facility started mustard agent-filled ton container processing December 7, 2008, and had processed 3,044 HT and 13 HD ton containers as of July 11, 2010. It is currently processing HT ton containers. The facility has destroyed 85.6 percent of its original tonnage.

**Newport Chemical Agent Disposal Facility, Indiana**

Newport was the third site to complete agent disposal operations, following Johnston Atoll Chemical Agent Disposal System in 2000 and Aberdeen Chemical Agent Disposal Facility in 2006. The final 1X waste was shipped offsite Oct. 22, 2009, to the Veolia facility in Port Arthur, Texas.

The Newport facility physical closure is complete. A deactivation ceremony was held June 17, 2010; and the Army Chemical Materials Agency will transfer the Newport Chemical Depot property to the Army Base Realignment and Closure Commission on July 18, 2010.

**Blue Grass Chemical Agent Destruction Pilot Plant, Kentucky**

The Blue Grass facility will use neutralization followed by supercritical water oxidation to destroy its 524-ton stockpile of nerve and mustard agents. The facility has neutralized three sarin ton containers, known as Operation Swift Solution, representing 0.2 percent of the stockpile. The facility is scheduled to begin chemical agent operations in 2018, recently extended from 2017, and to be completed by 2023. The design work is 99 percent complete and should be final in September 2010, with startup projected for 2018.

The first structural steel for the control and support building was placed Sept. 17, 2009. In late April 2010, the final concrete mat foundation floor slabs were placed in the Munitions Demilitarization Building. A metal parts treater, made specifically for the Blue Grass facility, is being fabricated at the Parsons facility in Pasco, Washington. Testing of this and other facility-specific equipment will be conducted over a six-month period.

Based on the Army's commitment to treat all agent-contaminated secondary wastes onsite versus offsite shipment, as was done at Newport, the Army is processing all hydrolysates onsite. When treatment has been completed, the operational facilities will be shut down and the temporary structures and equipment will be shipped to Aberdeen Proving Grounds.

#### **Pueblo Chemical Agent Destruction Pilot Plant, Colorado**

The Pueblo facility will use neutralization followed by biotreatment to destroy its 2,611-ton mustard agent stockpile of artillery and mortar projectiles.

Nearly all the Pueblo facility buildings are up and enclosed. Some site-specific equipment is still being designed and fabricated. Some special equipment was tested in spring 2009. Limited commissioning and startup of select electrical systems are scheduled for later in 2010. The Pueblo facility extended its startup date from 2014 to January 2015, with a December 2017 completion date. Construction will continue during the startup processes.

Based on the U.S. Army's commitment to treat all agent-contaminated secondary wastes onsite versus offsite shipment, as was done at Newport, all hydrolysates will be processed onsite.

**Attachments**    A. Chemical Weapons Destruction program acronym list

## **Chemical Weapons Destruction Program Glossary of Acronyms and Terms of Art**

ABCDF – Aberdeen Chemical Agent Disposal Facility, located at the Aberdeen Proving Grounds in Maryland

ACAMS – Automatic Continuous Air Monitoring System – the chemical agent monitoring instruments used by the Army to provide low-level, near real time analysis of chemical agent levels in the air

ACWA –Assembled Chemical Weapons Alternatives, agency of the Army overseeing operations at Pueblo, CO (PCAPP ) and Bluegrass, Kentucky (BGCAPP)

ANCDF – Anniston Chemical Agent Disposal Facility, located at Anniston Army Depot in Alabama

APG–Aberdeen Proving Grounds, Edgewood, Maryland

ATB – agent trial burn – test burns on incinerators to demonstrate compliance with emission limits and other permit conditions

AWFCO instrument– Automatic Waste Feed Cutoff – an instrument that monitors key operating parameters of a high temperature incinerator and automatically shuts off waste feed to the incinerator if prescribed operating limits are exceeded

BDS – Bulk Drain Station – the used in the Munitions Demilitarization Building to weigh, hole punch and drain liquid HD from ton containers

BGCA – Blue Grass Chemical Activity, located at the Blue Grass Army Depot in Kentucky

BGCAPP – Blue Grass Chemical Agent Destruction Pilot Plant, new designation for BGCA.

BRA – Brine Reduction Area – the hazardous waste treatment unit that uses steam evaporators and drum dryers to convert the salt solution (brine) generated from pollution abatement systems on the incinerators into a dry salt that is shipped off-site to a hazardous waste landfill for disposal

CAC – Chemical Demilitarization Citizens Advisory Commission – the nine member group appointed by the Governor to receive information and briefings and provide input and express concerns to the U.S. Army regarding the Army’s ongoing program for disposal of chemical agents and munitions – each state with a chemical weapons storage facility has its own CAC – in Oregon the DEQ’s Chemical Demilitarization Program



Administrator and the Oregon CSEPP Manager serve on the CAC as non-voting members

CAMDS – Chemical Agent Munitions Disposal System – the former research and development facility for chemical weapons processing, located at the Deseret Chemical Depot in Utah

CDC – Centers for Disease Control and Prevention – a federal agency that provides oversight and technical assistance to the U.S. Army related to chemical agent monitoring, laboratory operations, and safety issues at chemical agent disposal facilities (Website: <http://www.cdc.gov/nceh/demil/>)

CMA – U.S. Army's Chemical Materials Agency, the agency responsible for chemical weapons destruction (website: <http://www.cma.army.mil/>)

CMP – comprehensive monitoring program – a program designed to conduct sampling of various environmental media (air, water, soil and biota) required by the EQC in 1997 to confirm the projections of the Pre-Trial Burn Health and Ecological Risk Assessment.

CMS – carbon micronization system – a new treatment system that is proposed to be used in conjunction with the deactivation furnace system to process spent carbon generated at UMCDF during facility operations – the CMS would pulverize the spent carbon and then inject the powder into the deactivation furnace system for thermal treatment to destroy residual chemical agent adsorbed onto the carbon

CSEPP – Chemical Stockpile Emergency Preparedness Program – the national program that provides resources for local officials (including emergency first responders) to provide protection to people living and working in proximity to chemical weapons storage facilities and to respond to emergencies in the event of an off-post release of chemical warfare agents (Website: <http://csepp.net/>)

CWC Treaty – Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and on their Destruction. Ratified by the U.S. Senate on April 24, 1997.

CWWG – Chemical Weapons Working Group, an international organization opposed to incineration as a technology for chemical weapons destruction and a proponent of alternative technologies, such as chemical neutralization (Website: <http://www.cwwg.org/>)

DAAMS – Depot Area Air Monitoring System – the system that is utilized for perimeter air monitoring at chemical weapons depots and to confirm or refute ACAMS readings at chemical agent disposal facilities – samples are collected in tubes of sorbent materials and taken to a laboratory for analysis by gas chromatography

DAL – discharge airlock – a chamber at the end of MPF used to monitor treated waste residues prior to release.

DCD – Deseret Chemical Depot – the chemical weapons depot located in Utah

DFS – deactivation furnace system – a high temperature incinerator (rotary kiln with afterburner) used to destroy rockets and conventional explosives (e.g., fuses and bursters) from chemical weapons

DPE – demilitarization protective ensemble – the fully-encapsulated personal protective suits with supplied air that are worn by workers in areas with high levels of agent contamination

DUN – dunnage incinerator – high temperature incinerator included in the original UMCDF design and intended to treat secondary process wastes generated from munitions destruction activities – this incinerator was never constructed at UMCDF

ECR – Explosive Containment Room – UMCDF has two ECRs used to process explosively configured munitions. ECRs are designed with reinforced walls, fire suppression systems, pressure sensors, and automatic fire dampers to detect and contain explosions and/or fire that might occur during munitions processing

EONC – Enhanced Onsite Container – Specialized vessel used for the transport of munitions and bulk items from UNCD to UMCDF and for the interim storage of those items in the UMCDF Container Handling Building until they are unpacked for processing

G.A.S.P. – a Hermiston-based anti-incineration environmental group that has filed multiple lawsuits in opposition to the use of incineration technology for the destruction of chemical weapons at the Umatilla Chemical Depot – G.A.S.P. is a member of the Chemical Weapons Working Group

GB – the nerve agent sarin

HD – the blister agent mustard

HTS – Heel Transfer Station – the part of the HD bulk drain station that contains the water and air sprays that used to solubilize solid heels in ton containers for purposes of sampling and meeting waste feed limitations

HVAC – heating, ventilation, and air conditioning

HW – hazardous waste

I-Block – the area of storage igloos where ton containers of mustard agent are stored at UMCD

IOD – integrated operations demonstration – part of the Operational Readiness Review process when UMCDF demonstrates the full functionality of equipment and operators prior to the start of a new agent or munition campaign.

JACADS – Johnston Atoll Chemical Agent Disposal System, the prototype chemical agent disposal facility located on the Johnston Atoll in the Pacific Ocean (now closed and dismantled)

J-Block – the area of storage igloos where secondary wastes generated from chemical weapons destruction are stored at UMCD

K-Block – the area of storage igloos where chemical weapons are stored at UMCD

LIC1 & LIC2 – liquid incinerators #1 & #2 – high temperature incinerators (liquid injection with afterburner) used to destroy liquid chemical agents

MDB – munitions demilitarization building – the building that houses all of the incinerators and chemical agent processing systems. The MDB has a cascaded air filtration system that keeps the building under a constant negative pressure to prevent the escape of agent vapor. All air from inside the MDB travels through a series of carbon filters to ensure it is clean before it is released to the atmosphere.

MPF – metal parts furnace – high temperature incinerator (roller hearth with afterburner) used to destroy secondary wastes and for final decontamination of metal parts and drained munitions bodies

NECDF – Newport Chemical Agent Disposal Facility, located at the Newport Chemical Depot in Indiana

NRC – National Research Council

ORR – operational readiness review – a formal documented review process by internal and external agencies to assess the overall readiness of UMCDF to begin a new agent or munitions processing campaign.

PBCDF – Pine Bluff Chemical Agent Disposal Facility, located at the Pine Bluff Arsenal in Arkansas

PCAPP – Pueblo Chemical Agent Destruction Pilot Plant, new designation for PUCDF.

PFS – the carbon filter system installed on the pollution abatement systems of the incinerators used for chemical agent destruction

PICs – products of incomplete combustion – by-product emissions generated from processing waste materials in an incinerator

Attachment A  
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PMR – permit modification request

PMN – permit modification notice

PUCDF – Pueblo Chemical Agent Disposal Facility, located at the Pueblo Chemical Depot in Colorado

SAP – sampling and analysis plan

SETH – simulated equipment test hardware – “dummy” munitions used by UMCDF to test processing systems and train operators before the processing of a new munitions type. SETH munitions are often filled with ethylene glycol to simulate the liquid chemical agent so that all components of the system, including the agent draining process, can be tested.

TAR – Temporary Authorization Request

TOCDF – the Tooele Chemical Agent Disposal Facility, located at the Deseret Chemical Depot in Utah

UMCD – Umatilla Chemical Depot

UMCDF – Umatilla Chemical Agent Disposal Facility

WAP – waste analysis plan –a plan required for every RCRA permit which describes the methodology that will be used to characterize wastes generated and/or managed at the facility.

WDC – Washington Demilitarization Company, LLC – the Systems Contractor for the U.S. Army at UMCDF.

VX – a nerve agent