



State of Oregon  
Department of  
Environmental  
Quality

**Umatilla Chemical Demilitarization Program  
Status Update  
Environmental Quality Commission  
October 22, 2009**

**Agent Processing at the Umatilla Chemical Agent Disposal Facility**

As of September 14, 2009, the Umatilla Chemical Agent Disposal Facility has destroyed 218,114 munitions representing 99 percent of all Umatilla munitions and bulk containers and 41 percent of the original Umatilla stockpile by agent weight.

Mustard operations

The mustard campaign began June 4, 2009. There are 2,635 mustard ton containers in the facility's stockpile, which is one percent of all facility munitions and bulk containers and 63 percent, by agent weight, of the original stockpile. As of September 14, 2009, the facility has disposed of 145 ton containers containing 128 tons of mustard agent.

The facility continues ton container characterization sampling and treatment operations under the temporary authorization issued for the mustard trial burn. The facility has completed the sampling of the initial 60 ton containers required by the permit, and continues sampling of the second set of 60 ton containers, targeting those with high mercury content.

The facility has used the initial 720 shakedown hours for the metal parts furnace. Shakedown hours allow the facility to deviate from its permitted operating parameters in order to prepare for the performance test, also called a trial burn or a source test. The performance test will establish new operating parameters that DEQ will write into a permit when the facility documents that the new operating parameters will demonstrate compliance with stack emission limits contained in the regulations. DEQ granted 350 additional shakedown hours for the metal parts furnace to determine heel sizes that will control boil-overs inside the furnace and to conduct sampling in the cool-down area.

The comment period for the mustard agent trial burn permit modification request closed August 24, 2009. DEQ is considering the comments received, and has not yet made a final decision on the permit modification request.

The facility exceeded its permitted emission limit for carbon monoxide on nine occasions because of boil-over conditions in the metal parts furnace. DEQ issued a pre-enforcement notice for these violations, along with violations for exceeding a waste feed limit to the metal parts furnace, failure to characterize fully a shipment of brine and the failure to update their contingency plan in the allowed time. DEQ referred these violations to its Office of Compliance and Enforcement.

DEQ issued the draft Title V air quality permit for public comment July 15, and convened a public hearing August 25, 2009. The DEQ public comment period closed August 26, 2009. DEQ prepared a response to the public comments and sent the draft Title V permit to the Environmental Protection Agency on September 16, 2009 for a 45-day review and comment period.

Sarin operations

The Umatilla facility completed sarin munitions and bulk items processing 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, which comprised 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-related carbon. The facility has treated all other sarin secondary wastes.

VX operations

The facility completed VX, a nerve agent, munitions processing November 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.

**Other UMCDF Chemical Demilitarization Program News**

**Permit Modification Request Activity** (August 7, 2009, through September 28, 2009):

<b>SUBMITTALS</b>			
<i>(09-008 and 09-022 were also accepted/approved during this period)</i>			
<b>PMR#</b>	<b>Title</b>	<b>Submitted</b>	
UMCDF-09-008-CONT(1N)	Update to contingency plan emergency coordinator list	08/18/09	
UMCDF-09-022-MPF(1R)	Metal parts furnace (MPF) additional shakedown hours	08/19/09	
UMCDF-09-006-CLOS(2)	Amend closure plan	09/25/09	
<b>APPROVALS/ACCEPTANCES</b>			
<i>(09-008 and 09-022 were also submitted during this period)</i>			
<b>PMR#</b>	<b>Title</b>	<b>Received</b>	<b>Decision</b>
UMCDF-09-008-CONT(1N)	Update to contingency plan emergency coordinator list	08/18/09	09/02/09
UMCDF-09-022-MPF(1R)	Metal parts furnace (MPF) additional shakedown hours	08/19/09	09/04/09

<b>IN PROCESS:</b> The following Permit Modification Notices and Permit Modification Requests are under DEQ review (includes 09-006 which was also submitted during this period)				
<b>PMR#</b>	<b>Title</b>	<b>Received</b>	<b>Public Comment Period Close</b>	<b>Target Decision/ Review Date</b>
<b>Requests</b>				
UMCDF-05-034-WAST(3)	Deletion of the dunnage incinerator and addition of the carbon micronization system	10/25/05	12/24/05 <sup>1</sup>	TBD
UMCDF-07-006-DFS(3TA)	Minimum temperature limit change on the deactivation furnace system	01/16/07	04/25/08 <sup>3</sup>	TBD
UMCDF-09-003-MISC(3)	Resubmittal of mustard ATBP	02/26/09	08/12/09 <sup>2</sup>	10/15/09
UMCDF-09-020-DMIL(1R)	Change in bulk drain station weight instrument operating range	07/01/09	N/A	09/30/09
UMCDF-09-006-CLOS(2)	Amend closure plan	09/25/09	11/24/09 <sup>1</sup>	12/24/09
<b>Notices</b>				
UMCDF-08-037-MISC(1N)	Annual procedures update	05/29/08	N/A	TBD
UMCDF-08-028-MISC(1N)	Redline annual update for general/ PAS Systems	11/26/08	N/A	TBD
UMCDF-09-001-MISC(1N)	Redline annual update-furnace system	01/21/09	N/A	TBD
UMCDF-09-010-MISC(1N)	Redline annual update for the brine reduction area, tank, and MISC systems	03/17/09	N/A	TBD
UMCDF-09-018-PAS(1N)	High-moisture automatic waste feed cut-off	04/21/09	N/A	09/30/09
UMCDF-09-016-MISC(1N)	Redline annual update for CHB, HVAC, and MISC Systems	05/22/09	N/A	TBD
UMCDF-09-017-MISC(1N)	Redline annual update for DMIL, munitions demilitarization building, and MISC systems	08/06/09	N/A	TBD
<sup>1</sup> Initial (permittee) public comment period. <sup>2</sup> Additional public comment period required/opened due to incompleteness of original Permit Modification Request submittal <sup>3</sup> DEQ (draft permit) public comment period.				

**UMCD PMR Activity:** None for the period August 7, 2009, through September 28, 2009

### **Significant Events at Other Demilitarization Facilities**

EPA announced August 31, 2009 that it accepted the clean closure of the Johnston Atoll Chemical Agent Disposal System. The closure, cleanup and dismantling effort lasted from May 2001 to January 2004.

To date, 64.3 percent of the national chemical agent stockpile tonnage has been destroyed.

### **Anniston Chemical Agent Disposal Facility, Alabama**

The Anniston facility has destroyed 59.1 percent of its total stockpile by agent weight. The Anniston facility began mustard processing on July 2, 2009, processing HT- and HD-mustard

4.2-inch mortars. As of September 16, 2009, the facility destroyed 22,162 mortars. Its mustard campaign may end in early 2012.

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

The Pine Bluff facility has destroyed 44.2 percent of its total stockpile by agent weight. The facility started mustard ton container processing December 7, 2008, and has processed 1,251 HT-mustard and 12 HD-mustard ton containers as of September 16, 2009.

Closure activities at the former BZ disposal building continue preparatory to demolition.

#### **Tooele Chemical Agent Disposal Facility, Utah**

Toole facility agent disposal is 83.4-percent complete. The Toole facility is treating mustard ton containers. As of September 16, 2009, 4,072 ton containers have been treated.

The facility is installing three sulfur-impregnated carbon filters as part of an expansion to the existing pollution abatement system. The filters will be used to capture mercury that may remain after incineration of mustard mortars and ton containers considered high-mercury by containing greater than one part per million of mercury.

#### **Newport Chemical Agent Disposal Facility, Indiana**

The Newport facility has completed agent disposal operations. It is the third site to complete operations, following Johnston Atoll Chemical Agent Disposal System in 2000 and Aberdeen Chemical Agent Disposal Facility in 2006.

The Newport facility will engage in closure activities over an 18- to 24-month period. The above-ground portion of the process auxiliary building has been demolished, and demolition of the foundation slab is ongoing. The facility conducted an unventilated monitoring test the week of August 23, 2009. Demolition of the utility building will begin after a successful unventilated monitoring test.

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

The Pueblo facility will use neutralization followed by biotreatment to destroy the 2,611-ton mustard stockpile of artillery and mortar projectiles. The overall design is complete and some construction is under way, but the facility is still designing and fabricating some site-specific equipment. The facility began testing of some of the special equipment in spring 2009 for the linear projectile and mortar disassembly system. Target date for startup is 2014.

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

Because of continuing schedule delays, the state of Colorado issued a hazardous waste compliance order in June 2008 mandating the destruction of chemical weapons at Pueblo by 2017. This deadline is four years ahead of the Department of Defense's latest schedule for destruction at the site, but matches congressional mandates that were put in force less than a year ago. The order indicates the Pueblo Chemical Depot has long been out of compliance with state hazardous waste regulations that limit the amount of time hazardous waste may be stored. The

Army is disputing the order. The state issued a permit October 17, 2008 that allows the project to build the remainder of the plant.

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

The Blue Grass facility will use neutralization followed by supercritical water oxidation to destroy the 524-ton stockpile of nerve and mustard agents. The facility will start chemical agent operations in 2017 and finish by 2023. The design work is 95 percent complete and should be final in 2010.

The Blue Grass facility neutralized three sarin ton containers representing 0.2 percent of the stockpile as part of Operation Swift Solution. When completed, the operational facilities will be shut down and the temporary structures and equipment will be shipped back to Aberdeen Proving Grounds.

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.

The metal parts treater, one of the specialty equipment items at the Blue Grass facility, is being fabricated at the Parsons facility in Pasco, Washington. The facility will test this and other site-specific equipment over a six-month period.

## **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

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