State of Oregon
Department of
Environmental
Quality

Umatilla Chemical Demilitarization Program
Status update
April 29-30, 2010 EQC meeting

Program news

Employee exposed to mustard agent. On Wednesday, March 17, 2010, two facility employees were conducting calibration maintenance work in the Upper Munitions Corridor of the Munitions Demilitarization Building. The workers were wearing protective clothing appropriate for the anticipated work hazard, an area in which liquid agent is not expected: masks, gloves, boots, aprons and cotton coveralls. At about 1 p.m., as the employees were exiting the working area, a mustard agent monitor set off an alarm in the airlock.

The workers' protective equipment and clothing were removed and the individuals were decontaminated. Medical evaluation at the facility clinic identified a red spot on the skin of one employee, which progressed over the following 24 hours to a blister.

On the same day of the incident, Washington Demilitarization Company, the facility's systems contractor, began a series of retraining meetings to emphasize operations and awareness of the hazards of mustard agent. On Thursday, March 18, 2010, Washington Demilitarization Company began a root-cause investigation into the incident. The root-cause investigation is being augmented by subject-matter experts from the U.S. Army Chemical Materials Agency headquarters and the U.S. Centers for Disease Control and Prevention. On Friday, March 19, 2010, the Army issued a press release indicating a potential worker agent exposure. On Monday, March 22, 2010, the Army issued a second press release confirming the worker's agent exposure. Facility management's determination that there was an exposure to mustard agent during the March 17 entry was supported by a review of plant activities, video records, agent monitoring, and by the worker exhibiting the clinical signs of abnormal skin redness followed by blistering. Subsequent laboratory analysis confirmed the employee's exposure to mustard agent.

The event occurred within engineering controls of the plant, and at no time was there danger to the public or the environment. The employee has been receiving medical evaluation and care since the incident occurred. The skin blister is healing well, and no additional medical treatment is anticipated beyond the normal healing process of the skin. The employee has not missed a scheduled day of work.

As a precaution, entries into the chemical processing areas have been upgraded to the highest levels of protective clothing pending further review. The facility has not processed any ton containers since the incident. The facility's decision to resume ton container processing will be made after the root-cause analysis team completes its work.

DEQ conditionally approves permit modification for burn trial. On March 24, 2010, DEQ issued a final decision to conditionally approve, with revisions, the permit modification request for RCRA mustard agent trial burn plan. Start of the trial burn will be dependent upon when the worker exposure root-cause investigation concludes and corrective actions have been implemented.

Agent processing at the Umatilla Chemical Agent Disposal Facility. The Umatilla Chemical Agent Disposal Facility has treated 71 ton containers since the last update report in February 2010. As of March 17, 2010, the facility has destroyed 218,198 munitions, which represents 99 percent of all Umatilla munitions and bulk containers and 42 percent of the original Umatilla stockpile by agent weight.

Mustard operations

The mustard agent campaign began June 4, 2009, and there were 2,635 ton mustard containers in the original stockpile. This represents 1 percent of all facility munitions and bulk containers and 63 percent of the original stockpile by agent weight. As of March 17, 2010, 229 containers have been treated containing 186 tons of mustard agent.

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 one-ton container, 156 VX spray tanks, 32,313 155mm VX projectiles, 3,752 8-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. The facility is treating secondary wastes produced as they are generated.

Umatilla Chemical Agent Disposal Facility permitting activity

January 29 through March 24, 2010

SUBMITTALS *(Includes 10-007, which was denied this period)*		
PMR	**Title**	**Submitted**
UMCDF-10-007-MISC(1N)	Annual Procedures Update	02/04/10
UMCDF-10-012-MPF(1R)	Metal Parts Furnace (MPF) 90% Feed Rate Demonstration	02/25/10
UMCDF-10-008-CONT(1N)	Annual Contingency Plan Update	03/04/10
UMCDF-10-009-CONT(1N)	Update to Contingency Plan Emergency Coordinator List	03/11/10
UMCDF-10-011-CONT(1N)	Update to Contingency Plan Emergency Coordinator	03/17/10

DENIALS/REJECTIONS *(10-007 was also submitted this period)*			
PMR#	**Title**	**Received**	**Decn**
UMCDF-10-007-MISC(1N)	Annual Procedures Update	02/04/10	02/12/10

APPROVALS/ACCEPTANCES			
PMR#	**Title**	**Received**	**Decn**
UMCDF-10-001-MPF(1R)	Metal Parts Furnace (PMR) Additional Shakedown Hours	01/20/10	02/02/10
UMCDF-09-025-MPF(2TA)	MPF DAL Water Cooling and Request for TAR	10/12/09	02/26/10
UMCDF-08-028-MISC(1N)	Redline Annual Update for General/PAS Systems	11/26/08	03/08/10
UMCDF-09-001-MISC(1N)	Redline Annual Update-Furnace System	01/21/09	03/08/10
UMCDF-09-003-MISC(3)	Resubmittal of HD ATBP	02/26/09	03/24/10

IN PROCESS: The following permit modification notices and permit modification requests are under DEQ review *(includes 10-008, 10-009, 10-011, and 10-012 which were also submitted during this period)*

PMR#	Title	Received	Public Comment Period Close	Target Decision/ Review Date
Requests				
UMCDF-07-006-DFS(3TA)	Minimum temperature limit change on the deactivation furnace system	01/16/07	04/25/08[2]	TBD
UMCDF-09-006-CLOS(2)	Amend closure plan	09/25/09	11/24/09[1]	02/25/10
UMCDF-09-012-WAP(2)	Spent carbon waste determination	10/28/09	12/28/09[1]	03/30/10
UMCDF-10-012-MPF(1R)	MPF 90% feed rate demonstration	02/25/10	N/A	Review Complete
Notices				
UMCDF-08-037-MISC(1N)	Annual procedures update	05/29/08	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	TBD
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
UMCDF-09-021-MISC(1N)	Redline annual update for general, PAS, and MISC systems	10/13/09	N/A	TBD
UMCDF-09-023-MISC(1N)	Redline annual update for furnace and miscellaneous systems	12/21/09	N/A	TBD

IN PROCESS: The following permit modification notices and permit modification requests are under DEQ review *(includes 10-008, 10-009, 10-011, and 10-012 which were also submitted during this period)*				
PMR#	**Title**	**Received**	**Public Comment Period Close**	**Target Decision/ Review Date**
UMCDF-10-008-CONT(1N)	Annual contingency plan update	03/04/10	N/A	05/03/10
UMCDF-10-009-CONT(1N)	Update to contingency plan emergency coordinator list	03/11/10	N/A	05/12/10
UMCDF-10-011-CONT(1N)	Update to contingency plan emergency coordinator	03/17/10	N/A	05/17/10
[1] Initial (permittee) public comment period. [2] Department (draft permit) public comment period.				

Umatilla Chemical Depot permitting activity. None for the period January 29 through March 24, 2010.

Significant events at other demilitarization facilities. As of November 15, 2009, 68.4 percent of the national chemical agent stockpile tonnage has been destroyed.

Tooele Chemical Agent Disposal Facility, Utah. As of March 10, 2010, the Tooele facility had treated 4,682 ton HD mustard containers, 24,289 HT mustard mortars and 54,453 155mm projectiles. The Tooele facility has destroyed 87.9 percent of its original stockpile tonnage.

On Jan. 12, 2010, the Tooele facility resumed processing 4.2-inch mustard mortars. This campaign had been suspended April 2009 when analysis indicated higher-than-expected mercury levels. The new $33 million carbon filter system, using sulfur-impregnated carbon, is being used to capture mercury in the exhaust stream.

Deseret Chemical Depot workers and a special U.S. Army technical team began a two- to three-month project on February 17, 2010, to X-ray more than 300 overpacked projectiles and mortars for destruction using an explosive detonation technology. The X-rays will help URS subcontractor Versar, Inc. gain a better understanding of the overpacked munitions as they prepare for explosive detonation technology operations, which are slated to begin in early 2011. The Tooele facility has 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 on July 2, 2009. As of March 10, 2010, the facility has destroyed 83,561 HT mustard and 18,397 HD mustard mortars. The Anniston facility has destroyed 69.4 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 Dec. 7, 2008, and had processed 2,382 HT and three HD ton containers as of March 10, 2010. The facility has destroyed 70.6 percent of its original tonnage.

The Pine Bluff facility continues a scheduled five-week maintenance outage, with the liquid incinerator and metal parts furnace systems shut down. During the outage, the facility rebricked the liquid incinerator, inspected the metal parts furnace, and installed a heel transfer system. The outage began March 1 and will last until April 5, 2010.

The facility started demolition of the former BZ disposal building Oct 31, 2009, and completed demolition Jan. 11, 2010.

Newport Chemical Agent Disposal Facility, Indiana. Newport 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 final 1X waste was shipped offsite Oct. 22, 2009, to the Veolia facility in Port Arthur, Texas.

The contractor notified the Army that it has completed the physical facility closure. Remaining administrative closure activities, including records archiving, property disposition, and contracts closeout, continue. The Army Chemical Materials Agency intends to 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 or 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 98 percent complete and should be final in September 2010, following a recent four-month extension. The first structural steel for the control and support building was placed Sept. 17, 2009. 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, all hydrolysates will be processed onsite. When treatment has been completed, the operational facilities will be shut down and the temporary structures and equipment will be shipped back 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. The facility has completed the overall design and some construction is under way, but site-specific equipment is still being designed and fabricated.

Some special equipment was tested in spring 2009. The Pueblo facility extended its startup date from 2014 to January 2015, with a December 2017 completion date.

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.

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

PRESS RELEASE

U.S. ARMY CHEMICAL MATERIALS AGENCY

Umatilla Chemical Depot

FOR IMMEDIATE RELEASE

March 19, 2010
2 p.m..

FOR MORE INFORMATION CONTACT

Public Affairs Office
Greg Mahall, (410) 652-8741

Disposal facility worker may have come into contact with mustard agent

Umatilla Chemical Depot, Hermiston, Ore. -- An analysis is under way to determine if a Umatilla Chemical Agent Disposal Facility worker's skin blister was caused by contact with mustard agent.

The facility is currently processing mustard agent ton containers in preparation for the Agent Trial Burns. On Wednesday, March 17, two maintenance employees, wearing the appropriate protective clothing for the area consisting of masks, gloves, boots, aprons and cotton coveralls, were working on equipment calibration in the facility's Munitions Demilitarization Building. At about 1 p.m, as the employees were exiting the working area, an agent monitor registered with low-level mustard readings in the airlock.

Following standard procedures, the workers' protective equipment and clothing were removed and the individuals were decontaminated. Medical evaluation at the facility's clinic identified a red spot on the skin of one employee, which progressed over the following 24 hours to a blister.

"Safety of our employees is our No. 1 priority," said Mike Strong, the Army Site Project Manager at the Umatilla Chemical Agent Disposal Facility. "We will fully evaluate and assess the events that led to this incident as we provide appropriate care for the employee."

At no time was there danger to the public or the environment, Strong said.

At this time, it has not been determined whether the skin blister may be a symptom of potential mustard agent exposure or has another cause. As part of a medical analysis to determine cause, the worker's blood has been drawn and is being prepared to be sent to an independent lab for testing.

The employee has returned to work, with no other adverse effects. An analysis is under way to determine the root cause of the event. As a precaution, all entries into the chemical processing areas have been upgraded to the highest levels of protective clothing pending further review.

PRESS RELEASE

U.S. ARMY CHEMICAL MATERIALS AGENCY

Umatilla Chemical Depot

FOR IMMEDIATE RELEASE

March 22, 2010
12 p.m.

FOR MORE INFORMATION CONTACT

CMA Public Affairs Office
Greg Mahall, (410) 652-8741

Worker Exposure Status Update

Umatilla Chemical Depot, Hermiston, Ore. – The following is an update on a worker's exposure to mustard agent March 17 while doing maintenance in the Umatilla Chemical Agent Disposal Facility's main processing building.

- The employee has been receiving medical evaluation and care since the incident occurred. The skin blister is healing well and no additional medical treatment or intervention is anticipated. The employee has not missed a scheduled day of work.
- Project leadership has determined that there was an exposure to mustard agent during the March 17 entry. This conclusion is supported by a review of plant activities, video records and agent monitoring, and by the worker showing the clinical signs of abnormal skin redness followed by blistering.
- The worker's blood and urine samples will be analyzed in two off-site laboratories in an attempt to provide independent confirmation of agent exposure. Lab results are expected to be made available 7-10 days following arrival at the laboratories.
- A root-cause analysis of the event continues. Subject matter experts from the U.S. Army Chemical Materials Agency headquarters at Aberdeen, Md., and the U.S. Centers for Disease Control and Prevention in Atlanta, Ga., are on-site to assist.
- Meetings have been ongoing since March 17 with plant employees to share information about the incident. All entries into the facility's toxic areas remain upgraded to the highest protection level, pending completion of ongoing reviews and subsequent actions.
- "This is a reminder that mustard agent is an extremely hazardous substance," said Mike Strong, the U.S. Army Site Project Manager at the Umatilla Chemical Agent Disposal Facility. "It's absolutely critical that we take care of our employees and take measures to prevent this from happening again."

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