

# Fact Sheet – Umatilla Chemical Agent Disposal Facility



State of Oregon  
Department of  
Environmental  
Quality

## Trial Burn Operations

### Background

In February 1997, the Environmental Quality Commission, the DEQ's governing body, issued environmental permits to the U.S. Army to build and operate the Umatilla Chemical Agent Disposal Facility (UMCDF) to destroy the chemical weapons stockpile stored at the Umatilla Chemical Depot (UMCD). The disposal facility includes three different types of incinerators at the Umatilla Chemical Depot near Hermiston, Oregon.

The Umatilla Chemical Depot stored two nerve agents and a blister agent (called "mustard") in liquid form. All of the chemical warfare agents are highly toxic. The nerve agents (GB and VX) are contained in munitions, such as rockets, projectiles and land mines. They are also contained in large containers, such as spray tanks, bombs, and "ton containers." Blister agent HD (called "mustard") is only stored in ton containers at UMCD. Disposal of the depot stockpile began in September 2004.

### What is a trial burn?

A trial burn is a test of an incinerator's ability to meet all applicable performance standards when burning a waste under a specific set of operating conditions. Usually, the trial burn conditions are chosen to reflect the most difficult conditions that will be seen during normal operations. The UMCDF trial burns will be designed to provide data that demonstrate the incinerators' capabilities. Because of the extreme toxicity of the chemical warfare agents, UMCDF had to first demonstrate the performance of each of the incinerators by conducting a trial burn using "surrogate" materials.

### What are surrogate materials?

Surrogate materials are chemicals that are similar to chemical agent, but not as toxic. For incineration tests, surrogate materials are chosen that are considered more difficult to burn. Although surrogate testing operations are

considered "hazardous waste operations" subject to the requirements of the UMCDF Permit, their purpose within the overall function of UMCDF was to serve as the final testing phase demonstrating the facility's readiness for chemical agent operations. Successful demonstration of furnace operations during surrogate trial burns was required before UMCDF was considered ready to move to trial burns with chemical agent.

### What happens during a trial burn?

During trial burns surrogate materials are burned at rates that equal or exceed the rates at which real wastes are burned in normal operation. As burning continues, UMCDF will measure waste feed rates, levels of carbon monoxide and particulate in the stack emissions, combustion temperature, combustion gas velocity, and other parameters. Destruction and Removal Efficiency (DRE) for organic material (such as chemical agent) will be determined during trial burns. UMCDF must also determine the metals removal efficiency by adding certain metals (such as mercury and chromium) to the surrogate mixture that are expected to be in the chemical agents.

A trial burn is not a single test but rather a series of tests conducted under different operating conditions. For example, UMCDF conducted tests at different incinerator temperatures. At least three successful test runs are required under each test condition. If an incinerator fails to meet performance standards during the surrogate testing, the incinerator design, the pollution abatement system and/or operational parameters must be modified and the trial burn repeated. If the trial burn data indicate compliance with performance standards under some, but not all, of the tested operating conditions, UMCDF may choose to repeat the trial burn. If the tests are not repeated, UMCDF may have to operate the incinerator only within the restricted range of conditions that demonstrated compliance with performance standards.

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## **Does a trial burn pose a serious risk to human health and the environment?**

No. During the trial burn the incinerator only operates under conditions that are expected to result in the incinerator meeting the performance standards approved by the DEQ. Although it is possible that an incinerator may fail to meet some performance standards during a trial burn, the risk to the environment and the public will be minimal because of the short duration of these tests.

To ensure that trial burns will be properly planned and executed, UMCDF is required to develop detailed trial burn plans for each type of furnace.

The trial burn plan proposes the surrogate material feed rates and other operating conditions for the trial burn. It also provides a description of all emission control equipment to be used, and explains the procedures for stopping the waste feed, shutting down the incinerator, and controlling emissions in the event of any problems.

UMCDF submitted trial burn plans for the surrogate testing of each of the three installed incinerator types. DEQ reviewed the plans submitted for each incinerator and subsequent public comments. The trial burn plans are not approved unless, in DEQ's judgment, the incinerator can be expected to meet all standards throughout the trial burn. This includes assurance that the level of incineration performance will not pose a hazard to health or the environment.

Surrogate Trial Burns were begun in early 2003 and have been completed for the four incinerators at UMCDF: Liquid Incinerator 1, Liquid Incinerator 2, Deactivation Furnace System and Metal Parts Furnace.

GB agent Liquid Incinerator 1 shakedown runs began in October 2004, followed by GB Agent Trial Burns in June and July 2005 for Liquid Incinerator 1 and the Deactivation Furnace, in March 2006 for the Metal Parts Furnace, and June 2006 for Liquid Incinerator 2. The shakedown runs for processing secondary waste in the Metal Parts Furnace began in October 2006, and the secondary waste trial burn was completed in January 2007.

## **Where to get more information**

Contact the DEQ office in Hermiston, 256 East Hurlburt (Suite 105) or call (541) 567-8297 (toll-free in Oregon 1-800-452-4011).

## **Alternative formats**

*Alternative formats of this document can be made available. Contact DEQ at (541) 567-8297. People with hearing impairment may call DEQ's TTY at (503) 229-6993.*