

**Part 2 of 2**  
**OREGON**  
**ENVIRONMENTAL QUALITY**  
**COMMISSION MEETING**  
**MATERIALS 05/20/2004**



**State of Oregon**  
**Department of**  
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**Quality**

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State of Oregon  
Department of Environmental Quality

Memorandum

**Date:** April 29, 2004  
**To:** Environmental Quality Commission  
**From:** Stephanie Hallock, Director *A. Hallock*  
**Subject:** Agenda Item H, Action Item: Decision on Modification of the Umatilla Chemical Agent Disposal Facility (UMCDF) Hazardous Waste Permit to Change the Incinerator Emissions Compliance Point  
May 20-21, 2004 EQC Meeting

**Department Recommendation** The Department recommends the Commission approve the Class 3 Permit Modification Request (PMR) UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point" as described in Alternative 1 of this staff report and shown in Attachment A.

The Department also recommends that the Commission direct the Department to prepare final Permit Modification documents (including public notice of this decision) and a final Order for the Chair's signature that reflect any revisions directed by the Commission during today's discussion.

Approval of this PMR will modify the Umatilla Chemical Agent Disposal Facility (UMCDF) Hazardous Waste Storage and Treatment Permit No. ORQ 000 009 431 (HW Permit) as proposed by the Permittees in a request submitted to the Department in September, 2003. The Permittees requested that the Department determine compliance with HW Permit limits using the air pollutant levels as measured after the carbon filter system, the final stage of the UMCDF incinerator pollution abatement systems. As originally issued, the UMCDF HW Permit required that emissions compliance be determined before flue gases passed through the carbon filters.

The modification will revise HW Permit Conditions VI.A.1.vi. and VII.A.8. as described on Page 3 and shown in Attachment A. Attachment B includes a Draft Order for Commission discussion ("Draft Findings and Conclusions of the Commission and Order").

**Background** On September 16, 2003 the United States Army's Program Manager for Elimination of Chemical Weapons (PM ECW) submitted a Class 3 Permit Modification Request (PMR) UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point." The PMR requested that the Department determine compliance with HW Permit limits using the air pollutant levels as measured after the carbon filter system, the final stage of



each incinerator's pollution abatement system (the carbon filter system is referred to as the "PFS").

The proposed modification will revise two HW Permit Conditions, one in Module VI ("Short Term Incineration - Shakedown, Trial Burn And Post-Trial Burn") and one in Module VII ("Normal Operations"). Each of the two conditions (VI.A.1.vi. and VII.A.8.) contain essentially the same requirement, that "each incinerator shall meet the applicable performance standards ...before entering each incinerator's carbon filter system." The PMR proposes to change the phrase "before entering" to "after exiting" the carbon filter system. No other changes to the HW Permit are proposed. Attachment A shows the affected Permit Conditions and the proposed changes.

In effect, this change will allow UMCDF to take credit for the ability of the PFS to remove additional pollutants from the incinerator gas streams. The rationale for this change reflects not only new information concerning the value and ability of the PFS to reduce emissions, but also reflects changes in applicable standards since the UMCDF HW Permit was first issued.

A description of the PFS and operating requirements in the UMCDF HW Permit is provided below. The following "History" section provides a discussion of the background that led to the original requirement that compliance be determined before the PFS. Please see the Key Issues and Rationale sections for further discussion of why the Department believes it is appropriate to change the point of compliance that was established when the HW Permit was issued seven years ago.

**Description of the PFS and the Operating Requirements in the UMCDF HW Permit**

Each UMCDF incinerator has a multi-stage pollution abatement system consisting of quench tower, venturi scrubber, packed bed scrubber tower, mist eliminator vessel, gas reheater, and a carbon filter system (PFS). There is a large blower located after the PFS that pulls the exhaust gases from the furnace (referred to as "induced draft") through the pollution abatement system. The cleaned gases from each furnace then flow to a common stack that is approximately 100 feet high and five feet in diameter at the top. Emissions are released to the atmosphere from the top of the common stack.

During hazardous waste operations UMCDF is required to continuously monitor numerous pollution abatement system and PFS operating parameters. Operating parameters include such things as the pressure drop across the venturi, the flow of water to the scrubber tower, and the temperature and moisture of the gases entering the PFS. Furnace parameters such as temperature, flow, feed rates, and pressure are also continuously monitored during operations.

A schematic of the pollution abatement system is shown on page C-9 of

Attachment C (however, please note that the arrow indicating the “current compliance point” on the schematic should actually be positioned on the other side of the reheater).

The gas reheater is a component of the PFS. It is a natural gas-fired inline burner that raises the temperature of the flue gases above the dew point to prevent moisture from condensing on the carbon filters. Each PFS consists of a bank of prefilters, a bank of high-efficiency particulate air (HEPA) filters, two carbon beds in series, and a final bank of HEPA filters. The current “compliance point” for emissions measurement is after the gas reheater, but before the PFS.

If furnace or pollution abatement system operating parameters are not kept within the ranges specified in UMCDF’s permits, an Automatic Waste Feed Cutoff (AWFCO) is triggered and feed to the affected furnace is immediately stopped. Waste feed may not resume until the furnace and its pollution abatement systems are back in compliance with allowed operating ranges.

Excessive temperature could pose a fire hazard within the PFS and excessive moisture could reduce the carbon’s effectiveness. The system includes the capability to activate a PFS “bypass” to redirect gas flow around the PFS if sensors indicate that gas temperature or moisture limits are being exceeded. Opening of the PFS bypass triggers an AWFCO.

The UMCDF Hazardous Waste Permit includes requirements to ensure the long-term reliability and performance of the PFS, such as monitoring of the carbon to ensure adequate adsorption capacity remains. The PFS must be online and operational at all times that hazardous waste is being fed into a furnace.

In addition to the furnace and operating parameters, the gas flow from each furnace is continuously monitored for carbon monoxide, oxygen, and chemical agent. Chemical agent is monitored before and after the PFS of each furnace, in addition to the continuous monitoring at the common stack.

**History of the  
Pollution  
Abatement  
System Carbon  
Filter System  
(PFS) at Umatilla**

There is a significant amount of Commission history and public involvement with the original decision to require the inclusion of the carbon filters at Umatilla. The decision was made at a time when the Army had only a “design concept” for the PFS and was still unsure whether it would actually be installed at UMCDF.

An annotated history of the significant programmatic events and regulatory activities related to the PFS is included as Attachment I (all references cited in Attachment I are available upon request). The following is a summary of events leading up to the current proposal to modify the HW Permit to remove the requirement that was imposed seven years ago when the HW Permit was



first issued.

In 1984 the National Research Council (NRC) endorsed the U.S. Army's selection of incineration to dispose of the chemical weapon stockpiles located around the country. In the ensuing 10 years the Army submitted hazardous waste permit applications to several states with chemical weapons stockpiles, including Oregon. The NRC continued ongoing review of the Army's stockpile disposal program. In 1994 the NRC issued a new report that affirmed the earlier endorsement of incineration, but also recommended that the Army conduct site-specific evaluations of the risks and benefits of installing activated charcoal filter beds on the incinerator pollution abatement systems.

In early 1995 the Army responded to the NRC recommendation by adding a preliminary PFS carbon filter design to the UMCDF permit application that was then under Department review. However, because the PFS design was so preliminary, and there was significant uncertainty about whether the PFS would actually be installed, the draft UMCDF HW Permit issued for public comment in April, 1996 did not include any specific permit conditions related to the PFS. In fact, as late as July 1996 the Army still had not committed to installing the PFS at Umatilla. An Army representative told the Commission that it was evaluating the feasibility of the design and site-specific costs and benefits. Through the rest of 1996 there were numerous public comment opportunities and Commission work sessions on the proposed facility. The Commission repeatedly heard concern from the public and environmental groups about dioxin and chemical agent emissions, especially the potential for excess emissions during incinerator "upset" conditions.

Expert testimony to the Commission indicated that the UMCDF incinerators had all of the design and operating features necessary to minimize the formation of dioxin during the combustion process. However, testimony also indicated that if dioxin compounds were formed during combustion then carbon filtration of the flue gases would be "state of the art" for controlling dioxin emissions. The Commission also heard that fixed bed carbon filters would have the additional benefit of removing mercury vapor and trace amounts of chemical agent, and in fact would provide a significant buffer capacity for a wide variety of compounds, even in the event of a catastrophic release.

Ultimately, the Commission decided to require the Army to install and operate the PFS at UMCDF. In late 1996 the Commission directed the Department to add a HW Permit condition to install the PFS at Umatilla and to obtain Commission approval for any proposal to remove the PFS or any other component of the pollution abatement system. In February 1997, in its Order granting the HW permit, the Commission stated that "...the Army's



proposed incineration technology satisfies the requirements for use of best available technology for destruction of agent at Umatilla. With the inclusion of carbon filters the proposed incineration technology will also employ the highest and best practicable emissions control technology.”<sup>1</sup>

The 1997 Order included a listing of all permit conditions added to the HW Permit at Commission direction, including three conditions related to the PFS. Attachment J includes a partial copy of the 1997 Order. The conditions added to the HW Permit related to the PFS begin on page J-40.

In December 1998 a ruling by the Multnomah County Circuit Court in a case known as “GASP I”<sup>2</sup> required the Commission to re-visit the issue of the PFS. The Court remanded the February 1997 Order to the Commission to determine what role the PFS played in the Commission’s finding that incineration was “Best Available Technology” for disposing of the chemical weapons stockpile at the Umatilla Chemical Depot.

The Commission responded with a “Clarifying Order” in March, 1999 that stated that the Commission “did not rely on [the PFS] in finding that the baseline incineration technology is the best available technology for destruction of agent at Umatilla,” and that the Commission required the inclusion of the PFS for “an additional measure of safety.” At the time of this Order four of the five members that had originally approved the HW Permit were still members of the Commission. A copy of the March 1999 “Order Clarifying Permit Decision” is included here as Attachment K.

The Circuit Court accepted the Clarifying Order, but expressed doubt that there was sufficient information in the record to demonstrate that the PFS would work as designed. The Commission agreed to hold additional proceedings to gather new information about the PFS and decide whether it should be retained in the UMCDF design as the Commission had required when the HW Permit was issued. In late 1999 the Commission opened a public comment period and held two work sessions related to the PFS.

In November 1999 the Commission decided to retain the PFS in the UMCDF design. There was a considerable amount of research and public comment on the issue—a partial copy of the staff report from the November 19, 1999 meeting of the EQC (including the Executive Summary of an NRC report on carbon filtration) is included here as Attachment L.

It is clear from the Department’s review that even in late 1999 none of the agencies involved in the stockpile disposal program believed that UMCDF would have any difficulty meeting the existing regulatory limits, even with the requirement that compliance be determined before the PFS. There is

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<sup>1</sup> *Findings of the Commission and Order*, February 1997, Paragraph 75 (See Attachment J)

<sup>2</sup> *GASP, et al. v. Environmental Quality Commission, et al.*, Multnomah County Circuit Court Case No. 9708-01659, filed August, 1997.

occasional mention of new Clean Air Act emission regulations on the horizon that might require credit for the carbon filters. However, the “Maximum Achievable Control Technology” (MACT) standards under discussion were proposed air standards that would apply to emissions after the PFS.

There are statements on the record in testimony before the Commission from Department staff, Army representatives, the Army’s contractor, and members of the National Research Council, all indicating belief that the UMCDF would be able to meet the existing regulatory standards even without the PFS.

Construction of UMCDF was completed in 2002 and systemization and testing activities commenced. The first “surrogate” trial burn was completed on Liquid Incinerator 1 (LIC1) in February 2003 and test results showed it passed all the applicable emission and performance standards—both “before” and “after” the PFS (See attachment N for selected test results). The first sign of potential problems with meeting some HW Permit limits showed up shortly after that, when pre-trial burn testing of the Deactivation Furnace System (DFS) commenced. A “mini-burn” on the DFS conducted in April 2003 indicated that five of the metals that had been “spiked” into the surrogate feed<sup>3</sup> had exceeded the permitted emission rates (the particulate emission rate was also exceeded).

Throughout the summer of 2003 UMCDF continued to conduct tests and work with the DFS to identify ways to reduce the metal emissions. The furnace was tuned, the feed composition was adjusted several times, and operational parameters were changed to improve metals removal efficiency. It was clear by the end of the summer that with the existing surrogate and composition of metals mix the only way to pass some of the metal emission limits in the HW Permit (before the carbon filters) was to severely restrict the feed rate of the metals. This would result in a corresponding restriction to the feed rate of M-55 rockets to the DFS when it came time to start agent operations. However, it was also clear that the restrictive feed rate would be alleviated if UMCDF was allowed to take credit for the improvement in metals removal efficiency afforded by the PFS.

In September of 2003 the UMCDF Permittees decided to submit the permit modification request before the Commission today that would remove the requirement that the incinerators meet HW Permit emission standards before the PFS. Shortly after the permit modification request was submitted UMCDF conducted a surrogate trial burn on the DFS.

As expected, the emissions of some metals (antimony, cadmium, lead, and thallium) exceeded permitted emission limits when the PFS was offline, even

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<sup>3</sup> Metals are added (“spiked”) to the surrogate feed to simulate the metal content in liquid agent and the munitions.



when using a simulated rocket feed rate that was only 1/4 of the permitted feed rate. Results from the surrogate trial burns of the LIC1 and DFS are presented in Attachment N, as are results of similar tests (with similar results) conducted at the Anniston Chemical Agent Disposal Facility. Further discussion of surrogate test results is included in the Key Issues section.

**Public Comment  
Opportunities**

As required by the Resource Conservation Recovery Act (RCRA) regulations (as adopted by Oregon Administrative Rules) for a Class 3 Permit Modification Request, an initial public comment period of 60 days was held from September 17 through November 17, 2003. The UMCDF Permittees held a public information meeting on October 21, 2003 in Hermiston, Oregon. The Department issued a "Notice of Deficiency" (NOD) on November 5, 2003 requesting additional information from the Permittees. The Permittees responded to the NOD on December 1, 2003. At the close of the comment period the Department had received eight comments.

After reviewing the public comments and the Permittees' response to the NOD, the Department made a tentative decision to recommend that the Commission approve the proposed modification. The Department then opened a 45-day public comment period on the proposed revision to the HW Permit (the Public Notice and RCRA Fact Sheet are included in Attachment C). The comment period was held from January 14 through close of business on March 1, 2004.

On February 5, 2004 the Commission held a public hearing on the matter during its regularly scheduled meeting in Portland. Four persons (two who represented the same organization) offered oral testimony during the hearing. The Department also held a public hearing in Hermiston on February 18 before a public hearings officer. Fifteen people offered testimony at that hearing. The transcript of the testimony offered to the Commission on February 5 is included as Attachment D. The transcript from the February 18 hearing in Hermiston is included as Attachment E.

The Department reviewed all of the oral and written comments received during the comment period. Attachment F includes a summary of the public comments received and the Department's responses to those comments. The Department received eight written comments during the first comment period (September 17-November 17, 2003). In addition to the oral comments received during the two hearings mentioned above, an additional 10 written comments were received by the close of the second comment period on March 1, 2004.

Copies of all written comments are included here in Attachment G. (The written comments received during the first public comment period were



transmitted to the Commission on January 27, 2004.) The UMCDF Permittees sent the Department a letter with their "Response to Concerns" on February 26, 2004. The Permittees provided UMCDF's response to public concerns expressed during the first comment period and during oral testimony at the two hearings held in February (Attachment H).

#### **Key Issues**

The Department has reviewed the permit modification, the Permittees' response to the Notice of Deficiency, and both oral and written public comments, and identified five Key Issues it believes are significant to this decision. Each of the Key Issues is discussed below. Additional (and in some cases more detailed) discussion of these Key Issues, and other issues identified by commenters, is included in Attachment F (Public Comment Summary and Department Responses).

Key Issues include 1) whether the inability of the DFS to meet some emission limits indicates that the Department and the Commission were misinformed and/or the furnace is not operating properly; 2) the maturity of the PFS design and whether it is "proven" technology; 3) the need for the Department and Commission to base decisions on the most current and technically sound information available; 4) the potential impact of restricting the rocket feed rate to meet the original permit requirement; and 5) the need for the Commission to fulfill past commitments to the community.

#### **Key Issue #1**

*Some commenters believe that the inability of the DFS to meet some emission limits without taking credit for the additional reduction provided by the PFS is an indicator that the DFS does not operate properly and/or that the Commission and the Department were misinformed during the permitting process.*

The Department does not believe that it was misinformed or misled during the permitting process about the capability of the UMCDF incinerators to perform as designed. Test results generated to date indicate that the incinerators at UMCDF actually perform quite well and are able to achieve performance standards and meet virtually all emission limits even without taking credit for additional emission reductions provided by the PFS.

Results from the surrogate trial burns (STBs) on Liquid Incinerator 1 (LIC1) and preliminary results from the Metal Parts Furnace (MPF) STB indicate that the LIC1 and MPF are able to meet all performance standards and all emission limits even when those emissions are measured before the PFS. For example, emissions of dioxins during the LIC1 STB, both before and after the PFS, were not only well below the maximum permitted limit, but also below the analytical detection limit. The detection limit is 100 times lower

than the permitted limit. LIC2 has not yet undergone an STB but is expected to have similar results. Particulate emissions during the LIC1 STB were an order of magnitude below the permitted limit, both before and after the PFS.

Particulate emissions during the DFS STB were less than 5% of the permitted limit when the PFS was offline, and barely 1% of the limit during the PFS online condition, even with the greater feed rate. Dioxin emissions were below detection limits during the DFS tests also. The DFS met all of its emission limits with the PFS offline, with the exception of four metals (antimony, cadmium, lead, and thallium). However, when the PFS was online the DFS was able to meet all of its metal emission limits, even when some metals were fed at much higher rates than the offline test. On average, the PFS resulted in a 97% reduction in the emissions of the four metals that exceeded permitted limits when the PFS was offline. The Anniston Chemical Agent Disposal Facility, a virtually identical facility to UMCDF, had very similar results during its surrogate trial burns. See Attachment N for test results.

UMCDF's inability to meet HW Permit limits without taking credit for the PFS is apparently limited to only a few regulated metals and to only one of the four incinerators (the DFS). Overall, the Department believes that the incinerators are performing as designed and well within regulatory standards. However, the Department is not recommending that the proposed change be limited only to the DFS. The Department believes that the modification before you today should apply to all emission standards and all furnaces at UMCDF.

**Key Issue #2**

*Some commenters believe strongly that the PFS is not a proven and demonstrated technology and poses safety and operational risks that have not been evaluated. Consequently, UMCDF should not be allowed to rely upon the PFS to meet standards.*

The Department acknowledges that this concern was of greater significance when the HW Permit was approved in 1997. At the time the HW Permit was issued in early 1997, the UMCDF PFS was a very preliminary design and there were very little data in the record that specifically demonstrated the feasibility of using carbon filters to treat incinerator exhaust gas.

However, carbon filtration for the purposes of cleaning air streams has a long history of use in many industries and is in fact a proven and effective method of capturing organic compounds. The Department has reviewed numerous documents related to design, performance, and safety of carbon filter technology over the last six years. The design and operation of the UMCDF PFS has been updated and upgraded. Automatic Waste Feed Cutoffs and other operating requirements in the UMCDF HW Permit prohibit the feeding of hazardous wastes (including chemical agent and



munitions) into an incinerator if its pollution abatement system is not fully operational. The UMCDF HW Permit also includes numerous requirements pertaining to items such as monitoring of the carbon to ensure adequate adsorption capacity and specific operating requirements related to inlet moisture and temperature limitation.

In addition to the operations to date at UMCDF, the PFS is in use at the Anniston, Alabama and Pine Bluff, Arkansas chemical demilitarization facilities. The emissions compliance point at the Anniston and Pine Bluff facilities is after the PFS. Neither facility is apparently having any difficulty with the operation of the PFS. The Department believes that the carbon filter units have fully demonstrated their effectiveness in reducing emissions to the atmosphere and can be relied upon to provide additional emissions control.

**Key Issue #3**

*The Department and the Commission should base decisions on sound technical reasons that reflect the most current information available and reflect actual operating conditions and regulatory schemes that apply to UMCDF.*

The Department concurs with commenters that decisions should be based on the best and most recent information available concerning actual on-site conditions. The Umatilla Chemical Agent Disposal Facility is no longer a design contained in reams of documents and drawings—it is now a functional, operating full-scale facility poised to start destruction of a chemical weapons stockpile. Many of the decisions that previously had to be based on extrapolations, engineering calculations, performance predictions, and scientific theories can now be based on empirical observations, analytical data, and operation test results.

Regulatory control of air emissions from combustion units has traditionally been applied to the point that the emissions are released to the atmosphere because it is those emissions that might affect human health and the environment. The Department is not aware of any other facility with a similar requirement to meet emissions limits at a point before the final stage of its pollution abatement system. The PFS on each of the UMCDF incinerators is an integral part of its overall pollution abatement system and has proven to be effective in reducing emissions to the atmosphere.

The PFS is a necessary component for UMCDF to achieve compliance with the Maximum Achievable Control Technology (MACT) regulations that have been put into effect since the time that the original permit was issued. MACT regulations allow UMCDF to use the PFS to demonstrate compliance. Because the UMCDF HW Permit requires compliance be demonstrated before the PFS, UMCDF now has one compliance point for the new MACT regulations and a different compliance point for the RCRA



regulations. However, the RCRA regulations, like MACT, would allow the use of the PFS to demonstrate compliance.

The Department believes it is sound science, and sound policy, to encourage facilities to install the best pollution control technology possible. To require the installation of a very expensive piece of pollution control technology and then not allow the facility to take credit for its emission-reducing effects has the potential of deterring others from installing similar controls. The Department would also like to avoid the need for repeated test periods during live agent operations in which the PFS must be taken offline in order to determine the level of emissions that are entering the carbon filters.

The Department understands why the Commission imposed the original requirement in 1997. However, based on new knowledge, new regulations, and actual operating experience, it is an appropriate and technically sound decision to remove the requirement that UMCDF demonstrate emissions compliance before the PFS.

**Key Issue #4**

*Restricting the rocket feed rate to the DFS to meet the current requirement will prolong the destruction of the rockets by 64 months.*

If this permit modification is not approved, the only way for UMCDF to meet the metal emission limits before the PFS is to severely restrict the feed rate of rockets to the DFS (which would result in a corresponding reduction in metal emission rates). The Permittees estimate that disposal of the stockpile would take 64 months longer than the current estimate, even when adjustments are made to the processing schedule to maximize the use of other furnaces to destroy other munitions during the rocket destruction campaign.

Most commenters supporting this permit modification specifically mentioned that they wanted the chemical weapons stockpile destroyed as soon as possible and did not support a decision that will cause "needless" delay. Several commenters pointed out that the carbon filters are part of the system and were confused why UMCDF would not be judged by the emissions being released to the atmosphere, not the emissions going into the carbon filters. As one commenter put it:

"...if your job is to ensure the public that the emissions are safe, then it stands to reason that the testing needs to be done with the results reflecting the actual quality of air released. To test prior to the completion of the entire filtering process is of value if only to see that the early stages are operating properly, but it is of no value to the safety of the final release into the environment."

[William F. Myers. See Attachment G, page G-51.]

Other commenters believe that speed should not be a factor and that the risk posed by storage of the chemical weapons stockpile is greatly overstated. The risk of storage and handling of the chemical weapons stockpiles is assessed through a process known as a "Quantitative Risk Assessment" (QRA). A QRA assess both worker and public risks from accidents during storage and processing. These include "internal" events, such as dropping a pallet of munitions from a forklift, a fire within the main building that spreads to the building carbon filter units, or an explosion during rocket processing. The QRA also analyzes risks from "external" events such as earthquakes or airplane crashes that could result in the collapse of a storage igloo or part of the Munitions Demilitarization Building where the incinerators are located.

The Army first conducted a QRA in 1996. The "Phase 1" QRA was one of the primary documents that the Commission relied upon in 1997 when the HW Permit was issued. The Army completed a "Phase 2" QRA in December 2002, which used the "as-built" design of UMCDF (to include the PFS, which was not considered in the Phase 1 QRA) and incorporated operating experience gained since 1996 at other demilitarization facilities. The Phase 2 QRA did not indicate that incidents involving the pollution abatement system carbon filters contributed in any significant way to either public or worker risk.

A summary of the Phase 2 QRA is included in this Staff Report as Attachment M. The Phase 2 QRA, like the Phase 1 QRA, concluded that stockpile storage risks still far exceed processing risks, although both storage and processing risks are small in comparison to other risks we face every day (see Attachment M, pages M-19 to M-21).

The Department concurs with the commenters who believe that restricting the rocket feed rate to meet the current requirement would be a needless extension of the time the local community is exposed to the risk of the stockpile. From an engineering point of view, the DFS has the capacity to process rockets at 10 times the rate that might need to be imposed if the current requirement is not changed. The PFS has been proven to be an effective component of the UMCDF pollution abatement systems. In addition, a dramatically reduced feed rate to the DFS actually has the potential effect of increasing the overall emissions to the atmosphere during the lifetime of the facility by necessitating additional years of operation.



**Key Issue #5**

*The Department, the Commission, and the Army have made repeated commitments to the local community that the chemical weapons stockpile would be destroyed safely and expeditiously. The Commission has also assured the community that the PFS was required as an additional layer of protection and would not be removed.*

As one commenter point out, denying this permit modification will result in substantial delay in destroying the stockpile and “is not honoring the original plan and promise to our Hermiston community.” On the other hand, some commenters believe that approval of this permit modification would eliminate the “added protection” of the PFS.

The UMCDF furnaces are able to meet virtually all emission and performance standards without taking credit for the PFS. The furnaces are not creating dioxin in any detectable amount, and UMCDF will be required to continue to operate the furnaces in a manner that minimizes emissions not only of dioxins, but every potential pollutant. There is no proposal to remove the PFS nor to allow operations with the PFS offline. The PFS will still be operational at all times and will still be providing the additional protection envisioned by the Commission in 1997.

Moving the point of compliance will allow UMCDF to process rockets well within the furnace’s engineered design capacity without posing any undue safety, health, or environmental risks. It will prevent the five year schedule delay if the rocket feed rate is slowed to two rockets per hour, when in fact the furnace has been designed to handle much higher feed rates. Avoiding the schedule delay also contributes to the country’s ability to fulfill international treaty requirements and saves the taxpayer a considerable amount of money.

The Department concurs with the commenters that numerous agencies involved with the demilitarization program have committed to destroying the stockpile safely and as quickly as possible. The Department also concurs with commenters who believe that schedule should never come ahead of safety. Approving this permit modification is an appropriate decision in the face of changing circumstances and new knowledge that fulfills the commitment to timely disposal of the stockpile, but in no way compromises the commitment to safety.



**EQC Action  
Alternatives**

1. *Modify the UMCDF HW Permit as proposed to revise Permit Conditions VI.A.1.vi. and VII.A.8. by replacing the phrase "before entering" to "after exiting."*

The Department believes there is sufficient justification for the proposed modification and recommends that the Commission modify the UMCDF HW Permit as proposed. Approval of this permit modification would prevent a significant delay in the overall stockpile destruction schedule and would not pose safety, health, or environmental risks. Approval would eliminate the need to comply with different standards at different points in the pollution abatement system. Although testing operations represent minimal risk because of tightly controlled conditions and short test durations, approval of the permit modification would also eliminate the need to conduct testing with the filters bypassed when actual chemical agent operations begin.

The PFS is proven technology and an integral part of the pollution abatement system of each and every incinerator at UMCDF. The Department believes it is a technically sound decision to measure air emissions at the point they are emitted to the atmosphere, because it is those emissions that potentially affect human health and the environment.

2. *Modify the UMCDF HW Permit to revise only those Permit Conditions that apply to the Deactivation Furnace System and leave the Liquid Incinerator and Metal Parts Furnace requirements in place.*

The Liquid Incinerators and Metal Parts Furnace are capable of complying with the current requirement to meet emission standards before the PFS. This alternative would apply the proposed change to all emission and performance standards related only to the Deactivation Furnace System—the other furnaces would not be affected. Under this alternative UMCDF would not need to unduly restrict the rocket processing rates, the schedule would not be delayed because of the permit requirement, and the risk of storage would not be extended. However, this alternative would result in different points of compliance for air emissions from different incinerators at the same facility and would also result in different compliance points for federal MACT standards and state HW Permit limits on the same incinerators. In addition, testing during live chemical agent operations on the Liquid Incinerators and Metal Parts Furnace would have to be conducted with the PFS offline to demonstrate compliance with the existing limits before the PFS.

3. *Modify the UMCDF HW Permit to revise only those Permit Conditions that apply to the metal emissions from the Deactivation Furnace System and leave the Liquid Incinerator and Metal Parts Furnace requirements in place.*

The Liquid Incinerators and Metal Parts Furnace are capable of complying with the current requirement to meet emission standards before the PFS. This alternative would apply the proposed change only to the Deactivation Furnace System and only to those emission standards that cannot be met before the PFS. Under this alternative UMCDF would not need to unduly restrict the rocket processing rates, the schedule would not be delayed because of the permit requirement, and the risk of storage would not be extended. This alternative would result in different HW Permit points of compliance for different air emission constituents on the Deactivation Furnace System (in addition to the different point of compliance for MACT standards). This would also result in different points of compliance for the federal MACT standards and state HW Permit limits on the other incinerators.

Testing during live chemical agent operations on all furnaces would have to be conducted with the PFS offline to demonstrate compliance with the existing limits before the PFS. Additional testing with the PFS online would have to be conducted on the Deactivation Furnace System for the metals that can't meet limits before the PFS and to demonstrate compliance with the MACT standards.

4. *Take no action.*

The HW Permit requirement that all emission limits must be met before the PFS for each incinerator would remain in place. Unless higher feed rates can be demonstrated during chemical agent trial burns, UMCDF would be restricted to a rocket feed rate of less than two rockets/hour. The resulting delay in the stockpile destruction schedule is estimated to be over five years. The local community would be exposed to the additional storage risk and the risk posed by testing operations with the PFS offline. Testing during live chemical agent operations on all furnaces would have to be conducted with the PFS offline to demonstrate compliance with the existing limits before the PFS. Additional testing with the PFS online would have to be conducted on the Deactivation Furnace System to demonstrate compliance with the MACT standards.



**Rationale and  
Next Steps**

The PFS units at UMCDF have fully demonstrated their effectiveness in reducing emissions to the atmosphere, and are now in use at three chemical demilitarization facilities. Although the UMCDF incinerators are able to meet virtually all the regulatory requirements without taking credit for the PFS, no other facility has a requirement similar to the one currently in the UMCDF HW Permit. The PFS is an integral part of the pollution abatement system of the UMCDF incinerators and reflects Maximum Achievable Control Technology.

Based on new knowledge, new regulations, and actual operating experience, approving this permit modification is an appropriate and technically sound decision. Approving this modification does not change the requirement that the PFS be operational at all times—the PFS will still be providing the additional protection envisioned by the Commission in 1997.

Restricting the rocket feed rate simply to meet the current requirement extends the time that the local community is exposed to the risk of an accident during stockpile storage. Moving the point of compliance will allow UMCDF to process rockets at a rate well within the furnace's engineered design capacity without posing any undue safety, health, or environmental risks. Approving this permit modification is an appropriate decision in the face of changing circumstances that fulfills the Commission's past commitment to timely disposal of the stockpile, but in no way compromises its commitment to safety.

If the Commission approves the permit modification as proposed, the Department will prepare the appropriate public notice and permit documentation required under RCRA to modify the UMCDF HW Permit. The Department will also revise the draft Order (included in Attachment B) per the discussion today and finalize it for the Chair's signature as soon as possible.

**Attachments**

- A** Proposed Modifications to the UMCDF Hazardous Waste Storage and Treatment Permit
- B** Draft "Findings and Conclusions of the Commission and Order" in the Matter of Hazardous Waste Storage and Treatment Permit No. UMCDF Permit Modification Request UMCDF-03-041-PFS(3), Change in Incinerator Emissions Compliance Point
- C** Public Notice and Fact Sheet for the Proposed Modification of the Hazardous Waste Storage and Treatment Permit for the Umatilla Chemical Agent Disposal Facility, Permit Modification No. UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point"


- D** Transcript of the Public Hearing held on February 5, 2004 before the Environmental Quality Commission
- E** Presiding Officer's Report and Transcript of the Public Hearing held in Hermiston, Oregon on February 18, 2004
- F** Public Comment Summary and Department Responses
- G** Public Comments Received
- H** "Response to Concerns" (from UMCDF Permittees)
- I** Historical Events and Regulatory Activities Related to the Pollution Abatement System Carbon Filter System
- J** "Findings of the Commission and Order" (partial copy of 1997 Order granting the UMCDF HW Permit)
- K** "Order Clarifying Permit Decision," March 1999
- L** Staff Report (partial copy) for the Commission Meeting held November 19, 1999 related to the carbon filters at UMCDF
- M** Summary Report of the Phase 2 Quantitative Risk Assessment for the Umatilla Chemical Agent Disposal Facility
- N** Selected Surrogate Trial Burn Results

**Available Upon  
Request**

- References listed in Attachment I
- Permit Modification Request UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point"
- Phase 2 Quantitative Risk Assessment, Umatilla Chemical Agent Disposal Facility, December, 2002, Science Applications International Corporation

Approved:

Division:

  
\_\_\_\_\_  
Dennis Murphey, Administrator  
DEQ Chemical Demilitarization Program

Report Prepared By: Sue Oliver, Sr. Hazardous Waste Specialist  
Phone: (541) 567-8297 ext. 26



# **ATTACHMENT A**

**Proposed Modifications  
to the  
UMCDF Hazardous Waste Storage and Treatment Permit**

Permit Modification Request UMCDF-03-041-PFS(3)  
"Change in Incinerator Emissions Compliance Point"  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

**ATTACHMENT A**  
**Change Pages for the Proposed Modification of the HW Permit**  
**Permit Modification Request No. UMCDF-03-041-PFS(3)**  
**“Change in Incinerator Emissions Compliance Point”**

Permit Module	Permit Condition	Proposed Change	Page No.
Module VI. Short Term Incineration - Shakedown, Trial Burn And Post-Trial Burn	Condition VI.A.1.vi. (Construction and Maintenance)	Change the phrase “before entering” to “after exiting”	A-2
Module VII Incineration – Normal Operations	Condition VII.A.8 (General Operation)	Change the phrase “before entering” to “after exiting”	A-4

NOTE: The permit pages immediately preceding the proposed change are included here for clarity.



## MODULE VI - SHORT TERM INCINERATION - SHAKEDOWN, TRIAL BURN AND POST-TRIAL BURN

This Module covers the incinerator shakedown, trial burn and post-trial burn periods for each incinerator. For clarity, this Module is organized as follows:

Section VI.A. - General Conditions During Shakedown, Trial Burn and Post-Trial Burn for All Incinerators at the UMCDF Site

Section VI.B. - Liquid Incinerators (LICs)

Section VI.C. - Metal Parts Furnace (MPF)

Section VI.D. - Deactivation Furnace System (DFS)

Section VI.E. - Dunnage Incinerator (DUN)

Section VI.F. - Common Stack for LIC, MPF and DFS

Section VI.G. - PAS Carbon Filter Unit

### VI.A. GENERAL CONDITIONS DURING SHAKEDOWN, TRIAL BURN AND POST-TRIAL BURN FOR ALL INCINERATORS AT THE UMCDF SITE

#### VI.A.1. Construction and Maintenance [40 CFR §264.31]

- i. The Permittee shall construct each incinerator in accordance with the design plans and specifications contained in Volume II, Sections D-5 through D-8 and Volume VII, Attachment D-3, Sections D-5B through D-8B of the Application.
- ii. All process monitors required, pursuant to Permit Conditions VI.B.4., VI.C.4, VI.D.4. and VI.E.4., shall be equipped with operational alarms to warn of deviation, or imminent deviation, from the limits specified in Tables 6-3, 6-7, 6-11, 6-15, 7-1a, 7-1b, 7-3, 7-5 and 7-7 of this Permit.
- iii. Modifications to the design plans and specifications in the Application for any incinerator shall be allowed only in accordance with Permit Condition II.A.2.

- iv. Prior to treating surrogate or chemical agent hazardous waste in any incinerator, the Permittee shall install and test all process monitoring and control instrumentation specified in Tables 7-1a, 7-1b, 7-3, 7-5 and 7-7 of this Permit for the incinerators in accordance with the design plans in Volume II, Sections D-5 through D-8 and Volume VII, Attachment D-3, Sections D-5B through D-8B of the Application.
- v. The Permittee shall not feed surrogate or chemical agent hazardous wastes into any incinerator until such time that the Permittee has demonstrated compliance with the certification of construction or modification requirements, as specified in Permit Condition I.R.
- vi. The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this permit. Each incinerator shall meet the applicable performance standards specified in Permit Conditions VI.B.1., VI.C.1., VI.D.1., and VI.E.1. ~~before entering~~ after exiting each incinerator's carbon filter system.
- vii. All air pollution control devices and capture systems for which this Permit is issued shall be maintained and operated at all times in a manner so as to minimize the emissions of air contaminants and to minimize process upsets. Procedures for ensuring that the above equipment is properly operated and maintained so as to minimize the emission of air contaminants and process upsets shall be established.

VI.A.2. Inspection Requirements [40 CFR §264.347]

- i. The Permittee shall inspect each incinerator in accordance with the inspection schedules and requirements in Attachment 3 of this Permit.
- ii. The inspection data for each incinerator shall be recorded, and the records shall be placed in the Operating Record for the respective incinerator, in accordance with Permit Condition II.I.

VI.A.3. Monitoring Requirements [40 CFR §264.37]



## MODULE VII - INCINERATION - NORMAL OPERATION

Four types of incinerators are used to deactivate and destroy the components of the waste generated from the Chemical Stockpile Disposal Program (CSDP). They are:

- Two (2) Liquid Incinerators (LICs),
- One (1) Metal Parts Furnace (MPF),
- One (1) Deactivation Furnace System (DFS), and
- One (1) Dunnage Incinerator (DUN).

All of these incinerators are new and each one is provided with a Pollution Abatement System. One exhaust stack is shared by the LICs, MPF, and DFS (hereafter referred to as "common stack"). Another stack is provided for the DUN incinerator.

Liquid chemical agents drained from munitions, liquid laboratory wastes, and spent decontamination solutions are incinerated in each LIC. Explosives and propellants are incinerated in the DFS. In general, metal parts are decontaminated and detoxified in the MPF. Miscellaneous materials are incinerated in DUN.

This module covers the incineration normal operation periods. For clarity, this module is organized as follows:

- Section VII.A. - General Conditions for All Incinerators at the UMCDF Site
- Section VII.B. - Liquid Incinerators (LICs)
- Section VII.C. - Metal Parts Furnace (MPF)
- Section VII.D. - Deactivation Furnace System (DFS)
- Section VII.E. - Dunnage Incinerator (DUN)
- Section VII.F. - Common Stack for LIC, MPF and DFS
- Section VII.G. - PAS Carbon Filter Unit

VII.A. GENERAL CONDITIONS FOR ALL INCINERATORS AT THE UMCDF SITE

VII.A.1. Requirements for Beginning Normal Operations

Prior to commencing normal operations provided for in Module VII of this Permit, all requirements provided in Module VI of this Permit shall have been met by the Permittee and approved by the Department, the Trial Burn results and the Post-Trial Burn Risk Assessment provided for in Permit Condition II.N. shall have been evaluated and approved by the Department, and the applicable numerical values represented with an asterisk (\*) in the conditions and tables of Module VII of this Permit shall have been established.

VII.A.2. Limitation on Waste Feed

- i. Only one chemical agent, or waste containing one chemical agent, shall be fed to any incinerator, at any given time.
- ii. The Permittee shall not incinerate any chemical agent, or any waste containing the chemical agent, in which treatment has not been successfully demonstrated through a chemical agent trial burn, in accordance with Module VI.

VII.A.3. Inspection Requirements

- i. The Permittee shall inspect each incinerator in accordance with the inspection schedule and requirements of Attachment 3 of this Permit.
- ii. The inspection data for each incinerator shall be recorded, and the records shall be placed in the Operating Record for the respective incinerator, in accordance with Permit Condition II.I.

VII.A.4. Monitoring Requirements

- i. Upon receipt of a written request from the Department, the Permittee shall perform sampling and analysis of the waste and exhaust emissions to verify that the operating requirements established in the Permit achieve the performance standards delineated in this Permit. [40 CFR §264.347 (a)(3)]



- ii. All monitoring, recording, maintenance, calibration and test data shall be recorded and the records for each incinerator shall be placed in the Operating Record for each respective incinerator, in accordance with Permit Condition II.I.
- iii. The Permittee shall calibrate the oxygen (O<sub>2</sub>) and carbon monoxide (CO) continuous emission monitors (CEMS) specified in this Permit in accordance with the Performance Specifications for Continuous Emission Monitoring Systems referenced in 40 CFR 63 Appendix to Subpart EEE.

VII.A.5. Reporting

- i. The Permittee shall submit to the Department an annual report every February first for the previous calendar year, which summarizes the QA/QC reliability problems experienced with Hydrogen Chloride (HCl), carbon monoxide, oxygen, and chemical agent stack gas monitors, chemical agent ventilation system monitors (Laboratory and MDB) and ambient air chemical agent monitors during the previous year. This summary report shall include, but not be limited to, the following:
  - a. Identification of the monitor experiencing the problem;
  - b. Identification of the type of problem (e.g., borderline or deficient recoveries, plugging);
  - c. Date problem experienced;
  - d. Frequency of problem; and
  - e. Corrective action implemented to correct the problem, and whether or not or to what degree the corrective action was successful.
- ii. The Permittee shall submit a report of all quarterly CEM Calibration Error (CE)/Absolute Calibration Audit (ACA) and annual CEM Performance Specification Tests conducted in accordance with Permit Condition VII.A.4.iii. within 30 calendar days of the date of the tests.
- iii. If any sampling and testing result show that any emission rate specified in Table 7-9 is exceeded, then the Permittee shall notify the Department within 24 hours of the discovery. The Permittee should submit additional risk information to indicate that the increased

emission is off-set by decreased emission from another constituent that is expected to be emitted at the same time. Based on the notification and any additional information, the Director may submit in writing direction to the Permittee to stop waste feed to the appropriate incinerator(s). The Permittee shall stop waste feed to the appropriate incinerator(s) in the time specified in writing. Waste feed operation will resume upon written approval from the Department [40 CFR §270.32(b)(2)].

VII.A.6. Closure

At closure, the Permittee shall follow the procedures in the Closure Plan, Volume XII, Section I of the Application as revised in accordance with Permit Condition II.J.3.

VII.A.7. Recordkeeping

- i. The Permittee shall record and maintain, in the Operating Record for each incinerator, all monitoring and inspection data compiled under the requirements of this Permit, in accordance with Permit Condition II.I.
- ii. The Permittee shall record in the Operating Record the date, time, and duration of all automatic waste feed cut offs and/or lock outs, including the triggering parameters, reason for the deviation, and corrective measures taken to prevent recurrence of the incident. The Permittee shall also record all incidents of the automatic waste feed cut off function failures, including the corrective measures taken to correct the condition that caused the failure.

VII.A.8. General Operation

The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this Permit. Each incinerator shall meet the applicable performance standards specified in Permit Conditions VII.B.2., VII.C.2., VII.D.2., and VII E.2. ~~before entering~~ after exiting each incinerator's carbon filter system.

VII.B. LIQUID INCINERATORS (LICS)

Each Liquid Incinerator (LIC) will be installed and used to burn liquid wastes. The LICs are provided with:



# **ATTACHMENT B**

**DRAFT**

**Findings and Conclusions of the Commission and Order  
In the Matter of  
Hazardous Waste Storage and Treatment Permit No.  
ORQ 000 009 431  
Umatilla Chemical Agent Disposal Facility (UMCDF)**

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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BEFORE THE ENVIRONMENTAL QUALITY COMMISSION  
OF THE STATE OF OREGON

In the Matter of Hazardous Waste Storage and  
Treatment Permit No. ORQ 000 009 431  
Umatilla Chemical Agent Disposal Facility (UMCDF)  
Permit Modification No. UMCDF-03-041-PFS(3),  
"Change in Incinerator Emissions Compliance Point."

FINDINGS AND  
CONCLUSIONS OF THE  
COMMISSION AND ORDER

**\*\*\*DRAFT\*\*\***

**BACKGROUND FINDINGS**

1. On February 10, 1997, the Environmental Quality Commission issued FINDINGS AND CONCLUSIONS OF THE COMMISSION AND ORDER ("Commission Order") directing issuance of a Hazardous Waste Storage and Treatment Permit (HW Permit) to the United States Army (Army) for construction and operation of incinerators to destroy chemical weapons stored at the Umatilla Chemical Depot (the incineration facility is known as the Umatilla Chemical Agent Disposal Facility or UMCDF).

2. The UMCDF HW Permit names the U.S. Army Umatilla Chemical Depot (UMCD) and U.S. Army Project Manager for Chemical Stockpile Disposal (PMCS<sup>1</sup>) as Owner and Operator, and Washington Demilitarization Company (WDC) as Co-Operator. Collectively, these three entities are referred to as the "Permittees."

3. On September 16, 2003 the Permittees submitted a Class 3 Permit Modification Request (PMR) [UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point"] to the Department of Environmental Quality (Department). A copy of the PMR was sent to the Commission by the Department on October 2, 2003.

4. PMR UMCDF-03-041-PFS(3) requested that the Department determine each incinerator's compliance with HW Permit limits using the air pollutant levels as measured after the pollution abatement system carbon filter system (PFS).

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<sup>1</sup> PMCS<sup>1</sup> is now known as the Program Manager for Elimination of Chemical Weapons (PM ECW).

DISCUSSION DRAFT FOR THE MAY 20-21, 2004 REGULAR MEETING

1           5.       A 60-day public comment period was held open from September 17 through  
2 November 17, 2003.

3           6.       The Permittees held a public meeting on October 21, 2003 in Hermiston,  
4 Oregon.

5           7.       The Department issued a Notice of Deficiency on the PMR to the Permittees  
6 on November 5, 2003.

7           8.       The Department received eight written comments on the PMR by the close of  
8 the 60-day comment period on November 17, 2003.

9           9.       The Permittees responded to the Department's Notice of Deficiency on  
10 December 1, 2003.

11          10.       On January 9, 2004 the Department sent the Permittees a Notice of Substantial  
12 Completion and Intent to Prepare Draft Permit.

13          11.       The Department, having made a tentative decision to recommend that the  
14 Commission approve the PMR as originally proposed, prepared a public notice and RCRA  
15 (Resource Conservation and Recovery Act) Fact Sheet on January 14, 2004. The public  
16 notice was sent to all persons on the Department's mailing list for UMCDF activities.

17          12.       A copy of the Notice of Deficiency, the Permittees' response to the Notice of  
18 Deficiency, the public notice, the RCRA Fact Sheet, and a full copy of all comments received  
19 during the first comment period were transmitted to the Commission by the Department on  
20 January 27, 2004.

21          13.       A public comment period on the proposed permit modification UMCDF-03-  
22 041-PFS(3) was held open from January 14 through March 1, 2004.

23          14.       The Commission accepted oral public comment on the proposed permit  
24 modification on February 5, 2004. Four persons provided oral comments (two from the same  
25 organization).

26



DISCUSSION DRAFT FOR THE MAY 20-21, 2004 REGULAR MEETING

1 15. The Department held a public hearing on the proposed permit modification on  
2 February 18, 2004. Fifteen oral comments were received.

3 16. The Department received ten written comments on the PMR by the close of  
4 the second comment period on March 1, 2004.

5 17. Written transcripts of the oral public comments provided on both February 5  
6 and February 18, 2004 were provided in a staff report sent to the Commission on April 29,  
7 2004 for the May 20, 2004 meeting of the Commission (May Staff Report).

8 18. A total of 28 persons/organizations provided written and/or oral comments  
9 during the two comment periods. All written comments were included as an attachment to  
10 the May Staff Report sent to the Commission on April 30, 2004.

11 19. The Commission held a meeting to consider the proposed modification  
12 UMCDF-03-041-PFS(3) to the UMCDF HW Permit on May 20, 2004 in Hermiston, Oregon.  
13 Additional oral discussion and comment were provided at this meeting by Department staff.

14 **LEGAL STANDARDS**

15 20. 40 C.F.R. 270.41 and 270.42 govern modification of hazardous waste permits.  
16 For agency-initiated modifications, "cause" for modification includes:

17 "(1) Alterations. There are material and substantial alterations or additions to  
18 the permitted facility or activity which occurred after permit issuance which  
19 justified the application of permit conditions that are different or absent in the  
20 existing permit.

21 "(2) Information. The [agency] received information. Permits may be  
22 modified during their terms for this cause only if the information was not  
23 available at the time of permit issuance (other than revised regulations,  
24 guidance, or test methods) and would have justified the application of  
25 different permit conditions at the time of issuance.

26 "(3) New Statutory Requirements or Regulations. The standards or  
regulations on which the permit was based have been changed by statute,  
through promulgation of new or amended standards or regulations, or by  
judicial decision after the permit was issued."

25 21. For permit modifications requested by the permittee, the Commission has  
26 broad discretion to modify the permit as long as the modification complies with federal and

1 state law, and does not increase the risk of harm to human health and the environment. ORS  
2 466.020(2) and 40 C.F.R. 270.42.

3  
4 **FINDINGS PERTAINING TO PERMIT MODIFICATION REQUEST UMCDF-03-**  
5 **041-PFS(3) "CHANGE IN INCINERATOR EMISSIONS COMPLIANCE POINT"**

6 22. The HW Permit requires that UMCDF incinerators utilize multi-stage  
7 pollution abatement systems consisting of quench tower, venturi scrubber, packed bed  
8 scrubber tower, mist eliminator vessel, gas reheater, and a carbon filter system (PFS).

9 23. When the Commission approved the UMCDF HW Permit in February 1997, it  
10 required that compliance with emissions standards be determined at a point just before the  
11 emissions stream enters the PFS.

12 24. A petition for judicial review of the February 1997 Commission Order was  
13 filed in Multnomah County Circuit Court. In December 1998, the court issued an order on  
14 review, finding that "apart from one critical ambiguity," the findings, conclusions and  
15 procedures set forth in the February 1997 Commission Order "were consistent with  
16 applicable law, supported by substantial evidence in the record as of the time that record  
17 closed, and within the discretion afforded to [DEQ/EQC]."

18 25. The "critical ambiguity" identified by the court related to the PFS. The court  
19 remanded the February 1997 Commission Order to the Commission to clarify what role the  
20 PFS played in its analysis. On remand, the Commission took written comments and issued a  
21 "Clarifying Order" dated March 19, 1999. The Clarifying Order stated that the Commission  
22 "did not rely on PAS carbon filters in finding that the baseline incineration technology is the  
23 best available technology for destruction of the agent at Umatilla" and that the Commission  
24 required the inclusion of the PFS for "an additional measure of safety."

25 26. In June 1999, the court found that the Clarifying Order resolved the ambiguity and  
26 affirmed the Commission Order.



1           27.    The PFS has been installed and is fully operational at UMCDF. The  
2 Department and the Commission have received information relating to the PFS that was not  
3 available at the time of permit issuance. That information includes:

- 4           (a)    A report from the National Research Council (NRC) dated August 12, 1999,  
5                titled "Carbon Filtration for Reducing Emissions for Chemical Agent  
6                Incineration."  
7           (b)    Information presented to the Commission during a 60-day public comment  
8                period opened on July 19, 1999 for the purpose of receiving information  
9                regarding the PFS.  
10          (c)    Information presented to the Commission at a special work session held on  
11                August 19, 1999 regarding the PFS.  
12          (d)    Information presented to the Commission about storage and disposal risk,  
13                presented in Attachment M of the May Staff Report.  
14          (e)    Information relating to prior permit modification requests submitted by the  
15                permittees regarding the PFS, including substantial design improvements to  
16                the PFS.  
17          (f)    Emission testing results from surrogate trial burns (STB) conducted on the  
18                incinerators at UMCDF. A summary of selected STB results is set forth in  
19                Attachment N to the May Staff Report.  
20          (g)    Information relating to the performance of a virtually identical PFS system at  
21                the Anniston (Alabama) chemical weapons incineration facility. The  
22                Anniston facility determines compliance with emission standards after the  
23                emission stream exits the PFS. A summary of selected STB results is set forth  
24                in Attachment N to the May Staff Report.

25          28.    On September 30, 2003, new emission standards, known as Maximum  
26 Achievable Control Technology (MACT) standards, went into effect. *See* 40 C.F.R. 63

1 (subpart EEE). Under the MACT standards, emission levels are tested at the point emissions  
2 are released into the atmosphere. As a result, the MACT standards allow the UMCDF  
3 permittees to demonstrate compliance with emission standards after the emission stream exits  
4 the PFS.

5 29. Although cause is not specifically required for permit modifications requested  
6 by a permittee, the Commission finds that the new information regarding the PFS and the  
7 new MACT standards, would support a finding of cause for modifying the permit as  
8 requested by the permittees.

9 30. The Commission concludes in its discretion that the permit should be  
10 modified as requested by the permittees. In reaching that conclusion, the Commission notes  
11 the following:

- 12 (a) Effects on public health, safety and the environment are determined by  
13 emissions that enter the atmosphere, not by pollutants in the emissions stream  
14 that enter the PFS but are not released into the atmosphere. Testing for  
15 compliance with emission standards after the emissions stream exits the PFS  
16 provides a better way of assessing the potential effects on public health, safety  
17 and the environment.
- 18 (b) As explained in the May Staff Report, denying the requested modification  
19 would require the permittees to significantly reduce the rocket feed rate to  
20 approximately one or two rockets per hour in order to meet all emission  
21 standards set forth in the HW Permit. This potentially extends the destruction  
22 of the chemical weapons stockpile by five years or more.
- 23 (c) Risk assessments have predicted that the risks of continued storage exceed the  
24 risks associated with incineration activities, though both levels of risk are  
25 relatively low in comparison to risks accepted by the public in everyday life.  
26



1 Thus, any delay in the stockpile destruction increases the risks to public health  
2 and safety.

3 (d) Public comments from community and tribal leaders and others tend to  
4 support granting the requested modification, in part because of opposition to  
5 any delays in destroying the chemical weapon stockpile.

6 (e) The PFS is proven technology and an integral part of the pollution abatement  
7 systems on each of the four incinerators at UMCDF.

8 (f) Approval of this modification provides UMCDF a consistent point of  
9 compliance for both the state and federal standards and eliminates the need to  
10 test the incinerators with the PFS offline.

11 (g) Although granting the modification could be criticized as inconsistent with the  
12 position adopted by the Commission in the February 1997 Order and the  
13 March 1999 Clarifying Order, there are good reasons for granting the  
14 modification. The UMCDF facility is capable of meeting emission standards  
15 in the HW Permit without accounting for the additional protections provided  
16 by the PFS, but feed rates would have to be significantly reduced for the DFS  
17 to meet those standards without accounting for the PFS.

- 18 • Incineration facilities at JACADS (Johnston Atoll Chemical Agent  
19 Disposal System) and TOCDF (Tooele Chemical Agent Disposal  
20 Facility) successfully destroyed tons of chemical weapons safely  
21 without an operational PFS system.
- 22 • STB results have demonstrated that all of the incinerators at UMCDF  
23 except for the Deactivation Furnace System (DFS) can satisfy all of  
24 the original HW Permit emission standards, and the new MACT  
25 standards, without accounting for the additional emission reductions  
26



1 provided by the PFS, and without significantly reducing the feed  
2 rates.

- 3 • The DFS can satisfy substantially all of the emission standards in the  
4 original HW Permit, and the new MACT standards, without  
5 significantly reducing feed rates. STB results have shown that for a  
6 few particular metals that were injected into the surrogate materials  
7 being tested in order to approximate "worst case" scenarios, the  
8 permittees would be required to substantially reduce rocket feed rates  
9 for the DFS in order to satisfy the emission standards for those  
10 metals.

- 11 (h) In addition, the PFS was originally added primarily to address concerns about  
12 dioxin and chemical agent emissions. The PFS still serves its original  
13 function of providing an added level of protection against dioxin and chemical  
14 agent emissions; it also continues to serve its intended purpose of providing an  
15 added level of protection against the emission of other hazardous air  
16 pollutants.

17  
18 **CONCLUSION OF THE COMMISSION**

19 31. The Commission has adequate legal authority to modify the UMCDF HW  
20 Permit as proposed.

21 32. Under the circumstances, the Commission finds that the modification  
22 complies with state and federal law and does not cause any increased risk to public health,  
23 safety, and the environment. The permit should be modified as requested for the reasons set  
24 forth in this Order and in the May Staff Report dated April 29, 2004.



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**ORDER**

Now, therefore, IT IS ORDERED that:

1. These findings, conclusions and order shall constitute the Commission's final permit modification decision and response to public comments.
2. Hazardous Waste Storage and Treatment Permit No. ORQ 000 009 431 is modified in accordance with Permit Modification No. UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point," as set forth in Exhibit 1.
3. This Order shall be an Order in Other Than a Contested Case, subject to judicial review pursuant to ORS 183.484. No administrative appeal of the permit modification shall be provided to the applicant or third parties.

DATED this \_\_\_\_ day of May, 2004.

Mark Reeve, Chair  
For the Environmental Quality Commission

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**EXHIBIT 1**  
**Permit Modification No. UMCDF-03-041-PFS(3)**  
**“Change in Incinerator Emissions Compliance Point”**

Modification to  
 Umatilla Chemical Agent Disposal Facility  
 Hazardous Waste Storage and Treatment Permit No. ORQ 000 009 431  
 [Underlined text to be added; ~~struck-out~~ text to be deleted]

Permit Module	Comments
<b>MODULE VI (“Short Term Incineration - Shakedown, Trial Burn And Post-Trial Burn”)</b>	
Condition VI.A.1.vi. (Construction and Maintenance)	Change the phrase “before entering” to “after exiting”
<b>Module VII (“Incineration – Normal Operations”)</b>	
Condition VII.A.8 (General Operation))	Change the phrase “before entering” to “after exiting”

**MODULE VI - SHORT TERM INCINERATION - SHAKEDOWN, TRIAL BURN AND POST-TRIAL BURN**

**VI.A. GENERAL CONDITIONS DURING SHAKEDOWN, TRIAL BURN AND POST-TRIAL BURN FOR ALL INCINERATORS AT THE UMCDF SITE**

**VI.A.1. Construction and Maintenance [40 CFR §264.31]**

*i. – v. [Not shown here]*

- vi. The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this permit. Each incinerator shall meet the applicable performance standards specified in Permit Conditions VI.B.1., VI.C.1., VI.D.1., and VI.E.1. ~~before entering~~ after exiting each incinerator's carbon filter system.

**MODULE VII - INCINERATION - NORMAL OPERATION**

**VII.A. GENERAL CONDITIONS FOR ALL INCINERATORS AT THE UMCDF SITE**

*VII.A.1 – VII.A.7 [Not shown here]*

**VII.A.8. General Operation**

The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this Permit. Each incinerator shall meet the applicable performance standards specified in Permit Conditions VII.B.2., VII.C.2., VII.D.2., and VII E.2. ~~before entering~~ after exiting each incinerator's carbon filter system.

**EXHIBIT 1, PAGE 2**



# ATTACHMENT C

**Public Notice  
and  
Fact Sheet**  
for the  
Proposed Modification of the  
Hazardous Waste Storage and Treatment Permit  
for the  
Umatilla Chemical Agent Disposal Facility  
Permit Modification No. UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
(DEQ Item Nos. 04-0051 and 04-0011)

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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## Public Notice: Request for Comments and (REVISED) Notice of Public Hearings

### Change in Incinerator Emissions Compliance Point Umatilla Chemical Agent Disposal Facility (UMCDF)

Permit Modification Request UMCDF-03-041-PFS(3)  
(Permit No. ORQ 000 009 431)

**Notice issued:** January 14, 2004

**Written comments due:**  
5:00 p.m., March 1, 2004 (Revised)

**Hearing dates:**  
February 5, 2004 (Portland)  
February 18, 2004 (Hermiston) (Revised)

#### Portland Hearing (February 5):

**Hearing time:** 1:00 p.m.

**Hearing location:**  
DEQ Headquarters Building, Room 3A  
811 S.W. Sixth Ave.  
Portland, OR 97204

#### Hermiston Hearing (February 18):

**Hearing time:** 7:00 p.m.  
(DEQ staff will be available at 6:30 p.m.  
to answer questions about the Permit  
Modification Request.)

**Hearing location:**  
Good Shepherd Conference Center  
Conference Room # 1 (Revised)  
610 N.W. 11th  
Hermiston, OR

#### **How can I send comments?**

The DEQ will accept written or oral comments at the hearings listed above, or written comments by mail, fax or e-mail (see below).

**Contact Name:** Shelly Ingram  
DEQ Chemical Demilitarization Program

**Phone:** (541) 567-8297 ext. 25, or  
Toll-free in Oregon (800) 452-4011

**Mailing address:**  
DEQ Chemical Demilitarization Program  
256 E. Hurlburt Avenue  
Hermiston, OR 97838

**Fax:** (541) 567-4741

**E-mail:** [ingram.shelly@deq.state.or.us](mailto:ingram.shelly@deq.state.or.us)  
(Please include "Public Comment" in the  
subject line. E-mail comments will be  
acknowledged as soon as possible. The DEQ is  
not responsible for delays between servers that  
result in missed comment deadlines.)

#### **What kind of facility is UMCDF?**

The Umatilla Chemical Agent Disposal Facility (UMCDF) is a hazardous waste storage and treatment facility that will use four incinerators to destroy a stockpile of chemical warfare agents that has been stored at the Umatilla Chemical Depot (UMCD) since 1962. UMCDF is owned by the U.S. Army and operated by Washington Demilitarization Company. A Hazardous Waste Storage and Treatment Permit (HW Permit) for the UMCDF was issued in February 1997.

The chemical agent stockpile at UMCDF includes about 3,717 tons of nerve agents ("VX" and "GB") and blister agent ("mustard") in liquid form. The chemical agents are contained in munitions, such as rockets, projectiles and land mines, and in large containers, such as spray tanks, bombs and "ton containers." All of the chemical warfare agents are highly toxic.

#### **Where is the facility located?**

The UMCDF is located in northeastern Oregon at the Umatilla Chemical Depot, about seven miles west of Hermiston, Oregon (175 miles east of Portland, Oregon). The address is 78072 Ordnance Road, Hermiston, OR 97838.

#### **What is Proposed?**

On September 16, 2003 the United States Army's Project Manager for Elimination of Chemical Weapons (PM ECW) submitted a Class 3 Permit Modification Request [UMCDF-00-041-PFS(3)] titled "Change in Incinerator Emissions Compliance Point."

UMCDF is requesting that the DEQ determine compliance with HW Permit limits using the air pollutant levels as measured after the carbon filter system, the final stage of each incinerator's pollution abatement systems. As originally issued, the UMCDF HW Permit required that emissions compliance be determined at a point just before passing through the carbon filter system.



State of Oregon  
Department of  
Environmental  
Quality

Office of the  
Director  
Chemical  
Demilitarization  
Program  
256 E. Hurlburt Ave.  
Hermiston, OR 97838  
Phone: (541) 567-8297  
(800) 452-4011  
Fax: (541) 567-4741

Contact: Shelly Ingram

DEQ Item No. 04-0051

[www.deq.state.or.us](http://www.deq.state.or.us)



In effect, the change will allow UMCDF to "take credit" for the ability of the carbon filters to remove additional pollutants from the incinerator gas streams.

An initial public comment period on this Permit Modification Request was held open from September 17-November 17, 2003 (60 days). A public information meeting was held on October 21, 2003 in Hermiston, Oregon. The DEQ received a total of eight public comments concerning the Permit Modification Request.

After consideration of the public comments, and review of the information submitted by the UMCDF related to this Permit Modification Request, the DEQ has made a tentative decision to recommend that the Environmental Quality Commission (EQC) approve the Permit Modification Request. The purpose of this Notice is to invite you to provide comments to the DEQ on this proposed change to the UMCDF HW Permit.

#### **Why Has The Change Been Proposed?**

The Permit Modification Request from UMCDF states that the purpose of the proposed change is to "provide a consistent approach for complying with two sets of regulations" and to "eliminate the need to test the incinerators during [chemical] agent trial burns with the [carbon filter] units bypassed."

#### **How do I get more information and review pertinent documents?**

In accordance with applicable regulations, DEQ has prepared a much more detailed Fact Sheet with information related to this Permit Modification Request and the reasons for DEQ's tentative decision to recommend approval. You can review the detailed Fact Sheet and other documents related to Permit Modification Request UMCDF-03-041-PFS(3) at the Hermiston DEQ office (please call ahead for an appointment) or at one of the following information repositories:

Hermiston Public Library  
235 E. Gladys Avenue  
Hermiston, OR 97838  
(541) 567-2882

Mid Columbia Library (Kennewick Branch)  
1620 S. Union St.  
Kennewick, WA 99336  
(509) 586-3156

Pendleton Public Library  
502 S.W. Dorion Avenue  
Pendleton, OR 97801  
(541) 966-0210

Portland State University Library  
951 S.W. Hall, Fifth Floor  
Portland, OR 97204  
(503) 725-4617

You can also call, write or e-mail the Hermiston DEQ office and request information be sent to you. Interested parties are invited and encouraged to provide comments on this proposed change to the UMCDF permit. Staff will be available to answer questions from 6:30-7:00 p.m. before the public hearing in Hermiston on February 18, 2004.

#### **What happens next?**

After completion of the public comment period the DEQ will review and consider oral and written comments received during the comment period. DEQ will then prepare a staff report for consideration by the EQC. The Staff Report will include the DEQ's final recommendation to the Commission on whether to approve the permit modification as proposed, approve the modification with revisions, or to deny the modification request.

The staff report will include an explanation of the DEQ's reasoning in coming to its final recommendation, and DEQ's responses to significant comments received during both the first and second comment periods. The DEQ anticipates the final decision of the EQC will be made during a regularly scheduled EQC meeting in May, 2004.

#### **Accessibility information**

*DEQ is committed to accommodating people with disabilities at our hearings. Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format. To make these arrangements, contact Shelly Ingram at (541) 567-8297 ext 25, or toll free in Oregon at (800) 452-4011*

*People with hearing impairments may call DEQ's TTY number, (503) 229-6993*



## Public Notice: Request for Comments and Notice of Public Hearings

### Change in Incinerator Emissions Compliance Point Umatilla Chemical Agent Disposal Facility (UMCDF)

Permit Modification Request UMCDF-03-041-PFS(3)  
(Permit No ORQ 000 009 431)

**Notice issued:** January 9, 2004

**Written comments due:**  
5:00 p.m., February 23, 2004

**Hearing dates:**  
February 5, 2004 (Portland)  
February 9, 2004 (Hermiston)

#### Portland Hearing (February 5):

**Hearing time:** 1:00 p.m.

#### **Hearing location:**

DEQ Headquarters Building, Room 3A  
811 S.W. Sixth Ave.  
Portland, OR 97204

#### Hermiston Hearing (February 9):

**Hearing time:** 7:00 p.m.

(DEQ staff will be available at 6:30 p.m.  
to answer questions about the Permit  
Modification Request.)

#### **Hearing location:**

Good Shepherd Conference Center  
Conference Room # 2  
610 N.W. 11th  
Hermiston, OR

#### **How can I send comments?**

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at the hearings listed above, or written  
comments by mail, fax or e-mail (see below).

**Contact Name:** Shelly Ingram  
DEQ Chemical Demilitarization Program

**Phone:** (541) 567-8297 ext. 25, or  
Toll-free in Oregon (800) 452-4011

**Mailing address:**  
DEQ Chemical Demilitarization Program  
256 E. Hurlburt Avenue  
Hermiston, OR 97838

**Fax:** (541) 567-4741

**E-mail:** [ingram\\_shelly@deq.state.or.us](mailto:ingram_shelly@deq.state.or.us)  
(Please include "Public Comment" in the  
subject line. E-mail comments will be  
acknowledged as soon as possible. The DEQ is  
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#### **What kind of facility is UMCDF?**

The Umatilla Chemical Agent Disposal Facility (UMCDF) is a hazardous waste storage and treatment facility that will use four incinerators to destroy a stockpile of chemical warfare agents that has been stored at the Umatilla Chemical Depot (UMCD) since 1962. UMCDF is owned by the U.S. Army and operated by Washington Demilitarization Company. A Hazardous Waste Storage and Treatment Permit (HW Permit) for the UMCDF was issued in February 1997.

The chemical agent stockpile at UMCD includes about 3,717 tons of nerve agents ("VX" and "GB") and blister agent ("mustard") in liquid form. The chemical agents are contained in munitions, such as rockets, projectiles and land mines, and in large containers, such as spray tanks, bombs and "ton containers." All of the chemical warfare agents are highly toxic.

#### **Where is the facility located?**

The UMCDF is located in northeastern Oregon at the Umatilla Chemical Depot, about seven miles west of Hermiston, Oregon (175 miles east of Portland, Oregon). The address is 78072 Ordnance Road, Hermiston, OR 97838.

#### **What is Proposed?**

On September 16, 2003 the United States Army's Project Manager for Elimination of Chemical Weapons (PM ECW) submitted a Class 3 Permit Modification Request [UMCDF-00-041-PFS(3)] titled "Change in Incinerator Emissions Compliance Point."

UMCDF is requesting that the DEQ determine compliance with HW Permit limits using the air pollutant levels as measured after the carbon filter system, the final stage of each incinerator's pollution abatement systems. As originally issued, the UMCDF HW Permit required that emissions compliance be determined at a point just before passing through the carbon filter system.



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Contact: Shelly Ingram

DEQ Item No 04-0011

[www.deq.state.or.us](http://www.deq.state.or.us)

DEQ  
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OREGON DEQ  
256 E HURLBURT SUITE 117  
HERMISTON OR 97838

ALL UAD 201936

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting



1011-10  
In effect, the change will allow UMCDF to "take credit" for the ability of the carbon filters to remove additional pollutants from the incinerator gas streams.

An initial public comment period on this Permit Modification Request was held open from September 17-November 17, 2003 (60 days). A public information meeting was held on October 21, 2003 in Hermiston, Oregon. The DEQ received a total of eight public comments concerning the Permit Modification Request.

After consideration of the public comments, and review of the information submitted by the UMCDF related to this Permit Modification Request, the DEQ has made a tentative decision to recommend that the Environmental Quality Commission (EQC) approve the Permit Modification Request. The purpose of this Notice is to invite you to provide comments to the DEQ on this proposed change to the UMCDF HW Permit.

#### **Why Has The Change Been Proposed?**

The Permit Modification Request from UMCDF states that the purpose of the proposed change is to "provide a consistent approach for complying with two sets of regulations" and to "eliminate the need to test the incinerators during [chemical] agent trial burns with the [carbon filter] units bypassed."

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In accordance with applicable regulations, DEQ has prepared a much more detailed Fact Sheet with information related to this Permit Modification Request and the reasons for DEQ's tentative decision to recommend approval. You can review the detailed Fact Sheet and other documents related to Permit Modification Request UMCDF-03-041-PFS(3) at the Hermiston DEQ office (please call ahead for an appointment) or at one of the following information repositories:

Hermiston Public Library  
235 E. Gladys Avenue  
Hermiston, OR 97838  
(541) 567-2882

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951 S.W. Hall, Fifth Floor  
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You can also call, write or e-mail the Hermiston DEQ office and request information be sent to you. Interested parties are invited and encouraged to provide comments on this proposed change to the UMCDF permit. Staff will be available to answer questions from 6:30-7:00 p.m. before the public hearing in Hermiston on February 9, 2004.

#### **What happens next?**

After completion of the public comment period the DEQ will review and consider oral and written comments received during the comment period. DEQ will then prepare a staff report for consideration by the EQC. The Staff Report will include the DEQ's final recommendation to the Commission on whether to approve the permit modification as proposed, approve the modification with revisions, or to deny the modification request.

The staff report will include an explanation of the DEQ's reasoning in coming to its final recommendation, and DEQ's responses to significant comments received during both the first and second comment periods. The DEQ anticipates the final decision of the EQC will be made during a regularly scheduled EQC meeting in April or May, 2004.

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State of Oregon  
Department of  
Environmental  
Quality

## FACT SHEET

Proposed Modification of the  
Hazardous Waste Storage and Treatment Permit  
for the  
Umatilla Chemical Agent Disposal Facility  
(Permit No. ORQ 000 009 431)

### Permit Modification No. UMCDF-03-041-PFS(3) “Change in Incinerator Emissions Compliance Point”

Table of Contents		
Section	Title	Page
1	Introduction	1
2	Process for a Class 3 Permit Modification Request	2
3	Description of the Umatilla Chemical Agent Disposal Facility	3
4	Description of Permit Modification Request No. UMCDF-03-041-PFS(3) “Change in Incinerator Emissions Compliance Point”	4
5	DEQ’s Tentative Decision to Recommend Approval	6
6	Significant Considerations in Reaching Tentative Decision	6
7	How to Submit Your Comments to the DEQ	9
8	What Happens Next	9
9	For More Information	9
Att. A	Public Notice	A-1
Att. B	Proposed Changes to UMCDF Hazardous Waste Permit	B-1

#### 1. Introduction

In February 1997 the Oregon Environmental Quality Commission (EQC or Commission) and the Oregon Department of Environmental Quality (Department or DEQ) issued a Hazardous Waste Storage and Treatment Permit (HW Permit) to the United States Army<sup>1</sup> to build and operate the Umatilla Chemical Agent Disposal Facility (UMCDF). Construction of UMCDF was completed

<sup>1</sup> There are three “Permittees” named on the UMCDF HW Permit. The U.S. Army Umatilla Chemical Depot and the U.S. Army Project Manager for Chemical Stockpile Disposal (PMCSO) (now known as Program Manager for Elimination of Chemical Weapons) are named as Owner and Operator of UMCDF. Washington Demilitarization Company (the Army’s construction and operations contractor) is named as a co-operator of UMCDF.

DEQ Item No. 04-0012(19)

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

in 2001 and the facility is currently testing its systems in preparation for the anticipated start of chemical agent disposal operations some time in 2004.

On September 16, 2003 the United States Army's Program Manager for Elimination of Chemical Weapons (PM ECW) submitted a Class 3 Permit Modification Request (PMR) UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point." UMCDF is requesting that the DEQ determine compliance with HW Permit limits using the air pollutant levels as measured after the carbon filter system,<sup>2</sup> the final stage of each incinerator's pollution abatement systems. As originally issued, the UMCDF HW Permit required that emissions compliance be determined before gases passed through the carbon filters. In effect, the change will allow UMCDF to "take credit" for the ability of the carbon filters to remove additional pollutants from the incinerator gas streams.

This Fact Sheet describes the proposed modification and provides background information about the UMCDF and the basis for the proposed modification. Because the Department has made a tentative decision to recommend to the EQC that the PMR be approved, this Fact Sheet also includes a discussion of the significant factual, legal, and policy questions the Department considered in reaching its tentative decision. Information on how to provide comment on the proposed modification is provided on Page 9 and in Attachment A.

Attachment A is the Public Notice that was mailed on January 14, 2004 to persons on the Department's mailing list that have indicated an interest in the Umatilla Chemical Demilitarization Program. The Public Notice contains detailed information concerning information repositories and the dates of the scheduled public comment period and public hearings related to the proposed modification. Attachment B includes the actual text changes proposed for specific pages of the HW Permit.

## **2. Process for a Class 3 Permit Modification Request**

Regulations regarding the permitting and operation of hazardous waste treatment, storage, and disposal facilities are known as the "Resource Conservation and Recovery Act" (RCRA) regulations. They are contained in Title 40 of the Code of Federal Regulations (CFR). In accordance with the RCRA regulations, the State of Oregon has been authorized by the U.S. Environmental Protection Agency to implement its own hazardous waste program. Oregon has adopted RCRA regulations as Oregon Administrative Rules.

Because a hazardous waste permit is expected to be modified over the life of a facility, RCRA regulations identify three "classes" of permit modifications, each with its own public notification and/or participation requirements. Class 1 modifications are the least significant of permit modifications and involve only minor changes to a permit, such as correction of typographical errors, updates to addresses or telephone numbers, or an upgrade of equipment. Class 2 modifications are considered significant changes to the permit and are used primarily to address improvements in technology and management of the facility. Class 3 modifications are considered very significant permit modifications and are used only for major changes to the facility or its operation. Both Class 2 and 3 permit modifications require opportunities for public comment.

---

<sup>2</sup> This Fact Sheet will use term "carbon filter units" to refer to the "Pollution Abatement System Carbon Filtration System," usually identified by the acronym "PFS."



This Permit Modification Request [UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"] was submitted to the DEQ on September 16, 2003 as a Class 3 modification.

As required by the regulations for a Class 3 Permit Modification Request, an initial public comment period of 60 days was held open from September 17 through November 17, 2003. The UMCDF Permittees held a public information meeting on October 21, 2003 in Hermiston, Oregon. The DEQ issued a "Notice of Deficiency" (NOD) on November 5, 2003 requesting additional information from the Permittees. The Permittees responded to the NOD on December 1, 2003. At the close of the comment period DEQ had received eight comments from members of the public expressing opinions on whether UMCDF should be allowed to change the point at which DEQ determines UMCDF's compliance with emission limits in the HW Permit.

*After reviewing public comments and the response to the NOD, the DEQ made a tentative decision to recommend that the Environmental Quality Commission approve the proposed modification. Accordingly, the Department has prepared this Fact Sheet and the revised language for the UMCDF HW Permit for public review and comment.*

In accordance with the RCRA regulations for Class 3 permit modification requests, DEQ is requesting comments from the public on the proposed revision to the HW Permit. A 45-day public comment period on the proposed modification will be open from January 14 through close of business on March 1, 2004. Two public hearings will be held: February 5 in Portland before the Environmental Quality Commission and February 18 in Hermiston before a DEQ Hearings Officer (you may submit written comments to the DEQ any time during the open comment period). Please see Attachment A for details about the public comment period, the public hearings, and how you can submit comments to the DEQ.

The Environmental Quality Commission (EQC) will make the final decision on this PMR (the EQC is a five-member citizen commission appointed by the Governor that serves as DEQ's policy- and rule-making board.) At the conclusion of this public comment period, the Department will consider all comments received during both the first and second comment period and then prepare a staff report for EQC review. The staff report will discuss the issues identified about the proposed change, offer the EQC alternatives for consideration, and make a final recommendation on whether the UMCDF HW Permit should be modified as proposed. Consideration of this proposed modification and decision by the EQC is anticipated during their meeting scheduled for May 20-21, 2004.

### **3. Description of the Umatilla Chemical Agent Disposal Facility (UMCDF)**

The UMCDF is located in northeastern Oregon at the Umatilla Chemical Depot, about seven miles west of Hermiston, Oregon (about 175 miles east of Portland, Oregon). The address is 78072 Ordnance Road, Hermiston, OR 97838-9544. The UMCDF is a hazardous waste storage and treatment facility that will use four incinerators to destroy a stockpile of about 3717 tons of chemical warfare agents that has been stored at the Umatilla Chemical Depot (UMCD) since 1962. The chemical agents stored at UMCD include nerve agents and blister agents in liquid form. The nerve agents ("GB" and "VX") are contained in munitions, such as rockets, projectiles, and land mines, and in bulk items, such as spray tanks, bombs, and "ton containers."



The blister agent ("HD," also referred to as "mustard") is stored only in ton containers. All of the chemical agents are highly toxic.

The "demilitarization" process used by UMCDF has four basic steps: 1) transportation of the chemical weapons from the storage areas at the Umatilla Chemical Depot to the UMCDF Container Handling Building; 2) unloading the transport containers and placing the weapons onto a processing line; 3) draining the liquid chemical agent from the weapon; and 4) destroying the chemical agent and explosives and treating the remaining metal parts to destroy any residual chemical agent. UMCDF has four incinerator systems, each with two combustion chambers known as primary and secondary chambers (the secondary chamber is often referred to as an afterburner in some systems). There are two liquid injection incinerators to destroy the liquid nerve and blister agents, a "deactivation furnace" (a specialized type of rotary kiln) to destroy explosives, and a metal parts furnace to treat empty metal munition casings and bulk containers under high temperatures to destroy residual chemical agent. The processing of the munitions and containers will produce a variety of "secondary wastes" that are either stored for later treatment at UMCDF or shipped off-site for final disposal (once they are determined to be completely free of chemical agent).

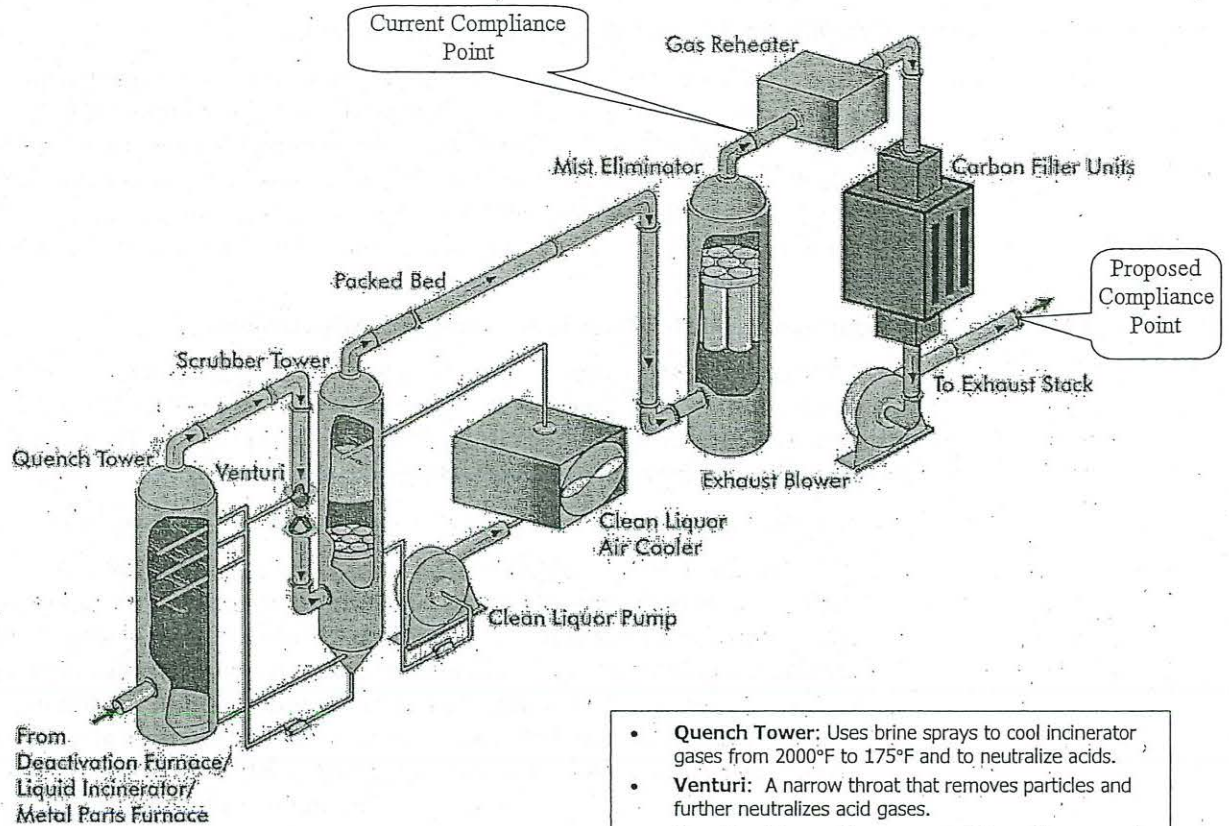
Each of the four furnace systems has its own pollution abatement system (the systems are identical) to cool the exhaust gases from the incinerators, remove particles, and neutralize the "acid gases." Each pollution abatement system consists of five main components: a quench tower, venturi scrubber, scrubber tower, mist eliminator vessel, and a set of carbon filter banks that serve as a final pollutant removal step. There is a large blower located at the end of the carbon filters that pulls the exhaust gases from the furnaces (called "induced draft") through the pollution abatement system and then exhausts the cleaned gases to the atmosphere through a common stack. The schematic on Page 5 shows the pollution abatement systems and the carbon filter system.

*The UMCDF HW Permit issued by the Commission in 1997 required that exhaust gases from each of the furnace be clean enough to meet the permit emission limits at a point after the mist eliminator vessel but before the carbon filters. The permit modification request submitted by UMCDF proposes to revise its permit to move that "point of compliance" from before the carbon filters to after the carbon filters.*

#### **4. Description of Permit Modification Request No. UMCDF-03-041-PFS(3) ("Change in Incinerator Emissions Compliance Point")**

The proposed modification is to revise two HW Permit Conditions, one in Module VI ("Short Term Incineration - Shakedown, Trial Burn And Post-Trial Burn") and one in Module VII ("Normal Operations"). Each of the two conditions (VI.A.1.vi. and VII.A.8.) contain essentially the same requirement, that "each incinerator shall meet the applicable performance standards ...before entering each incinerator's carbon filter system." The Permit Modification Request proposes to change the phrase "before entering" to "after exiting" the carbon filter system. No other changes to the HW Permit are proposed. Attachment B shows the affected Permit Conditions and the proposed changes.





**NOTE:**  
 Each furnace system has a pollution abatement system as illustrated here. All four systems at UMCDF then exit to a common exhaust stack.

- **Quench Tower:** Uses brine sprays to cool incinerator gases from 2000°F to 175°F and to neutralize acids.
- **Venturi:** A narrow throat that removes particles and further neutralizes acid gases.
- **Scrubber Tower:** Removes remaining acid gases and excess moisture by directing gas flow through a packed bed scrubber.
- **Mist Eliminator:** Removes large droplets of moisture and metal oxides in gas stream by using fabric filters.
- **Carbon Filter Units:** Includes pre-filters and high-efficiency particulate air filters to capture very small particles and metals and banks of carbon that capture remaining organic pollutants.
- **Exhaust Blower:** A blower that pulls gas flow through the Pollution Abatement System and then pushes the cleaned gases out through the common stack.

## Process Schematic Incinerator Pollution Abatement System Umatilla Chemical Agent Disposal Facility

## 5. DEQ's Tentative Decision to Recommend Approval

DEQ has made a tentative decision to recommend to the Environmental Quality Commission that the Commission approve the Class 3 Permit Modification Request "Change in Incinerator Emissions Compliance Point." If the Commission approves the change, the UMCDF Hazardous Waste Permit will be changed so that UMCDF may demonstrate compliance with emission limits at a point after the pollution abatement system carbon filter system. In effect, UMCDF will be allowed to "take credit" for the pollution reduction provided by the carbon filter units.

## 6. Significant Considerations in Reaching Tentative Decision

The DEQ made its tentative approval decision after consideration of the permit modification request, the Permittee's response to the Department's "Notice of Deficiency," and the public comments received during the first 60-day public comment period. The most significant issues that DEQ considered in making its decision are discussed below:

*a. The potential for adverse impacts on human health or the environment.*

Although the UMCDF HW Permit does not allow any additional "credit" be taken for the pollution reduction provided by the carbon filter units, it still includes a requirement that a furnace's carbon filter units be in operation ("on-line") at all times that the furnace is processing hazardous waste. (There are limited exceptions to this requirement—see 6e. below.) Approving or denying this permit modification request would not change the HW Permit requirement that the carbon filter units be operational at all times, so there will be no change (increase or decrease) in actual emissions to the atmosphere through the common stack. In addition, the proposed permit modification will not change the permitted emission limits.

Consequently there would also be no effect on the results of the 1996 Pre-Trial Burn Health and Ecological Risk Assessments, which concluded that operation of UMCDF would not pose unacceptable risks to human health or the environment. The risk assessments conducted by DEQ in 1996 used the permitted emission limits and did not assume any reduction in emissions due to the presence of the carbon filter units (the reality is that the carbon filter units do in fact considerably reduce the levels of some pollutants).

In summary, the proposed permit modification will not change the permitted emission rates (or the conclusions of the 1996 health risk assessment), nor will it change the requirement that the carbon filter units be in operation at all times a furnace is processing hazardous waste. Consequently, the DEQ does not believe that approval of the proposed modification will have an adverse effect on human health or the environment.

*b. The role the carbon filter units had in the 1997 finding of the Commission that incineration represented the "Best Available Technology" for destruction of the chemical weapons stockpile at the Umatilla Chemical Depot.*

The Commission as a whole did not rely on the presence of the carbon filter units in making its 1997 finding that incineration represented the "Best Available Technology" for destruction of the chemical weapons stockpile at the Umatilla Chemical Depot. This was reinforced through a "Clarifying Order" issued in March 1999 that stated the carbon filters



were "an additional pollution control component of the baseline incineration technology." Consequently, because the carbon filter units were not considered in the finding that incineration was the "Best Available Technology," approval of this permit modification would not affect the finding of the Commission in 1997.

- c. *The ability of the UMCDF furnaces to comply with emission limits, with or without "taking credit" for the carbon filter units.*

The Clarifying Order issued by the Commission in 1999 reiterated that the UMCDF incinerators "are designed to meet all applicable regulatory criteria without the PAS [pollution abatement system] carbon filters," and made specific reference to the requirement that emission limits be met before furnace gases pass through the carbon filters. As evidenced by the language in the Clarifying Order, and review of transcripts of meetings held in 1996 before the UMCDF HW Permit was approved, the Commission had every expectation that UMCDF would be able to meet the regulatory criteria without taking credit for the carbon filters. At the time the HW Permit was approved in 1997 the carbon filter units were in a preliminary design phase and had not ever been constructed or used on a combustion facility in the United States. No "credit" could be given to the ability of the carbon filters to reduce emissions because there were no data demonstrating that carbon filtration of incinerator exhaust gases was feasible.

Data have since been gathered (through testing at UMCDF and one other chemical demilitarization facility with an identical carbon filtering system) that demonstrate the effectiveness of the carbon filter units in reducing emissions of many pollutants to a level considerably lower than would be achieved by use of the standard pollution abatement system alone. Surrogate testing of the first liquid incinerator at UMCDF in early 2003 was successful, and the incinerator was able to demonstrate compliance with the existing permit conditions that require emission limits be met before the carbon filters. This is also expected to be the case when the second liquid incinerator undergoes testing.

However, surrogate testing conducted in 2003 of the deactivation furnace system has shown that UMCDF will not be able to demonstrate the deactivation furnace's compliance with existing HW Permit requirements at originally expected feed rates, at least not for a limited number of regulated compounds (such as the metals mercury and cadmium). To meet the current emission limits "before" the carbon filters, the feed rate of munitions to the deactivation furnace would have to be significantly reduced, greatly extending the time it will take to destroy the stockpile.

Reducing the feed rate of munitions (with the subsequent impact on operation duration) to meet the current emission limits before the carbon filters would not reduce the actual emissions to the atmosphere because the carbon filters must be operational at all times. The long-term effect of dramatically reduced feed rates to the deactivation furnace system actually has the potential to increase the overall emissions to the atmosphere during the lifetime of the facility because it would necessitate additional years of operation. In addition, there would be additional risk to the community from the continued storage of the stockpile.



The DEQ believes that the carbon filter units have now demonstrated their effectiveness in reducing emissions to the atmosphere from the UMCDF incinerators and can be relied upon to provide additional emissions control. Extending UMCDF's operation duration by reducing feed rates to the deactivation furnace would increase overall emissions to the atmosphere over the lifetime of the facility and would increase storage risk.

- d. *The impact of having different compliance points for the original HW Permit emission limits and the 1999 "Maximum Achievable Control Technology" (MACT) emission limits.*

The Permit Modification Request from UMCDF stated that one of the purposes of the proposed change is to "provide a consistent approach for complying with two sets of regulations." The reference to the "two sets of regulations" is the requirement that UMCDF comply not only with regulations related to hazardous waste combustion facilities under the RCRA program, but also with regulations related to the Clean Air Act. UMCDF's Air Contaminant Discharge Permit was issued at the same time as the HW Permit and at the time of issuance the emission standards in the two permits (for those compounds regulated under both programs) were the same.

In 1999 the U.S. Environmental Protection Agency promulgated new standards under the Clean Air Act called the "Maximum Achievable Control Technology" (MACT) standards. Demonstration of compliance with the MACT standards is at a point just before emissions are discharged to the atmosphere (in UMCDF's case that is after the carbon filters). UMCDF must now meet some emission standards before the carbon filters and some emission standards after the carbon filter. This poses some difficulties because of the need to bypass the filter units during testing (see 6e. below), making it difficult, if not impossible in some cases, for UMCDF to meet all of the MACT emissions standards (which makes no "exceptions" for the purposes of testing).

Approval of this permit modification would eliminate the need to comply with different standards at different points in the pollution abatement system. As noted above, whether or not compliance is measured "before" or "after" the carbon filter units has no practical effect on the actual emissions to the atmosphere from UMCDF because the carbon filter units must be on line regardless (except as discussed in 6e. below).

- e. *The impact of the proposed modification on the UMCDF surrogate and agent trial burn process, including the need to conduct tests with the carbon filters taken off-line.*

When UMCDF is conducting the tests needed to demonstrate that furnace emissions comply with permit limits "before" the carbon filter units, it must conduct the actual test sampling with the carbon filter units off-line, in what is called the "bypass" mode. (Emergency bypass of the carbon filter units is also allowed in certain conditions, but hazardous waste feed to the furnace must be stopped immediately if an emergency bypass of the carbon filter units is initiated.) The need to conduct tests with the carbon filters bypassed was not anticipated when the HW Permit was approved in 1997.

The permit conditions as originally written assumed that during compliance testing the carbon filters would be operating and that during compliance tests the actual sampling would be conducted by simply inserting the sampling probes in the ductwork leading to



the carbon filters. However, in actual operation it was found that when the carbon filters are in operation it is not possible to conduct sampling at that location because of extreme pressure differences caused by the filters. Consequently, during the tests to demonstrate compliance with the existing HW Permit limits the carbon filter units must be taken off-line. Although testing operations represent minimal risk because of tightly controlled conditions and short test durations, approval of the permit modification will eliminate the need to conduct testing with the filters bypassed when actual chemical agent operations begin.

#### **7. How to Submit Your Comments on the Proposed Permit Modification to the DEQ**

The Department, on the behalf of the Environmental Quality Commission, is inviting public comment on this proposed modification to the UMCDF HW Permit. The **public comment period** on this proposed Permit Modification will remain open from **January 14 through close of business (5:00 p.m.) on March 1, 2004**. Written comments may be submitted by e-mail, fax, or regular mail any time during the comment period, provided the comment is received by the Department no later than 5:00 p.m. on March 1, 2004. E-mail comments should be submitted to [ingram.shelly@deq.state.or.us](mailto:ingram.shelly@deq.state.or.us) and include the words "Public Comment" in the subject line. Comments submitted by facsimile transmission should be sent to (541) 567-4741. Comments sent by regular mail should be addressed to Mr. Dennis Murphey, Administrator, Chemical Demilitarization Program, 256 E. Hurlburt, Hermiston, Oregon 97838.

There will be **two opportunities for the public to provide oral comments** on the proposed modification: During the Environmental Quality Commission meeting on February 5, 2004 in Portland, Oregon (1:00 p.m., 811 S.W. Sixth, Room 3A) and at a public hearing to be held February 18, 2004 in Hermiston, Oregon at the Good Shepherd Hospital's Conference Room 1 (610 N.W. 11<sup>th</sup>) beginning at 7:00 p.m. Please see Attachment A for meeting details.

#### **8. What Happens Next?**

The Department will review and consider all oral and written comments received during the comment period. Department staff will then prepare a report with a recommendation to the Environmental Quality Commission. The report will include the Department's response to all significant comments received during both public comment periods. The Commission is anticipated to make a final decision on the proposed modification to the UMCDF HW Permit in May 2004 at its regularly scheduled meeting. The Commission may decide to modify the HW Permit as proposed or with changes, or may decide against modifying the HW Permit.

#### **9. For More Information**

For more information about this Permit Modification, or for other information on the Umatilla Chemical Agent Disposal Facility, please contact Shelly Ingram, Chemical Demilitarization Program, Hermiston office of the DEQ [Phone 541-567-8297 (ext. 25) or toll free in Oregon (800) 452-4011], or e-mail to [ingram.shelly@deq.state.or.us](mailto:ingram.shelly@deq.state.or.us). The Department's Chemical Demilitarization Program has prepared numerous fact sheets about the chemical weapons destruction process at the Umatilla Chemical Depot that are available upon request.

**Attachments**

- A Public Notice: Request for Comments and Notice of Public Hearing
- B Change Pages for the Proposed Modification of the UMCDF HW Permit



# Public Notice: Request for Comments and (REVISED) Notice of Public Hearings

Change in Incinerator Emissions Compliance Point  
Umatilla Chemical Agent Disposal Facility (UMCDF)  
Permit Modification Request UMCDF-03-041-PFS(3)  
(Permit No. ORQ 000 009 431)

Notice issued: January 14, 2004

Written comments due:  
5:00 p.m., March 1, 2004 (Revised)

Hearing dates:  
February 5, 2004 (Portland)  
February 18, 2004 (Hermiston) (Revised)

#### Portland Hearing (February 5):

Hearing time: 1:00 p.m.  
Hearing location:  
DEQ Headquarters Building, Room 3A  
811 S.W. Sixth Ave.  
Portland, OR 97204

#### Hermiston Hearing (February 18):

Hearing time: 7:00 p.m.  
(DEQ staff will be available at 6:30 p.m.  
to answer questions about the Permit  
Modification Request.)  
Hearing location:  
Good Shepherd Conference Center  
Conference Room # 1 (Revised)  
610 N.W. 11th  
Hermiston, OR

#### How can I send comments?

The DEQ will accept written or oral comments  
at the hearings listed above, or written  
comments by mail, fax or e-mail (see below).

Contact Name: Shelly Ingram  
DEQ Chemical Demilitarization Program

Phone: (541) 567-8297 ext. 25, or  
Toll-free in Oregon (800) 452-4011

Mailing address:  
DEQ Chemical Demilitarization Program  
256 E. Hurlburt Avenue  
Hermiston, OR 97838

Fax: (541) 567-4741

E-mail: [ingram.shelly@deq.state.or.us](mailto:ingram.shelly@deq.state.or.us)  
(Please include "Public Comment" in the  
subject line. E-mail comments will be  
acknowledged as soon as possible. The DEQ is  
not responsible for delays between servers that  
result in missed comment deadlines.)

#### What kind of facility is UMCDF?

The Umatilla Chemical Agent Disposal  
Facility (UMCDF) is a hazardous waste  
storage and treatment facility that will use four  
incinerators to destroy a stockpile of chemical  
warfare agents that has been stored at the  
Umatilla Chemical Depot (UMCD) since  
1962. UMCDF is owned by the U.S. Army  
and operated by Washington Demilitarization  
Company. A Hazardous Waste Storage and  
Treatment Permit (HW Permit) for the  
UMCDF was issued in February 1997.

The chemical agent stockpile at UMCD  
includes about 3,717 tons of nerve agents  
("VX" and "GB") and blister agent  
("mustard") in liquid form. The chemical  
agents are contained in munitions, such as  
rockets, projectiles and land mines, and in  
large containers, such as spray tanks, bombs  
and "ton containers." All of the chemical  
warfare agents are highly toxic.

#### Where is the facility located?

The UMCDF is located in northeastern Oregon  
at the Umatilla Chemical Depot, about seven  
miles west of Hermiston, Oregon (175 miles  
east of Portland, Oregon). The address is  
78072 Ordnance Road, Hermiston, OR 97838.

#### What is Proposed?

On September 16, 2003 the United States  
Army's Project Manager for Elimination of  
Chemical Weapons (PM ECW) submitted a  
Class 3 Permit Modification Request  
[UMCDF-00-041-PFS(3)] titled "Change in  
Incinerator Emissions Compliance Point."

UMCDF is requesting that the DEQ determine  
compliance with HW Permit limits using the  
air pollutant levels as measured after the  
carbon filter system, the final stage of each  
incinerator's pollution abatement systems. As  
originally issued, the UMCDF HW Permit  
required that emissions compliance be  
determined at a point just before passing  
through the carbon filter system.



State of Oregon  
Department of  
Environmental  
Quality

Office of the  
Director  
Chemical  
Demilitarization  
Program  
256 E. Hurlburt Ave.  
Hermiston, OR 97838  
Phone: (541) 567-8297  
(800) 452-4011  
Fax: (541) 567-4741

Contact: Shelly Ingram

DEQ Item No. 04-0051

[www.deq.state.or.us](http://www.deq.state.or.us)

In effect, the change will allow UMCDF to "take credit" for the ability of the carbon filters to remove additional pollutants from the incinerator gas streams.

An initial public comment period on this Permit Modification Request was held open from September 17-November 17, 2003 (60 days). A public information meeting was held on October 21, 2003 in Hermiston, Oregon. The DEQ received a total of eight public comments concerning the Permit Modification Request.

After consideration of the public comments, and review of the information submitted by the UMCDF related to this Permit Modification Request, the DEQ has made a tentative decision to recommend that the Environmental Quality Commission (EQC) approve the Permit Modification Request. The purpose of this Notice is to invite you to provide comments to the DEQ on this proposed change to the UMCDF HW Permit.

#### Why Has The Change Been Proposed?

The Permit Modification Request from UMCDF states that the purpose of the proposed change is to "provide a consistent approach for complying with two sets of regulations" and to "eliminate the need to test the incinerators during [chemical] agent trial burns with the [carbon filter] units bypassed."

#### How do I get more information and review pertinent documents?

In accordance with applicable regulations, DEQ has prepared a much more detailed Fact Sheet with information related to this Permit Modification Request and the reasons for DEQ's tentative decision to recommend approval. You can review the detailed Fact Sheet and other documents related to Permit Modification Request UMCDF-03-041-PFS(3) at the Hermiston DEQ office (please call ahead for an appointment) or at one of the following information repositories:

Hermiston Public Library  
235 E. Gladys Avenue  
Hermiston, OR 97838  
(541) 567-2882

Mid Columbia Library (Kennewick Branch)  
1620 S. Union St.  
Kennewick, WA 99336  
(509) 586-3156

Pendleton Public Library  
502 S.W. Dorion Avenue  
Pendleton, OR 97801  
(541) 966-0210

Portland State University Library  
951 S.W. Hall, Fifth Floor  
Portland, OR 97204  
(503) 725-4617.

You can also call, write or e-mail the Hermiston DEQ office and request information be sent to you. Interested parties are invited and encouraged to provide comments on this proposed change to the UMCDF permit. Staff will be available to answer questions from 6:30-7:00 p.m. before the public hearing in Hermiston on February 18, 2004.

#### What happens next?

After completion of the public comment period the DEQ will review and consider oral and written comments received during the comment period. DEQ will then prepare a staff report for consideration by the EQC. The Staff Report will include the DEQ's final recommendation to the Commission on whether to approve the permit modification as proposed, approve the modification with revisions, or to deny the modification request.

The staff report will include an explanation of the DEQ's reasoning in coming to its final recommendation, and DEQ's responses to significant comments received during both the first and second comment periods. The DEQ anticipates the final decision of the EQC will be made during a regularly scheduled EQC meeting in May, 2004.

#### Accessibility information

*DEQ is committed to accommodating people with disabilities at our hearings. Please notify DEQ of any special physical or language accommodations or if you need information in large print, Braille or another format. To make these arrangements, contact Shelly Ingram at (541) 567-8297 ext. 25, or toll free in Oregon at (800) 452-4011.*

*People with hearing impairments may call DEQ's TTY number, (503) 229-6993.*



**ATTACHMENT B**  
**Change Pages for the Proposed Modification of the HW Permit**  
**Permit Modification Request No. UMCDF-03-041-PFS(3)**  
**("Change in Incinerator Emissions Compliance Point")**

Permit Module	Comments
<b>MODULE VI ("Short Term Incineration - Shakedown, Trial Burn And Post-Trial Burn")</b>	
Condition VI.A.1.vi. (Construction and Maintenance)	Change the phrase "before entering" to "after exiting"
<b>Module VII ("Incineration – Normal Operations")</b>	
Condition VII.A.8 (General Operation))	Change the phrase "before entering" to "after exiting"

Change Pages for the Proposed Modification of the HW Permit  
Permit Modification Request No. UMCDF-03-041-PFS(3)  
("Change in Incinerator Emissions Compliance Point")

Text proposed for deletion is ~~struckout~~  
Text proposed for addition is underlined

**Proposed Change to:**  
**MODULE VI - SHORT TERM INCINERATION - SHAKEDOWN, TRIAL  
BURN AND POST-TRIAL BURN**

**VI.A. GENERAL CONDITIONS DURING SHAKEDOWN, TRIAL BURN AND POST-TRIAL  
BURN FOR ALL INCINERATORS AT THE UMCDF SITE**

**VI.A.1. Construction and Maintenance [40 CFR §264.31]**

i. – v. (Not shown here.)

- vi. The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this permit. Each incinerator shall meet the applicable performance standards specified in Permit Conditions VI.B.1., VI.C.1., VI.D.1., and VI.E.1. ~~before entering~~ after exiting each incinerator's carbon filter system.

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**Proposed Change to:**  
**MODULE VII - INCINERATION - NORMAL OPERATION**

**VII.A. GENERAL CONDITIONS FOR ALL INCINERATORS AT THE UMCDF SITE**

VII.A.1 – VII.A.7 (Not shown here.)

**VII.A.8. General Operation**

The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this Permit. Each incinerator shall meet the applicable performance standards specified in Permit Conditions VII.B.2., VII.C.2., VII.D.2., and VII E.2. ~~before entering~~ after exiting each incinerator's carbon filter system.



# **ATTACHMENT D**

**Transcript of the Public Hearing held in Portland, Oregon  
February 5, 2004  
Before the Environmental Quality Commission**

(DEQ Item No. 04-0261)

Permit Modification Request UMCDF-03-041-PFS(3)  
"Change in Incinerator Emissions Compliance Point"  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

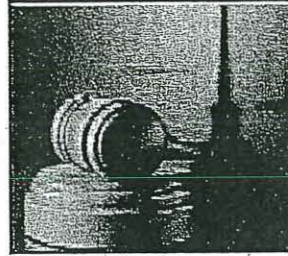
**Persons Providing Oral Comment at the February 5, 2004 Meeting  
of the  
Environmental Quality Commission**

<b>Commenter</b>	<b>PAGE<sup>a</sup></b>
Introduction of Public Hearing on Permit Modification Request	D-25
Public Hearing Opened by Chairman Reeve	D-29
Ted Haigh, Confederated Tribes of the Umatilla Indian Reservation	D-30 <sup>a</sup>
Karyn Jones and J.R. Wilkinson, G.A.S.P.; and Oregon Wildlife Federation	D-34 <sup>a</sup>
John Herron, Hermiston	D-39

<sup>a</sup> Also provided written comments (See Attachment G)



DEPARTMENT OF ENVIRONMENTAL QUALITY  
UMATILLA CHEMICAL DEMILITARIZATION PROGRAM



**\*\*REVISED\*\***

PUBLIC HEARING  
PORTLAND, OREGON  
FEBRUARY 5, 2004

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**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

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COMMISSIONER REEVE: I will now call the regular scheduled meeting of the Environmental Quality Commission to order. Welcome, everybody.

I'll briefly introduce the Commission, our staff, and then we'll get to our agenda items for today. One thing I would like to do at the very start is to let people know that, as indicated on our agenda, we do have a public comment period for general matters and then we have a special comment period for other matters. In terms of the public forum, which is where we take up matters that are not on our agenda, we will be doing that tomorrow at 11:30. So if there's anybody here who wants to address the Commission on a item that is not on our agenda, come back tomorrow, Friday at 11:30, and we will be happy to hear your comments at that time.

With that, I would like to briefly welcome and introduce our newest member to the Commission, Ken Williamson. We're glad to have you here and look forward to working with you, Ken. To my immediate right is Didi Malarkey, who lives in the Eugene area and has been a longtime and wonderful member of our Commission. And to my left is Lynn Hampton from the Pendleton area, who I think will be

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**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

1 traveling here at least in the near future as we pick  
 2 up a future EQC hearing there. And my name is Mark  
 3 Reeve, and I'm from the Portland area. We are  
 4 assisted here today by our counsel, Larry Knudsen.  
 5 The director of DEQ also is here, Stephanie Hallock  
 6 and Mikell O'Mealy, our assistant.

7 If you would like to address the  
 8 Commission on an item that does take public comment,  
 9 you may fill out one of the yellow forms that are on  
 10 the back table and present that form to Mikell so we  
 11 can simply organize our testimony that we're going to  
 12 hear today and proceed in an orderly fashion.

13 If there is no other business to  
 14 take up, I'll move straight into our agenda and take  
 15 it up with agenda item A. Agenda item A is an  
 16 information item. It is not an action item, and it  
 17 concerns proposed -- It's an update of activities at  
 18 the Umatilla facility as well as some additional  
 19 information concerning proposed modifications to the  
 20 permit for the Umatilla facility. I would like to  
 21 hear first from staff with the update and then we'll  
 22 move into the information -- into the public comment  
 23 period and take comments both from the members of the  
 24 audience and, if there are commenters on the  
 25 telephone, we'll take them after we hear from people

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**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**



1 in the audience. Mr. Murphey?

2 MR. MURPHEY: Thank you, Mr.  
3 Chairman, members of the Commission. For the record,  
4 my name is Dennis Murphey. I'm the administrator of  
5 the Chemical Demil Program for DEQ. And, with me  
6 today, are Tom Beam, who is the lead permit writer  
7 for the Chemical Demilitarization Program and Sue  
8 Oliver, who is a senior demilitarization specialist  
9 with the program.

10 As you requested, we will provide  
11 you with an oral update on the status of the Umatilla  
12 project. I will be sharing a few remarks with you  
13 regarding surrogate trial burn activities and a couple  
14 of other items that were included in the written  
15 status update that you were previously provided. Tom  
16 Beam will talk to you about some activities and  
17 status on the brine reduction area, which is a  
18 subject that the EQC has been very interested in.  
19 And then Sue Oliver and will sort of set the stage  
20 for you by giving you some background information on  
21 the permit modification request related to the carbon  
22 filters that is the subject of the public hearing --  
23 public comment period today and then transition into  
24 that comment period.

25 If at any time you have any

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**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

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questions regarding any of the items that we're discussing with you, feel free to raise those questions at any point. You've been provided a fairly lengthy written document. I'm just going to hit some of the highlight points. I would call attention that there are a couple things, since the document was prepared back on the 30th of January, there would be a couple of issues that I'll be able to give you an oral update and change a couple of items.

With respect to trial burns, major activity at the site going through the trial burn process for all four of the furnace systems -- Liquid Incinerator 1: The Department has received a response to the Notice of Deficiency that we issued based on a review of the Surrogate Trial Burn Report and there are a few minor discrepancies that are being resolved. But, in essence, the LIC1 Trial Burn Report seems to be satisfactory and there are no significant issues remaining at this time.

Deactivation furnace system: The Trial Burn Report was submitted to the Department back in December. And, based upon preliminary information that I believe I shared with you at the last meeting, we saw in the final report much of what we expected,

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1 which was that the furnace successfully demonstrated  
 2 its ability to destroy the surrogate compounds that  
 3 are surrogates for chemical agent. It met all of the  
 4 other emission limits associated with the furnace  
 5 system, with the exception of three of the metals,  
 6 and that occurred even at metal spiking conditions  
 7 that were intended to be representative of low rocket  
 8 feed conditions when we were looking at the  
 9 concentrations inlet to the carbon filters. Exit the  
 10 carbon filters, all of the parameters and emission  
 11 limits in the permit were satisfied.

12 The Department has notified the  
 13 facility that it will be necessary for them to repeat  
 14 a portion of the surrogate trial burn under conditions  
 15 where they can demonstrate compliance with the  
 16 existing -- for the carbon filter permit limits for  
 17 all of the parameters. The facility, while opposing  
 18 that, is beginning plans working with the Department  
 19 to conduct that retest while they continued to pursue  
 20 other options as they've identified that they believe  
 21 could be implemented.

22 The metal parts furnace is the  
 23 furnace that has most recently gone through the trial  
 24 burn process. I noted in the report that we expected  
 25 that trial burn to be completed on January 31st,

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1 which was last weekend, by Saturday. In actuality,  
 2 it ran through Sunday, February 1st, but that trial  
 3 burn now has been completed. There were several  
 4 delays that resulted from sampling issues and other  
 5 operational furnace problems, a need to make a permit  
 6 modification for some operating range parameters that  
 7 interrupted the process for a period of a few days.  
 8 However, now that trial burn has been completed. The  
 9 furnace appeared to operate well and the surrogate  
 10 trial burn report must be submitted to the Department  
 11 within 90 days of completion of the onsite testing.  
 12 So we will be expecting that report within the next  
 13 three months.

14 Liquid Incinerator 2 will be the  
 15 final of the four furnaces to go through the  
 16 surrogate trial burn process, and it's anticipated  
 17 that that trial burn will occur sometime this spring  
 18 following the retest of the deactivation furnace.

19 I wanted to briefly call your  
 20 attention to -- We've given you a little more  
 21 information about the Chemical Agent Operations  
 22 authorization process. Obviously, that's a significant  
 23 milestone for the EQC. You will be making that very  
 24 important decision. The facility is hopeful at being  
 25 prepared to begin Agent Operations in the summer of

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1 2004. And as I noted in the report that we conveyed  
 2 to you and to the Army and everyone else, that we  
 3 will recommend that you authorize the start of Agent  
 4 Operations only when the facility has demonstrated  
 5 readiness to safely process chemical agents and to  
 6 satisfy all the permit requirements, that we're  
 7 working on that process at the present time. We will  
 8 be doing a compliance assessment and doing some other  
 9 activities. We continue to expect to ask this body  
 10 to meet out in Hermiston for a public hearing on the  
 11 process of authorizing Agent Operations. We will  
 12 provide you as much advance notice of when we'd like  
 13 to have that special meeting occur as possible. And  
 14 then it's also our expectation and hope that you  
 15 would be able to hold a special public meeting of the  
 16 EQC in Hermiston to actually make the decision to  
 17 authorize Agent Operations.

18 COMMISSIONER REEVE: Before you  
 19 leave that subject, remind me how that fits with the  
 20 checklist that the DEQ had been working with the Army  
 21 to develop the checklists or when it started.

22 MR. MURPHEY: Sue?

23 MS. OLIVER: For the record, this  
 24 is Sue Oliver. Commissioner, that is the checklist.  
 25 We will be starting a process approximately 90 days

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1 before the facility thinks it will be ready to start  
 2 Agent Operations and we will produce -- It's actually  
 3 already pretty much together. Now we're just waiting  
 4 to fill in some blanks and we'll start doing -- The  
 5 checklist is actually what we call the compliance  
 6 assessment and we list all the requirements that they  
 7 need to be and whether they've met them. And so the  
 8 public hearing we're proposing where you would take  
 9 comment would actually occur probably about day 45 of  
 10 that 90-day period before start of Agent Operations.  
 11 And we would put out the compliance assessment for  
 12 public comment about 30 days before. We will then  
 13 update it immediately before the public hearing  
 14 because there will be a lot of things that we'll be  
 15 finishing up during that time. And then it will be  
 16 updated again and the public comments taken into  
 17 consideration and we'll put together a staff report  
 18 for the last big meeting where you will actually  
 19 consider authorizing the start of Agent Operations.

20 COMMISSIONER REEVE: Okay. Thanks.

21 MR. MURPHEY: And again, that's  
 22 somewhat uncertain as to when all that will take  
 23 place, but we'll try to give you as much advance  
 24 notice as we possibly can.

25 The last item I was going to

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1 mention before I turned it over to Tom was the issue  
 2 related to the federal fiscal year budget that the  
 3 President just turned into Congress earlier this week.  
 4 We have not gotten an analysis yet of the budget as  
 5 it relates to the chemical demilitarization budget for  
 6 the Army's operation of their program. However, we  
 7 had heard reports that it was very likely that the  
 8 President's budget would contain a significant  
 9 shortfall in terms of adequate funding to operate all  
 10 of the demilitarization projects in fiscal year 2005.  
 11 In fact, the number that had been mentioned was a  
 12 possibility of shortage in excess of \$200 million.  
 13 We are hoping to get some further clarification on  
 14 what the final budget submittal by the President  
 15 reflects in terms of operation of the demilitarization  
 16 program, and we'll be providing that information to  
 17 you in the future. If, in fact, there is a  
 18 significant funding gap that might affect either  
 19 funding for the Umatilla project or for the oversight  
 20 resources for the Department's regulatory oversight of  
 21 the facility, we will be working with our  
 22 congressional delegation on that issue as the budget  
 23 works through the congressional review process.

24 Do you have any questions on any  
 25 of those items? If not, I would like to turn over

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1 at this time to Tom Beam, who is going to talk to  
2 you about Brine Reduction Area.

3 MR. BEAM: Good afternoon, Mr.  
4 Chairman and members of the Commission. For the  
5 record, my name is Tom Beam. I'm the senior  
6 environmental engineer and the permitting lead for the  
7 chemical demilitarization program in Hermiston. What  
8 I wanted to go over briefly today was the status of  
9 where we are on the Brine Reduction Area. -- A quick  
10 brief background to kind of help focus thoughts, in  
11 particular for Commissioner Williamson. In July of  
12 last year the EQC approved a modification to the  
13 UMCDF hazardous waste permit that allowed limited off  
14 site shipments of brines from the pollution abatement  
15 system. As part of that decision, the EQC expressed  
16 some serious concerns that those shipments be  
17 minimized to the maximum extent possible and that they  
18 only be done when absolutely necessary. Also, as  
19 part of that decision, the Commission indicated their  
20 expectations that we would closely monitor the  
21 situation and using my own words, "hold their feet to  
22 the fire" to make sure that it happens. And then  
23 finally, you asked for some periodic reports on the  
24 situation so that you would be able to keep track of  
25 what's going on.

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1 So now I'll just go onto the  
2 update itself. We expect that the BRA, the Brine  
3 Reduction Area operational readiness, will be a  
4 prominent component of our compliance assessment that  
5 Sue was just talking about as far as reaching a  
6 determination that the site is ready to go and making  
7 a recommendation to the Commission on whether to  
8 authorize the start of Agent Operations. From that  
9 standpoint, I'm kind of in a position to provide you  
10 with a little bit of good news and maybe a little  
11 bit more bad news at this point. At least I will  
12 characterize it as "bad news." The good news is that  
13 it appears that the Brine Reduction Area will be up  
14 and operational in time to support the start of  
15 Chemical Agent Operations this summer. I think the  
16 status update that you received previously indicated  
17 that shakedown operations on the Brine Reduction Area  
18 would take start of sometime this month. As of the  
19 latest information I received this week, it appears  
20 that that will start next week perhaps as early as  
21 Monday. There's just a final few instruments needed  
22 to be calibrated and a couple -- a little bit more  
23 fine-tuning. So that's the good news. And that will  
24 allow them to meet the requirements in Attachment 6  
25 of the permit that specifically require them to have

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1 the Brine Reduction Area up and operational at this  
2 point.

3 Another piece of good news is that  
4 we are currently reviewing what we refer to as the  
5 Brine Reduction Area Performance Test Plan. It is  
6 very similar to a Trial Burn Plan. It is the plan  
7 which will dictate exactly how the Army will test the  
8 Brine Reduction Area to prove that it meets emission  
9 limits and comply with the permit. And we expect  
10 that we will be able to approve that plan probably in  
11 the April time frame and we are currently ongoing  
12 with resolving some outstanding issues.

13 Some areas that I don't consider  
14 are making quite as good progress are a little bit  
15 more -- One of the conditions that you approved in  
16 July specified that shipments could be made -- or  
17 off- site shipments of brine could be made only when  
18 it could be shown that the brine quantities that were  
19 generated have been minimized and that the processing  
20 capacity of the Brine Reduction Area have been  
21 maximized. I'm not exactly happy to report that at  
22 this time we have not seen any real evidence that  
23 this is being taken seriously. As I said, we are  
24 making progress to getting it operational, but there's  
25 been no -- I think I mentioned back in July that

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1 there had been a number of reports made -- or written  
2 by the Army analyzing and evaluating brine generation  
3 quantities and what could be done to help make it  
4 work better. And to date I'm unaware that any of  
5 the recommendations from those reports are in the  
6 implementation stage. I should caveat this, that it  
7 is possible that during the shakedown process over the  
8 next month or so, that we will find that the Brine  
9 Reduction Area is capable of processing more than we  
10 think it can, and so some of those problems may  
11 mitigate themselves. However, I think the evidence to  
12 date suggests that there -- that potential is small.  
13 A couple things that lead me to make that statement  
14 -- The recently completed surrogate trial burns for  
15 each of the various furnaces have been conducted and  
16 have resulted in operating conditions for the  
17 pollution abatement systems, which are likely to  
18 result in more brine than we originally anticipated.  
19 Because of the presence of some additional, like the  
20 carbon filter systems, a lot of the brines are coming  
21 out of the pollution abatement system, for lack of a  
22 technical term, "more watery" than we had anticipated  
23 or that the Army had anticipated. And as a result  
24 they're happening to get sent over to the Brine  
25 Reduction Area sooner than they would like to. In

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1 addition, they've been unable to maintain the pH of  
2 the pollution abatement system brines as low as they  
3 would like to. I wish I could pull those numbers  
4 right off the top of my head. But, the lower you  
5 can get the pH, the more you can use the brines and  
6 the less frequently you have to discharge it to the  
7 Brine Reduction Area. So, you combine those couple  
8 factors and it definitely appears that they're going  
9 to be generating more brine than we expected.

10 I should note that it's our  
11 understanding that the Army has put together, what I  
12 would phrase or categorize as, a Brine Reduction Area  
13 optimization group. And it's my understanding that  
14 that group is evaluating some of the options for how  
15 to improve the performance of the Brine Reduction  
16 Area, and they are doing that as part of their  
17 operational readiness review process. And so I think  
18 that that's a good thing, that they've got some  
19 attention focused on that. Unfortunately, I think I  
20 would have liked to have seen that occur much sooner.  
21 The reports that we have typically relied on to keep  
22 an eye on what could be done came out in December of  
23 2002 and May of 2003. And some of those proposed  
24 changes are ones which would have enjoyed the --  
25 would have had the most impact if they could have

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1 been implemented prior to the conducting of some of  
 2 the agent -- of the surrogate trial burns. So, what  
 3 we have yet to see -- what the results will be of  
 4 their evaluations. But, as I said, we are not aware  
 5 that there have been any physical changes put in  
 6 place to implement any of those changes. And it's  
 7 obviously quickly coming up on the start of Agent  
 8 Operations. So we will be continuing to monitor that  
 9 very, very closely and we'll be holding a very high  
 10 standard for what constitutes having minimized brine  
 11 generation and maximize their capacity, should they  
 12 believe they have the need to ship off-site.

13 With that, I think I'll wrap it  
 14 up. I think that's a brief overview. I'm prepared  
 15 to try and answer any questions you might have before  
 16 I turn it back to Dennis and Sue.

17 COMMISSIONER REEVE: Questions? I  
 18 have a couple. One is: One of the concerns we  
 19 heard last summer, as I remember, were corrosion  
 20 problems in tanks. Have those been addressed?

21 MR. BEAM: Yes and no would be my  
 22 answer. They've been identified and the linings on  
 23 the tanks are being repaired and replaced. There is  
 24 a separate effort ongoing right now to more completely  
 25 evaluate the corrosion resistance or the cathodic

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1 protection program for those tanks. What has yet to  
 2 be determined is whether that evaluation will be  
 3 completed in time for the start of Agent Operations  
 4 or whether the linings themselves are sufficient to  
 5 provide that corrosion protection. So we are still  
 6 waiting to hear some of the details of the cathodic  
 7 protection program, but they are on track at this  
 8 point to completely replace the linings in the four  
 9 tanks prior to the start of Agent Operations.

10 COMMISSIONER REEVE: And at that  
 11 the time we were also, as I remember, talking about  
 12 the amount -- the storage capacity basically and how  
 13 the storage capacity related to estimates of need,  
 14 obviously. And, therefore, if there is a situation  
 15 with insufficient storage, you're looking at what we  
 16 were trying to avoid, which is off-site shipments.  
 17 Has there been any additional work done in terms of  
 18 alternatives for increasing storage?

19 MR. BEAM: If there has, we're not  
 20 aware of that. I mean, there has certainly been no  
 21 physical work on the ground when I was out there last  
 22 week -- no physical work on the ground to suggest  
 23 that there is preparations to install additional  
 24 storage capacity, other than perhaps bringing in  
 25 portable tanks of some sort. So if there are efforts

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1 under way to install additional storage capacity, I'm  
2 unaware of them.

3 COMMISSIONER REEVE: In essence, as  
4 you view this optimization group -- I view it as it  
5 could be an attempt to optimize what they've got and  
6 what they already plan to do, on the one hand. But  
7 if it were somewhat broader mission to optimize the  
8 actual treatment onsite of the brines, it could take  
9 a large view and look at other options, such as  
10 adding storage or different things on how the whole  
11 system is operated or even augmented. Are you in  
12 close enough touch with the contractor and the Army  
13 to -- I'm concerned about some of your statements  
14 that DEQ is not closely enough involved in the  
15 planning and the implementation of what's going on  
16 here so that I don't want to see us come down closer  
17 to the start of Agent Operations and find out, "Oh,  
18 the agency wasn't plugged in enough to have expressed  
19 its concerns." And we can certainly express our  
20 concerns, but, as a Commission, we only see little  
21 tiny snapshots along -- over a long period of time.  
22 Do you see that there is a need for the agency,  
23 yourself or other staff members, to be more closely  
24 working with the Army in terms of resolving these  
25 concerns? Because they are quite serious concerns, I

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1 think, from the standpoint of the Commission, at least  
2 has been expressed before.

3 MR. BEAM: Absolutely, Mr. Chairman.  
4 The actual existence and, of course -- of this  
5 so-called Brine Reduction Area optimization group --  
6 or effort -- I don't even know if it's a group -- or  
7 this effort that is being conducted as part of their  
8 operational readiness review, I only became aware of  
9 this yesterday. And so I think that we have  
10 certainly conveyed -- and perhaps we have not been as  
11 strong as we should have been -- We have certainly  
12 conveyed consistently that this is a very serious  
13 concern and that we want to know that they're making  
14 progress towards addressing these concerns, but I'm  
15 not aware that we have -- The fact that we're not  
16 aware of any efforts ongoing would suggest that  
17 perhaps we have not been as close in the process as  
18 we should have been.

19 MR. MURPHEY: We conveyed both in  
20 staff-level discussions and at management-level  
21 discussions between the Department and the facility  
22 the importance of this issue and how seriously the  
23 agency regards the expectation of taking all  
24 reasonable measures to minimize the need to ship any  
25 brine off site once the facility begins operation.

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1 And I have no doubt that that message has been heard  
2 and we will initiate steps to involve ourselves  
3 further in the discussions that are taking place at  
4 the facility so that we can give you a further  
5 progress report at our next meeting.

6 COMMISSIONER REEVE: Speaking  
7 frankly, what is reasonable is something that we would  
8 have to rely a fair amount on expertise -- experts to  
9 tell us. We're not going to substitute our judgment  
10 in terms of reasonableness of things that require  
11 technical, you know -- specialized expertise. But I'm  
12 not, as a public member here -- I'm not getting  
13 assurances from the Department that would lead me to  
14 conclude, and certainly as we go along here, that  
15 you're feeling that staff is feeling satisfied on  
16 that.

17 MR. MURPHEY: As Tom indicated,  
18 this is obviously going to be a significant part of  
19 the overall assessment -- compliance assessment that  
20 Sue will be doing. But even before we get to the  
21 stage of that compliance assessment, we will pursue  
22 with the facility in more detail, specifics of what  
23 steps they are taking to meet that requirement.

24 COMMISSIONER MALARKEY: I had a  
25 question. I believe we read this week that the

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1 representative from the Governor's Office will be  
 2 participating or focusing on a meeting with the issues  
 3 of final permitting, but I couldn't remember if it's  
 4 only on the safety issue or whether it's on the  
 5 construction part.

6 MR. MURPHEY: No. Mr. Craig  
 7 Campbell -- I noted in the report that there is a  
 8 new Governor's liaison for the Umatilla project. That  
 9 includes both the CSEPP -- or the Chemical Stockpile  
 10 Emergency Preparedness Program -- as well as our  
 11 regulatory oversight of the Umatilla Chemical Agent  
 12 Disposal Facility. Craig is the senior policy advisor  
 13 to the Governor on public safety and is involved in  
 14 homeland security issues as well. But, no, he will  
 15 be involved in terms of being our liaison with the  
 16 Governor's Office on the regulatory side of the  
 17 facility as well. And, in fact, he would like to  
 18 have been here but there's an activity going on out  
 19 in Hermiston today. Actually, he's out there  
 20 associated with the dedication of a wireless  
 21 communications system that's been a part of the  
 22 emergency preparedness program, along with Congressman  
 23 Walden. So he sends his regrets. He would have  
 24 otherwise liked to have been here today. I'm sure he  
 25 will be attending a future EQC meeting.

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1 COMMISSIONER MALARKEY: Thank you.

2 COMMISSIONER WILLIAMSON: I just had  
3 a couple of simple questions here. What quantities  
4 of brine are we talking about here shipping off site?  
5 What would be your goal of getting them to --

6 MR. BEAM: I think I can safely  
7 say that our goal would be zero. I mean, that was  
8 our intent all along. It was only upon having  
9 information brought to our attention that either there  
10 was more brine expected to be generated or the Brine  
11 Reduction Area could not process perhaps as much as  
12 we originally anticipated, that we were forced to  
13 re-evaluate that position to determine if there was  
14 some room to provide some ability for off site  
15 shipments. But our ultimate goal would be to have  
16 none go off site.

17 MR. MURPHEY: The off site storage  
18 capacity -- We've talked about the storage tanks.  
19 There are four 40,000-gallon storage tanks. Is that  
20 correct, Tom?

21 MR. BEAM: Yes. I mean, that's  
22 nominal storage capacity. I mean, design capacity is  
23 higher, but that's what they try to maintain, is  
24 40,000.

25 COMMISSIONER WILLIAMSON: Okay. And

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1 then the technology being used -- are they flash  
2 evaporating it?

3 MR. BEAM: Yes. The Brine  
4 Reduction Area consists of two stages, two different  
5 types of treatment units. The first one is a flash  
6 evaporator that is used to basically preconcentrate  
7 the brines to a designated specific gravity. And  
8 then it is fed to a drum dryer, which is two basic  
9 giant rollers. The comparisons I've heard used most  
10 are the processing industry -- powdered milk.

11 MR. MURPHEY: Cornflakes.

12 MR. BEAM: Cornflakes. Whatever.  
13 Basically, two giant rollers that the brine evaporates  
14 on the surface of and then is scraped off as salt  
15 using steam injected into the interior of the drum  
16 rollers to do the evaporating.

17 MR. MURPHEY: Mr. Chair, I'd just  
18 like to offer that if there are further questions  
19 that you would like to address regarding any issues  
20 associated with the project, we'd be glad to come  
21 back after you hold the public comment period on the  
22 permit modification and address these issues and  
23 anything else that might be informative for the  
24 Commission.

25 COMMISSIONER REEVE: Okay. Thanks.

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1 But I didn't want to cut off any questions. Did you  
2 have anything else?

3 COMMISSIONER WILLIAMSON: No, that's  
4 fine.

5 MS. OLIVER: Mr. Chair, I think  
6 it's sort of impossible to -- Perhaps we could come  
7 back at your next meeting and perhaps the contractors  
8 themselves could come and give a presentation on what  
9 they are doing in terms of their BRA optimization  
10 efforts. And in the meantime, we could perhaps  
11 provide Commissioner Williamson with some additional  
12 information on that subject because it certainly will  
13 be a subject we'll be dealing with in the next few  
14 months.

15 COMMISSIONER REEVE: Yeah, that  
16 would be helpful. Thanks.

17 MR. MURPHEY: At this point, I'd  
18 like to let Sue frame some of the discussion on the  
19 permit modification requests, if you're going to  
20 receive public comments on here today -- and give you  
21 a little bit of background information and then  
22 transition into the public comment period. And, as I  
23 said, we'll be happy to respond to any other  
24 questions or issues.

25 COMMISSIONER REEVE: Great.

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1 MS. OLIVER: I was just going to  
 2 do a very short introduction. The primary purpose of  
 3 this time before you is for people to make public  
 4 comments. And I would remind anyone in the audience,  
 5 if you are interested in making comments and haven't  
 6 already done so, to fill out the form that's on the  
 7 back table and bring it up here to Mikell O'Mealy,  
 8 who is here at the corner of the front table.

9 Is there anyone on the telephone?

10 MS. O'MEALY: No.

11 MS. OLIVER: We did have a call in  
 12 line set up, but apparently no one has called in.

13 In September of 2003 we received a  
 14 Class 3 permit modification request from the  
 15 Permittees proposing to change the point of  
 16 compliance. This is the point in the incinerator  
 17 systems where we measure their compliance with the air  
 18 emission standards. And, essentially, the proposal  
 19 comes down to changing the original permit requirement  
 20 that required all emission standards to be met before  
 21 the flue gases went through the carbon filtration  
 22 system, to change that point to after the carbon  
 23 filtration system. The way the RCRA permitting  
 24 process works for the Class 3 permit mod -- That  
 25 starts with their submittal of the permit mod. They

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1 would then open a 60-day public comment period, which  
 2 is essentially the Permittees' public comment period,  
 3 although the comments are submitted to the Department.  
 4 During that time, they hold a public meeting to give  
 5 interested members of the public further information,  
 6 which they did. Ongoing with that was, we prepared a  
 7 Notice of Deficiency on the permit modification  
 8 request looking for additional information for some of  
 9 the material that was in the request. They did  
 10 respond to that. And that first public comment  
 11 period was closed I believe in mid-November. All of  
 12 that material, including the public comments we  
 13 received during that time and the Notice of Deficiency  
 14 and the response was sent to you, along with the  
 15 original permit mod -- was sent in October. And just  
 16 recently you should have got another packet with that  
 17 material.

18 After we reviewed the comments and  
 19 the response to the Notice of Deficiency, the  
 20 Department has made a tentative decision to recommend  
 21 that you approve this permit modification request.  
 22 Once we make that tentative decision, we then issue  
 23 our tentative decision again for another public  
 24 comment period. This time it will last 45 days. It  
 25 was just recently started and will extend through

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1 March 1st. There is a -- I prepared what is called  
 2 a RCRA Fact Sheet on this issue. The Fact Sheet is  
 3 on the back table. There's a lot more detailed  
 4 information on how -- what kinds of things we looked  
 5 at in coming to that decision.

6 I would like to apologize to the  
 7 audience though. As I was reviewing the material  
 8 before the meeting started, I discovered that there is  
 9 supposed to be an Attachment A in that Fact Sheet,  
 10 which is a copy of a public notice that was sent out  
 11 in January, which did not apparently reproduce. You  
 12 have a lovely blank page with footers and I can --  
 13 The information on that page that I think is most key  
 14 is the information that is also included on page 9 of  
 15 the Fact Sheet concerning another public hearing that  
 16 we will be having in Hermiston on February 18. But,  
 17 certainly, if anyone needs the particular Attachment  
 18 A, I can provide that in a flash. I do apologize  
 19 for that.

20 So that's where we are now. We're  
 21 in the middle of the public comment period. Because  
 22 of the timing issue, it seemed only appropriate to  
 23 allow people a chance to comment to the Commission,  
 24 since you were having a meeting within the time  
 25 frame. So at this point, I'll turn to the Chair to

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1 open the hearing and we will remove ourselves and  
2 come back afterwards.

3 COMMISSIONER REEVE: Thank you, Sue.  
4 And I would like to let people know that the  
5 Commission was interested in hearing directly from the  
6 public on this issue and has received, already, copies  
7 of written comments that have been provided and  
8 anticipates that at our next staff report on this  
9 matter we'll receive full copies of all additional  
10 written materials that will be potentially received  
11 between now and March 1st, which will be the close of  
12 the comment period.

13 With that, I would like to open  
14 the hearing to take public comments on this agenda  
15 item only. I would like to note that this is being  
16 tape-recorded and transcribed, simply because we have  
17 a short time period in which to make a decision and  
18 we have a lot of materials to cover and we want to  
19 make sure that we are accurate in getting all of the  
20 comments that may be made before us and considering  
21 them fully. We only -- At this point, I only have  
22 two requests to present information. And, therefore,  
23 I'll simply take them in the order in which I  
24 received them. And the first is from a Ted Haigh.  
25 Welcome.

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1 MR. HAIGH: For the record, my  
 2 name is Ted Haigh. I'm with the Confederated Tribes  
 3 of the Umatilla Indian Reservation. And I have a  
 4 handout - - what is it -- about six slides that we  
 5 just want to express our support for the permit  
 6 modification. You know, the comments provided on 29  
 7 October of 2003 state: "...our staff have reviewed  
 8 the document and concur with the Permittee's  
 9 conclusions presented on page 15; namely 'There will  
 10 be no detrimental human health or environmental  
 11 impacts resulting from implementation of this  
 12 modification.'" Our Board of Trustees supported this  
 13 opinion at both a meeting on 27 October with Mr. Don  
 14 Barclay and a meeting on 12 November with Mr. Dennis  
 15 Murphey.

16 Meeting the emission standards at  
 17 the exhaust stack (post carbon filters) is going to  
 18 be more protective of human health and the  
 19 environment. The permitted emission concentrations are  
 20 set based on accepted human health and ecological risk  
 21 modeling. This will evaluate long-term health risks  
 22 (resulting from recalcitrant compounds accumulating in  
 23 the environment.) We will also evaluate short-term  
 24 health risks (resulting from inhalation of one-hour  
 25 maximum concentrations from the worst-case operating

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1 conditions.) These are -- might be listed as upset  
 2 conditions. The UMCDF risk assessment includes a  
 3 Native American Subsistence Scenario, which restricts  
 4 emissions more than typical urban scenarios that are  
 5 in most standard risk models.

6 The reasons for our opinion is,  
 7 moving the compliance point will not result in an  
 8 increase in the emissions over the lifetime of the  
 9 plan. Total emissions will be proportional to the --  
 10 or are proportional to concentration, times flow rate,  
 11 times time. The stack flow rate is the same -- or  
 12 essentially will be the same in both cases, whether  
 13 it's before or after the compliance point.  
 14 Concentration increases if compliance point is moved,  
 15 and the total operating time decreases.

16 On page 5, the total amount of the  
 17 compound emitted during incineration of a given  
 18 munition type for both compliance points is given by  
 19 the equation notes, where "M" is the mass of the  
 20 contaminant. "N" is the number of munitions that are  
 21 fed into the furnace -- or fed into the system. "A"  
 22 is the amount of the contaminant per munition. You  
 23 see that "DRE" is the furnace system -- or the  
 24 first term is -- the 1-DRE is the official  
 25 incineration efficiency at burning the compound. The

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1 second term is the removal efficiency for the  
 2 scrubbers. And the final term is the removal  
 3 efficiency for the carbon filters. And by -- Even  
 4 though the emissions will go up, we're hoping -- or  
 5 the -- not hoping -- but the efficiency will also  
 6 increase correspondingly.

7 Finally, moving the compliance point  
 8 reduces public and environmental risk resulting from  
 9 weapons storage. And, essentially, storage risk is  
 10 proportional to the length of time the munitions are  
 11 stored.

12 And the final slide is just our  
 13 contact information if you wanted any more information  
 14 directly for what endeavors the Tribe is doing  
 15 currently. Any questions?

16 COMMISSIONER REEVE: Questions? We  
 17 do --

18 COMMISSIONER MALARKEY: Excuse me.

19 COMMISSIONER REEVE: Go ahead.

20 COMMISSIONER MALARKEY: I just want  
 21 to confirm for you and thank you that we also  
 22 received a letter from Dr. Skeen. And I appreciate  
 23 you explaining the formula. That helps, too. Thank  
 24 you.

25 COMMISSIONER REEVE: Thank you.

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1 Excuse me.

2 COMMISSIONER WILLIAMSON: In your  
3 formula, it's implied that the proportionality is the  
4 same between the time it's going to take to burn all  
5 of the munitions and the increase in concentration is  
6 going to be emitted. I mean, is that what your  
7 argument is?

8 MR. HAIGH: On which -- You're  
9 talking about essentially slide 4? Or 5?

10 COMMISSIONER WILLIAMSON: Well,  
11 slide 4 and 5.

12 MR. HAIGH: And 5?

13 COMMISSIONER WILLIAMSON: And 5,  
14 right.

15 MR. HAIGH: Yeah. Essentially what  
16 we're talking about by saying that the concentration  
17 increases if compliance point is moved, just means  
18 that they're able to burn more munitions more quickly.  
19 So they're essentially just feeding a higher rate of  
20 munitions into the system. So, therefore, you're  
21 going to have a higher concentrations of all these  
22 contaminants being produced. But there's also going  
23 to be a higher efficiency rate for removal by moving  
24 that compliance point past the carbon filters.

25 COMMISSIONER WILLIAMSON: But it's

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1 assuming under both scenarios, then, the same removal  
2 percentage across the carbon filter bank?

3 MR. HAIGH: Correct. Correct.  
4 Yes, sir. It's just that we're measuring now, after,  
5 instead of before.

6 COMMISSIONER WILLIAMSON: And that  
7 may or may not be true that you get the same removal  
8 rate across the carbon filters?

9 MR. HAIGH: That's -- Yeah, what  
10 that last equation on -- assuming that that last term  
11 goes up.

12 COMMISSIONER WILLIAMSON: Okay.  
13 Thank you.

14 COMMISSIONER REEVE: Thanks. The  
15 next speaker will be James Wilkinson.

16 MR. WILKINSON: Karyn Jones is with  
17 me, so do you mind if we speak together?

18 COMMISSIONER REEVE: Sure. Ms.  
19 Jones, you also decided to testify. So, if you'd  
20 like to do so at the same time, that's fine.

21 MS. JONES: Thank you.

22 MR. WILKINSON: I would defer to  
23 her to begin, if I may. Thank you, Mr. Chairman.

24 MS. JONES: Thank you. My name is  
25 Karyn Jones, and I'm here on behalf of GASP and the

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1 Oregon Wildlife Federation.

2 To begin with, it appears that this  
 3 facility is not what we were told it was going to be  
 4 when it was originally permitted in 1997. Prior to  
 5 permitting, we were told that the carbon filter  
 6 addition was being put on simply as a safety stop-  
 7 gap measure. But Carl Peterson from the National  
 8 Research Council had thought of it as putting on a  
 9 gas mask -- on the stacks, literally. That's what he  
 10 told me when I met with him. And, during the  
 11 permitting process, we were assured that it would  
 12 never be used to meet the emission standards, that  
 13 the facility would have to comply at the earlier  
 14 point or it would be shut down. And so we are very  
 15 much opposed to this permit modification.

16 I have one question from the  
 17 comment package. It continues to refer to increased  
 18 feed rates, but at no place in the permit package  
 19 does it state what the feed rate increase will be,  
 20 what the rate was currently, and what they propose it  
 21 to be, and if they've ever been able to meet that  
 22 feed rate at any of the other facilities. And we'd  
 23 also like to know what the feed rate is for gelled  
 24 versus non- gelled munitions.

25 COMMISSIONER REEVE: Those are very

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1 appropriate questions. We'll certainly hear from  
 2 staff either today or at our next meeting and  
 3 certainly before we make a decision.

4 MS. JONES: Okay. Thank you. And  
 5 then we also -- The package that we received is very  
 6 brief. And we realize that there must be some  
 7 supporting documents for the permit modification  
 8 requests. And we would like to have those documents  
 9 made available to us for review so that our comments  
 10 can be more extensive.

11 MR. WILKINSON: Thank you. Thank  
 12 you, Mr. Chairman, members of the Commission. My  
 13 name is James R. Wilkinson. I'm a GASP researcher,  
 14 and I'd like to just focus in on some of the  
 15 questions that I have relative to the RCRA Fact  
 16 Sheet. And I really want to thank Sue and her staff  
 17 and her compatriots for working so hard on putting  
 18 something together. But, as a researcher, I'd like  
 19 to see more information. I think the feed rate is  
 20 one of the questions that I have, along with the  
 21 burning question in my mind is that the Fact Sheet  
 22 underlines actual emissions. I'm very unclear in the  
 23 Fact Sheet what actual emissions is referring to.  
 24 So, I'd like to see some data and information  
 25 explaining what actual emissions is.

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1                   The other question that -- along  
2 with many -- is that you make the statement that,  
3 "Consequently, there will be no effect on the results  
4 of the pretrial burn risk assessment." I'm not sure  
5 if that's a statement based on analysis or if it's  
6 just a broad statement based on what we're -- the  
7 emissions are coming out at a constant rate, we're  
8 just measuring it from one point versus the next.  
9 And I would like to see something that documents  
10 that, yes, we did do some type of evaluation to make  
11 sure that that is, in fact, true.

12                   One of the other questions that we  
13 discovered that came up actually in court, was the  
14 question of an emergency vent that's on the system  
15 that's prior to the carbon filter system. So, in  
16 essence, comes out the pollution abatement system.  
17 Prior to entering the carbon filter, there's an  
18 emergency vent there. What are the procedures for  
19 using that vent? Under what conditions would it be  
20 used? And how would that affect overall operations?

21                   So, to come back to the essential  
22 question is that, I would like to see more  
23 documentation and information related to the Fact  
24 Sheet. And I also have to admit that the DEQ staff  
25 have been very responsive to our requests in the

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1 past, and I don't anticipate that would be any  
 2 different. But I would hope that I would hear more  
 3 at the public meeting in Hermiston about what backs  
 4 these statements up. Thank you.

5 MS. JONES: Excuse me. I have one  
 6 more question.

7 COMMISSIONER REEVE: Sure.

8 MS. JONES: When I toured the  
 9 Tooele facility with the National Research Council  
 10 when I chaired the Citizen's Advisory Commission, one  
 11 of the issues brought up actually by an NRC member  
 12 was the concern of the additional fire hazard within  
 13 the smokestacks with the additional carbon filter. I  
 14 wondered if that issue has been considered here in  
 15 Oregon, and if it has, have there been any procedures  
 16 implemented to either prevent that from happening or  
 17 how to take care of that situation, should it occur.

18 MR. WILKINSON: If I may, Mr.  
 19 Chairman, just to follow -- I am kind of tag-teaming  
 20 you here -- That the carbon filters are basically  
 21 unproven technology. And we're going to be one of  
 22 the first sites that's using this. I think it's  
 23 imperative that we understand the effect of putting  
 24 this type of system onto an incinerator when, in  
 25 fact, it's never been done before. I believe it's

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**Change in UMCDF Compliance Point  
 May 20-21, 2004 EQC Meeting**



1 imperative that we do, as Oregonians, to ensure that  
 2 this facility meets the protection of human health and  
 3 environment. I want to see it. Thank you.

4 MS. JONES: Thank you.

5 COMMISSIONER REEVE: Thanks. Any  
 6 questions? Thank you. Our next commenter is John  
 7 Herron.

8 MR. HERRON: Good afternoon, members  
 9 of EQC. For the record, my name is John Herron, and  
 10 I'm here with broad comments as a resident of  
 11 Hermiston.

12 I'm very familiar with the UMCDF,  
 13 since I work at the facility in the environmental  
 14 field. Let me reiterate though that I am here  
 15 representing myself, my family, and my friends, who I  
 16 interact with in the community. Three times a week I  
 17 open my garage for the local bicycle club to come and  
 18 workout during the long winter days. During this  
 19 period we also discuss the status of the project.  
 20 This group represents several different personalities  
 21 and occupations. There are business owners, lawyers,  
 22 nurses, counselors, and farmers. These individuals  
 23 have also either just moved to the area recently,  
 24 have lived there a few years, or are lifelong  
 25 residents. I moved to the area four years ago

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1 because I believe in the purpose of the project and  
 2 truly realize that what is to be accomplished at  
 3 UMCDF will truly benefit everyone.

4 Everyone that I associate with is  
 5 looking forward to the day the Army finally destroys  
 6 all of the weapons. Over the past few months, I've  
 7 heard comments that the DEQ is representing the public  
 8 and will ensure the will of the public is being met.  
 9 That is why I'm here, to give you a perspective from  
 10 the average public, not the special-interest public,  
 11 the government public, or the political public. The  
 12 average public.

13 During the DEQ proposed approval  
 14 process for the UMCDF operations permit modification  
 15 request process, I submitted written comments to the  
 16 Department as a resident of Hermiston. In the permit  
 17 modification, DEQ stated that one of the reasons the  
 18 permit modification was necessary was because public  
 19 interest remains high. I specifically asked DEQ to  
 20 provide the analysis or study that was used to  
 21 support this claim. In the comments I also asked  
 22 very specific questions, which would help my family  
 23 and myself better understand why the DEQ was proposing  
 24 this permit modification. I never did receive any  
 25 response to any questions.

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 May 20-21, 2004 EQC Meeting**





1 invested millions and millions of dollars to improve  
 2 the facility based upon knowledge gained at other  
 3 facilities. This is a normal progression for any  
 4 project.

5 Finally, DEQ sent a letter to the  
 6 project in December dictating that the UMCDF perform  
 7 additional tests on the DFS and have the results  
 8 prior to submitting the staff report to the EQC on  
 9 this permit modification. I do not understand how  
 10 the Department can either tie the decision or delay  
 11 this permit modification request for review to require  
 12 the facility to perform additional tests. Permit  
 13 modifications stand on their own, especially when this  
 14 permit modification is independent of the testing  
 15 referenced by the Department.

16 Finally, I hope that the Commission  
 17 does not hesitate in approving this permit  
 18 modification request. As you know, this PMR only  
 19 changes four words in the entire permit. It will not  
 20 change any emissions or any processes. But, by not  
 21 approving the PMR, the Commission will not allow the  
 22 project to destroy chemical weapons in a manner that  
 23 greatly reduces the risk to my family and friends.

24 Before I step down, are there any  
 25 questions the Commission would like to ask?

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Change in UMCDF Compliance Point  
 May 20-21, 2004 EQC Meeting



1 COMMISSIONER REEVE: Questions?

2 Thank you.

3 MR. HERRON: Thank you.

4 COMMISSIONER REEVE: I just wanted  
5 to note that concludes the sheets that I've received  
6 as far as people wishing to speak. At this point,  
7 is there anyone in the audience who still wishes to  
8 address us on this public information item? Anyone  
9 on the phone? Okay.

10 At that, then, I will close this  
11 public testimony session. I will remind the audience  
12 though that the public comment period remains open and  
13 that written comments may be directed to the  
14 Department, specifically to Mr. Dennis Murphey at any  
15 point during the comment period, and certainly oral  
16 comments can be presented at the February 18th meeting  
17 that's already been mentioned.

18 Just by way of going through  
19 reiterating the process that I think Sue Oliver had  
20 already outlined, we will be expecting the Department  
21 to review all comments made by the public, preparing  
22 a staff report that includes responses to those  
23 comments and recommended action for our consideration  
24 when we take this matter up again at our meeting,  
25 which is currently scheduled for May 20th and 21st.

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Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

1 So, again, just to remind people of the procedure, at  
 2 the meeting when we do expect to take action on the  
 3 request, we will not be taking additional comments, as  
 4 that comment period will be closed.

5 MS. HALLOCK: Mr. Chairman, I'd  
 6 just like to add that the meeting in May will be in  
 7 Prineville.

8 COMMISSIONER REEVE: Great. Any  
 9 other comments or questions? Great. That concludes  
 10 the Agenda Item A.

11 (Whereupon, the DEPARTMENT OF  
 12 ENVIRONMENTAL QUALITY UMATILLA CHEMICAL DEMILITARIZATION  
 13 PROGRAM PUBLIC HEARING concluded at 2:15 P.M.)  
 14  
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 25

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Change in UMCDF Compliance Point  
 May 20-21, 2004 EQC Meeting



CERTIFICATE

I, Marta J. Charles, do hereby certify that pursuant to the Rules of Civil Procedure, the witness named herein appeared before me at the time and place set forth in the caption herein; that at the said time and place, I reported in stenotype all testimony adduced and other oral proceedings had in the foregoing matter; and that the foregoing transcript pages constitute a full, true and correct record of such testimony adduced and oral proceeding had and of the whole thereof.

IN WITNESS HEREOF, I have hereunto set my hand this 17th day of February, 2004.

Marta J. Charles

09/24/04

Signature.

Expiration Date

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**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

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# **ATTACHMENT E**

**Presiding Officer's Report  
and  
Transcript of the Public Hearing held in Hermiston, Oregon  
February 18, 2004**

(DEQ Item Nos. 04-0369 and 04-0339)

Permit Modification Request UMCDF-03-041-PFS(3)  
"Change in Incinerator Emissions Compliance Point"  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

**Persons Providing Oral Comment  
at the  
February 18, 2004 Public Hearing  
Hermiston, Oregon**

Commenter	PAGE
David Wallick, Hermiston	E-5
Susan Jones, Hermiston	E-6
Marilyn Post, Irrigon	E-6
Debbie Burns, Irrigon	E-7
Gail Horning, Hermiston	E-7
Karyn Jones, G.A.S.P.	E-7 <sup>a</sup>
Frank Lockwood, Kennewick (WA)	E-7
Dennis D. Doherty, Umatilla County Commissioner	E-8 <sup>a</sup>
Brian Cimmiyotti, Hermiston	E-9
Eric Reise, Hermiston	E-9
Stuart Dick, Pendleton	E-9 <sup>a</sup>
J.R. Wilkinson, G.A.S.P.	E-10 <sup>a</sup>
R.A. Bradshaw, Hermiston	E-11
Cynthia Bounds, Kennewick (WA)	E-11
Judy Brown, Irrigon	E-12

<sup>a</sup> Also provided written comments (See Attachment G)



COPY

04-0369

50

State of Oregon  
Department of Environmental Quality

Memorandum

Date: March 3, 2004

**To:** Sue Oliver, DEQ Eastern Region, Hermiston Office  
**From:** John Dadoly, DEQ, Eastern Region, Pendleton *JD*  
**Subject:** Presiding Officer's Report for Change in Incinerator Emissions Compliance Point Umatilla Chemical Agent Disposal Facility (UMCDF)

**Hearing Date and Time:** February 18, 2004, 7:00 PM

**Hearing Location:** Good Shepherd Medical Center, Conference Room 1, Hermiston, Oregon

**Title of Proposal:** Change in Incinerator Emissions Compliance Point Umatilla Chemical Agent Disposal Facility

On February 18, 2004, I acted as Presiding Officer at the Public Hearing for the proposed permit modification request UMCDF-03-041-PFS(3) for the U.S. Army Chemical Agent Disposal Facility (UMCDF), located west of Hermiston, Oregon. Prior to receiving comments, I briefly explained the specific proposal and the procedures to be followed during the hearing. The audience was informed that the purpose of the hearing was to gather comments pertaining to the proposed permit modification which would allow a change in the emissions compliance point for the UMCDF.

The public hearing on the above titled proposal was convened at approximately 7:00 PM. The hearing was closed at approximately 7:35 PM. People were asked to sign registration forms if they wished to present comments. People were also advised that the hearing was being recorded.

Twenty-seven people signed the attendance sheet, and 15 people signed up to give comments.

The following report provides a summary of oral comments received at the hearing on February 18, 2004. DEQ's responses to all comments received during the comment period will be included in a staff report.

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

Page E-1

Memo To: Sue Oliver  
March 3, 2004  
Page 2

**Comments:**

**David Wallick:** Mr. Wallick stated that he was a Hermiston resident, and that he was generally in favor of the proposed permit modification. He said that he wanted the job to get done sooner.

**Susan Jones:** Susan Jones is a member of GASP, a local group which has been active in issues pertaining to the UMCDF. Ms. Jones opposes the proposed permit modification and was critical of the Army and DEQ, stating that they were only trying to meet the schedule. She stated that previously the Army had stated that they would never ask to change the point of monitoring as proposed in this recent permit modification.

**Marilyn Post:** Ms. Post stated that she was a resident of Irrigon, and a local teacher. She said she was representing herself. She opposed the proposed permit modification, which she considered to be a lowering of performance standards.

**Debbie Burns:** Ms. Burns said that she was a teacher in Hermiston and a resident of Irrigon. She briefly stated that she was opposed to the proposed permit modification, and that better technology was available elsewhere.

**Gail Horning:** Ms. Horning stated that she was a resident of Hermiston, a teacher in Irrigon and a member of GASP. She briefly stated that she was opposed to the proposed permit modification.

**Karyn Jones:** Ms. Jones identified herself as a local resident, a member of GASP, and the National Wildlife Federation. She stated that she was opposed to the proposed permit modification on the grounds that the charcoal filters were intended to be a backup system only. Ms. Jones stated that this proposal includes untested technology, was a potential fire hazard and generated additional secondary wastes.

**Frank Lockwood:** Mr. Lockwood said he had been a long-time resident of Hermiston until a recent move. He stated that he wasn't sure if he was for or against the proposed change, but he was very concerned about what he saw as a pattern of standards being set and then changed when they become inconvenient. He had questions about the amount of waste that would be generated if this permit modification was granted, and how the waste (including brine material) would be disposed of. Mr. Lockwood felt that standards should not be changed for convenience.

**Dennis D. Doherty:** Mr. Doherty is a Umatilla County Commissioner and Hermiston resident. He supports the proposed permit modification, and does not want a slowdown in progress toward disposing of all of the chemical weapons at the UMCDF. Mr. Doherty calculated an estimate of \$576 million in extra expenses that would be incurred if the permit modification was denied. He



Memo To: Sue Oliver  
March 3, 2004  
Page 3

thought there should be a compelling reason to expose the community for a longer period and spend additional money.

**Brian Cimmiyotti:** Mr. Cimmiyotti stated that he was a resident of Hermiston, and that he supported the proposed permit modification, and did not want to slow the process down.

**Eric Reise:** Mr. Reise stated that he was a lifelong resident of Hermiston, and he wanted the chemical weapons destroyed quickly and that he favored the proposed permit modification.

**Stuart Dick:** Mr. Dick is a resident of Pendleton. He said he was angry with the process. He was not in favor of the proposed permit modification, and he felt that previous commitments should be honored.

**James R. Wilkinson:** Mr. Wilkinson stated that he is a researcher for GASP. GASP has filed lawsuits against DEQ, and that he thought this request for a permit modification helped his case by suggesting that the incinerator is inadequate. He was not in favor of the proposed permit modification. He thought that the intent of the Environmental Quality Commission was to allow the carbon filters on the incinerator stack to be used as extra protection only. Mr. Wilkinson expressed concern about how the filters might act in an upset condition.

**R.A. Bradshaw:** Mr. Bradshaw said that he was in favor of the proposed permit modification and did not want further delay.

**Cynthia Bounds:** Ms. Bounds said that she recently moved to the area to work at the UMCDF. She said she has previously worked at other chemical agent disposal facilities including Johnston Island and facilities in Russia. Ms. Bounds stated that she has worked first hand with chemical weapons and was concerned about the deterioration of the components which contain the agent. She said there was increased hazard in delay. She favored the proposed permit modification.

**Judy Brown:** Ms. Brown said that she was a resident of Irrigon, and she teaches at the closest school to the UMCDF. She stated that the chemical agents must be destroyed, but she did not favor lowering standards. Ms. Brown opposed the proposed permit modification, and said she would rather work slower and more safely.

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04-0339

STATE OF OREGON  
 DEPARTMENT OF ENVIRONMENTAL QUALITY

PUBLIC MEETING

PROPOSED MODIFICATION OF THE  
 HAZARDOUS WASTE STORAGE AND TREATMENT PERMIT  
 FOR THE  
 UMATILLA CHEMICAL AGENT DISPOSAL FACILITY  
 (PERMIT NO. ORQ 000 009 431)

1 to being taped. I would also like to let you  
 2 know that Oregon law prohibits smoking while  
 3 the meeting is in progress. We are here today  
 4 because we want your comments on the proposed  
 5 permit modification.  
 6 DEQ will consider appropriate ideas  
 7 you suggest to the extent our authority allows.  
 8 Please be aware that you might raise  
 9 issues that are outside of our scope of  
 10 authority. We will clarify what DEQ is  
 11 responsible for. We sincerely appreciate your  
 12 involvement and will make sure that everyone  
 13 who wants to give formal comments has an  
 14 opportunity to do so.  
 15 We are starting to get quite a few  
 16 on the list here, so we would like to ask you  
 17 to limit to five minutes, until everybody goes  
 18 through, and if you have more to say, I can  
 19 call you up again.  
 20 Please come to the table when you  
 21 are called and speak into the microphone so  
 22 your comments will be recorded.  
 23 Please respect the rights of  
 24 individuals who are making formal comments, and  
 25 do not interrupt them while they are speaking.

1 MR. DADOLY: Okay. It is  
 2 seven o'clock. I'd like to start the hearing.  
 3 I will now call the hearing to  
 4 order. My name is John Dadoly and I will be  
 5 the presiding officer for tonight's hearing.  
 6 The purpose of this hearing is to  
 7 take comments on the proposed change in the  
 8 Incinerator Emissions Compliant Point, the  
 9 Umatilla Chemical Agent Disposal Facility.  
 10 For the record, today is February  
 11 18th, 2004. Thank you for taking the time to  
 12 share your comments with DEQ.  
 13 If you want to submit formal  
 14 comments at this hearing, please sign in and  
 15 fill out the registration cards so we can have  
 16 the correct spelling of your name and your  
 17 address. I have the sheets here. You will  
 18 receive the presiding officer's report with a  
 19 formal response to your comments. If you want  
 20 to be on the DEQ mailing list pertaining to  
 21 this facility, please indicate that on the  
 22 registration card. I will call people to  
 23 comment in order of sign up.  
 24 This meeting is being tape recorded,  
 25 and by signing up to testify you are consenting

1 You can submit written comments to Shelly  
 2 Ingram or myself up to 12 days from today. The  
 3 deadline is March 1st, 2004, at five o'clock  
 4 p.m. Mail your comments to Shelly Ingram, DEQ,  
 5 Chemical Demilitarization Program, 256 East  
 6 Hurlburt Ave., Hermiston, Oregon, 97838. And  
 7 this same address is on the fact sheets that  
 8 are in the back on the table.  
 9 I will call the first person to  
 10 testify. David Wallick. Step up to the  
 11 podium, please.  
 12 MR. WALLICK: Hi. My name is  
 13 David Wallick. I live in Hermiston with my  
 14 family. And I work out at the depot, but I'm  
 15 not representing them today. I'm representing  
 16 the real boss, my wife and my six year old and  
 17 my eight year old. They are both in elementary  
 18 school here. My wife works at the elementary  
 19 school.  
 20 And my main concern is that we get  
 21 these weapons made safe as soon as possible.  
 22 And I understand that the permit  
 23 modification, if it is not approved, would  
 24 result in it taking longer to get rid of the  
 25 weapons.



1 And from reading through it, it  
 2 sounds like the right way to go to me, to  
 3 approve it, so that we can get the weapons gone  
 4 sooner, safer for my kids. That's it.  
 5 MR. DADOLY: Thank you.  
 6 MR. WALLICK: Thank you.  
 7 MR. DADOLY: Susan Jones.  
 8 MS. SUSAN JONES: Susan Jones,  
 9 Hermiston, Oregon, a member of GASP.  
 10 The first thing that I want to make  
 11 really clear is that I oppose the permit  
 12 modification that is being proposed at this  
 13 time.  
 14 The Army has admitted that they will  
 15 not be able to achieve the emissions standards  
 16 for the incinerators if they increase the feed  
 17 rate of the munitions and agent into the  
 18 incinerators. And this of course is a big  
 19 concern.  
 20 We know that the Army at this time  
 21 at the Umatilla facility is behind schedule.  
 22 For several years, and one of the reasons that  
 23 I feel the permit modification is being  
 24 requested at this time is to be able to  
 25 increase the munition feed rate into the

1 facility. And that it's not really, the  
 2 purpose is not to protect human health and the  
 3 environment, but rather to get the schedule  
 4 back up to date for the Army.  
 5 During the permitting process DEQ  
 6 and their governing board, the Environmental  
 7 Quality Commission, agreed that the point of  
 8 emissions testing would be prior to the carbon  
 9 filters. And you have the little -- most of  
 10 you should have the little pamphlet where you  
 11 can look at it and see where that is.  
 12 And now that they want to have the  
 13 carbon filters added on, the point of emissions  
 14 being checked is now where the carbon filters  
 15 are listed and not before that where they  
 16 agreed to have that in the beginning.  
 17 The carbon filters were supposedly  
 18 going to be added onto the incinerator to  
 19 increase the protection in case of a  
 20 catastrophic accident. And the Army has  
 21 repeatedly assured the DEQ, the EQC and the  
 22 public, that they would not attempt to change  
 23 the point of emissions testing.  
 24 And this proposal now is just that.  
 25 So they are going back on their word.

1 DEQ and the EQC also made the  
 2 commitment during the permitting process not to  
 3 allow the Army to change the point of emission  
 4 testing, and now we are being asked to O.K.  
 5 that.  
 6 The DEQ has gone on record that this  
 7 permit will not have negative impact to human  
 8 health and to the environment, but nowhere  
 9 within the document does it show any evidence  
 10 that this is true.  
 11 So, those are my big concerns. And  
 12 let me again say that I am very much opposed to  
 13 this permit modification. Thank you.  
 14 MR. DADOLY: Thank you very  
 15 much. Marilyn Post.  
 16 MS. POST: Hi. My name is  
 17 Marilyn Post. I am a resident of Irrigon,  
 18 where I also teach school.  
 19 I am a member of GASP, but I am not  
 20 here representing them. I am representing  
 21 myself and my family, hopefully the children  
 22 that I teach.  
 23 I want to say that I am against  
 24 changing the point of compliance. I understand  
 25 that the charcoal filtering system was added on

1 as an additional safety measure, and I think  
 2 that more should be done to try to get that  
 3 point of testing where it was originally  
 4 permitted.  
 5 I know that in Utah it is not  
 6 permitted to use it because it was not a proven  
 7 filtering system. So, maybe there should be a  
 8 little bit more evidence of that before it's  
 9 actually used in Oregon.  
 10 I don't believe that Oregon needs to  
 11 lower its own standards to suit any business or  
 12 the Army or our federal government. I think  
 13 that we need to look out for our own citizens,  
 14 our children, and if not burning the rockets as  
 15 fast as they want to be burned is part of that  
 16 implication, then let it be so.  
 17 We also don't know the long-term  
 18 effects of what's going to come out of the  
 19 smoke stacks. Even though there are standards  
 20 for the emissions from the smoke stacks, we  
 21 certainly don't want to endanger ourselves, our  
 22 children or grandchildren and future  
 23 generations, not knowing the effects, what's  
 24 going to happen 10, 20, 30 years down the road.  
 25 So, I think that as a point of



1 public safety and future generations, we need  
 2 to step back and not be in such a rush and make  
 3 sure that what we're doing is right.  
 4 And so I am against changing the  
 5 point of compliance at this time. Thank you.  
 6 MR. DADOLY: Thank you.  
 7 Debbie Burns.  
 8 MS. BURNS: My name is Debbie  
 9 Burns. I am a teacher here at Rocky Heights  
 10 Elementary in Hermiston. And my residence is  
 11 in Irrigon.  
 12 I have lived in this area for over  
 13 40 years. And I have followed this process  
 14 since the early '90s. I am a member of GASP  
 15 and I am against incineration.  
 16 I know the Army is now using safer  
 17 technology at other sites, and I still hope  
 18 that there is hope for this site.  
 19 I go on record that I am against the  
 20 permit modification. Thank you.  
 21 MR. DADOLY: Thank you. Gail  
 22 Horning.  
 23 MS. HORNING: My name is Gail  
 24 Horning. I live in Hermiston, and I teach at  
 25 A. C. Houghton. I am a member of GASP, and I

1 course see that it is.  
 2 When the carbon filters were first  
 3 suggested here, we were told that we needed to  
 4 think of them as having a gas mask on top of  
 5 the incinerator stacks. We were told that by  
 6 Carl Peterson from the National Research  
 7 Council.  
 8 And a few days after Carl was here I  
 9 actually was able to tour the Tooele facility  
 10 at the request of Governor Roberts with members  
 11 of the National Research Council and other  
 12 chairpersons from various Citizens Advisory  
 13 Commissions from around the country. And the  
 14 carbon filters became a key component of the  
 15 tour. It was debated throughout the tour,  
 16 whether or not they should be used or not used.  
 17 And I distinctly remember one of the  
 18 National Research Council members telling me as  
 19 we walked through the facility that he was  
 20 extremely concerned because they were an  
 21 untested technology for this type of facility.  
 22 And some of his concerns were that it would  
 23 cause pressure build-up which could potentially  
 24 lead to an explosion.  
 25 He was also concerned about the

1 would like to say I am against this permit  
 2 modification. Thank you.  
 3 MR. DADOLY: Karyn Jones.  
 4 MS. JONES: My name is Karyn  
 5 Jones. I am a resident of Hermiston. I am a  
 6 member of GASP and the Oregon Wildlife  
 7 Federation.  
 8 I need to go on the record stating  
 9 that I am opposed to the permit modification.  
 10 Years ago we were also opposed to  
 11 even having the carbon filters actually added  
 12 to the incinerator facility.  
 13 During the permitting process at  
 14 several meetings held in Portland and here in  
 15 Hermiston we were repeatedly told by  
 16 representatives of the Army, the Environmental  
 17 Quality Commission, and DEQ, that the emission  
 18 testing would always be before the carbon  
 19 filter bank, and that the carbon filters were  
 20 being added on strictly as a safety measure in  
 21 case of a catastrophic accident.  
 22 In fact at one of the meetings I  
 23 believe they reassured Henry Lorenzen several  
 24 times that this type of permit modification  
 25 request would never happen. And today we of

1 potential for, as a fire hazard, since charcoal  
 2 is highly flammable. And he was also very  
 3 concerned that it was going to be creating more  
 4 secondary hazardous waste, and that there were  
 5 serious concerns at that point that the dunnage  
 6 incinerator would not be able to be used, and  
 7 once that secondary waste was created, what  
 8 would happen to it?  
 9 And we now know at Umatilla that  
 10 although we were also assured that the dunnage  
 11 incinerator would be implemented, that it  
 12 actually was not built into the facility.  
 13 And we are also concerned about the  
 14 legacy waste with the carbon filters.  
 15 I would just like to go on the  
 16 record one more time that I am opposed to the  
 17 permit modification. Thank you.  
 18 MR. DADOLY: Thank you. Frank  
 19 Lockwood.  
 20 MR. LOCKWOOD: I am Frank  
 21 Lockwood, Hermiston, Oregon. I am not in  
 22 Hermiston anymore. Kennewick, Washington.  
 23 Excuse me. I moved about 18 months ago.  
 24 The thing that seems -- that is  
 25 disturbing me is that there seems to be a



1 pattern that I am seeing of standards being  
 2 set, and then they become inconvenient, and  
 3 then they are changed.  
 4 So, I don't know whether I am for or  
 5 against this change, but I am concerned about  
 6 what I see as a continuing pattern.  
 7 First of all, there were safety  
 8 standards that were set by the ERP, medical  
 9 standards, and when they became inconvenient,  
 10 they couldn't meet the standards, then they  
 11 just simply changed the standards.  
 12 Then we had the no waste legacy that  
 13 was promised to us when the Army first came to  
 14 town. Mr. Raj Malhotra was the first one to  
 15 talk about no waste legacy, and then Mr. Don  
 16 Barclay, both were under the impression that  
 17 they could destroy all of the hazardous waste  
 18 that we had. And without leaving any waste  
 19 legacy.  
 20 I have been trying to find out for  
 21 several years how much brine is actually going  
 22 to be left over, and the most recent, within  
 23 about a month ago I sent an E-mail to the DEQ.  
 24 Nobody seems to be able to tell me a range of  
 25 the amount in terms of gallons or tons of waste

13

1 that we are talking about. I'd like to know a  
 2 range. You know, it is going to be a minimum,  
 3 we will have this much, a maximum of that much.  
 4 We think it will be somewhere in between.  
 5 But so far I don't think anybody's  
 6 been able to tell me. Maybe it's been talked  
 7 about a dozen times and I just wasn't there.  
 8 But I'd like to hear that information.  
 9 It sounds like we are going to have  
 10 a no waste legacy with thousands of gallons,  
 11 maybe thousands of pounds, maybe hundreds of  
 12 thousands, I don't know, of hazardous waste.  
 13 Yes, it is low-level. Yes, it is  
 14 somewhat benign compared to chemical agent.  
 15 But it's still waste.  
 16 And so now we have apparently the  
 17 present technology can't meet the standards for  
 18 clean air, and so we are going to, we are  
 19 talking about changing the standards again.  
 20 I don't know whether any of these  
 21 standards, or any of these changes were bad or  
 22 good, but what I am concerned is, you know, it  
 23 appears that there is no standard, because any  
 24 standard that is made, if it becomes  
 25 inconvenient, then the standard is simply

14

1 changed, and that concerns me.  
 2 MR. DADOLY: Thank you, sir.  
 3 Dennis Doherty.  
 4 MR. DOHERTY: Thank you, Mr.  
 5 Dadoly. My name is Dennis Doherty. I am a  
 6 Umatilla County Commissioner, and a resident of  
 7 Hermiston, and a family man, and a husband, and  
 8 a father, and a grandfather. And I support the  
 9 modification.  
 10 I attended the first hearing on this  
 11 permit modification request in this room back  
 12 in October of 2003, and during that hearing I  
 13 learned that the main issue before us is not  
 14 what is going to go out of the stacks, because  
 15 we were told that it would not make any  
 16 difference there. The main difference was  
 17 going to be how long it took to burn the  
 18 rockets.  
 19 If the permit modification is  
 20 denied, it was my understanding that a very few  
 21 rockets could be burned per day. If the permit  
 22 modification is allowed, an increased number,  
 23 by a factor of perhaps ten, could be burned per  
 24 day.  
 25 So, what that told me was that at

15

1 the time the 64 months difference that was  
 2 being talked about would expose our people in  
 3 this community to those rockets and whatever  
 4 liability or danger they presented for an extra  
 5 64 months.  
 6 And then I asked myself, why would  
 7 the community want to expose itself to this  
 8 stuff for an extra 64 months?  
 9 And neither that night nor today,  
 10 nor at any time in the interim, have I heard a  
 11 reason that would answer that question for me.  
 12 I think that some of the people who  
 13 are opposing this are maybe not quite the  
 14 experts that they think they are.  
 15 I would rather rely on the experts  
 16 that I think are working on the permit. We  
 17 entrust to the DEQ and to the Environmental  
 18 Quality Commission the duty to look after the  
 19 environmental safety and the human safety in  
 20 the area.  
 21 It seems to me that there are four  
 22 interests at issue.  
 23 The first one is the national  
 24 interest. We are all aware that our nation has  
 25 made a commitment to the destruction of these

16



1 weapons. And there are some commitments to  
 2 doing that safely and in a timely fashion that  
 3 go along.  
 4 There is a state interest, and  
 5 that's represented by the DEQ and the  
 6 Environmental Quality Commission. As far as I  
 7 know, they are doing that job quite well.  
 8 There is a local interest, and that  
 9 largely is to reduce the exposure that the  
 10 local community has to any risk. And not to  
 11 enlarge it or lengthen it.  
 12 And then there is a taxpayer  
 13 interest.  
 14 After the October hearing I took the  
 15 64 months that was projected then as being the  
 16 difference that was involved, and since I am  
 17 informed that it costs approximately \$300,000 a  
 18 day to operate the project on the depot, I  
 19 extrapolated from that a monthly cost based  
 20 upon a 30 day month of \$9 million in annual  
 21 cost, based on 12 months of \$108 million, and  
 22 if you project that out over 64 months, you  
 23 would have something in the range of \$576  
 24 million extra expense.  
 25 If you are going to incur that kind

17

1 where the filter is placed. As long as it  
 2 comes out clean, it's better to do it now than  
 3 wait longer. So, that's my opinion.  
 4 MR. DADOLY: Thank you. Eric  
 5 Reise.  
 6 MR. REISE: Good evening. My  
 7 name is Eric Reise. My family and I have been  
 8 in the area for over 35 years. In fact I can  
 9 still recall growing up and doing the  
 10 evacuation drills in the elementary school as  
 11 well as high school where we used to hop on the  
 12 bus to get out of the area in case something  
 13 happened out at the depot.  
 14 I believe that these weapons of mass  
 15 destruction should be destroyed in a safe and  
 16 expeditious manner.  
 17 I believe the technology that is  
 18 currently being proposed is the best way to  
 19 achieve this goal.  
 20 The facilities at Johnston Island,  
 21 Utah and Alabama seem to be proving this.  
 22 With this permit mod. the facility  
 23 will be able to maintain the strictest  
 24 emissions standards set forth by the State of  
 25 Oregon, and I endorse the approval of this

19

1 of expense, there needs to be a compelling  
 2 reason. If you are going to expose the  
 3 community to an extra 64 months, or whatever,  
 4 of exposure, there needs to be a compelling  
 5 reason.  
 6 And I would ask everybody in this  
 7 room, and I would ask DEQ, that if you are  
 8 going to deny this modification permit, I would  
 9 like to know what the compelling reason is.  
 10 Show me how it makes the community less safe if  
 11 the modification is granted. Show me how it  
 12 makes the community more safe if it's denied.  
 13 I don't think that can be done.  
 14 MR. DADOLY: Thank you. Brian  
 15 Cimmiyotti.  
 16 MR. CIMMIYOTTI: Yeah. Hi.  
 17 Brian Cimmiyotti. I am a life-long citizen of  
 18 Hermiston.  
 19 And I support the permit  
 20 modification, just for the point of compliance,  
 21 because I feel that it's the safest way, is to  
 22 speed it up, because it doesn't affect the  
 23 safety of the community, because the carbon  
 24 filter is going to be able to have the same  
 25 environmental factor that will help, no matter

18

1 permit modification.  
 2 MR. DADOLY: Thank you.  
 3 Stuart Dick.  
 4 MR. DICK: My name is Stuart  
 5 Dick. I am a resident of Pendleton. I am a  
 6 father, grandfather, third generation citizen  
 7 of Eastern Oregon, and quite frankly, I'm angry  
 8 that this continues to --  
 9 Well, in the beginning when the  
 10 weapons first came here, we were lied to and  
 11 deceived, because we weren't told. No one told  
 12 the citizens of Eastern Oregon that the weapons  
 13 were coming. They came secretly.  
 14 Once we found out the weapons were  
 15 here, then we were lied to and said, by Colonel  
 16 Norris, said, well, they are harmless, they  
 17 won't hurt you. Lied to again.  
 18 And the fact of the matter is, we  
 19 have been lied to every step of the way.  
 20 There are over 150 to, what, 300  
 21 permit modifications that we have had. So what  
 22 we have been told, we don't get. And every  
 23 time it's money, faster.  
 24 But there's never any concern for  
 25 the welfare and the health of the citizens.

20



1 And what's going to happen to our  
 2 children when they breathe these carcinogens.  
 3 Because we don't know, because we are guinea  
 4 pigs, and it's never been tested.  
 5 And, so, a compelling reason is the  
 6 health of our children. That's a compelling  
 7 reason. And we are guinea pigs here.  
 8 So, I oppose this permit  
 9 modification, and I expect for the first time,  
 10 for the first time, that DEQ and the EQC  
 11 support us, because they defeat us every time,  
 12 because we don't have the money, and we don't  
 13 have the politics.  
 14 So, for the first time, honor your  
 15 rules. Honor the commitment that you have  
 16 made. No more modifications. Honor your  
 17 commitment. Thanks.  
 18 MR. DADOLY: Thank you. James  
 19 R. Wilkinson.  
 20 MR. WILKINSON: Good evening.  
 21 My name is James R. Wilkinson. I am here as a  
 22 GASP researcher.  
 23 On behalf of GASP, back in November  
 24 I wrote comment on the permit modification that  
 25 was submitted back then. And I'm still waiting

21

1 for the responses to many of our questions  
 2 during that point in time.  
 3 One of the most astounding things  
 4 that came out of reviewing the fact sheet was  
 5 just recognizing how much things change but  
 6 they really don't.  
 7 And Mr. Dick is a difficult  
 8 individual to follow up on. But what I would  
 9 like to focus on is that GASP is engaged in  
 10 litigation against the DEQ and against the  
 11 Army. One of the lawsuits involves this very  
 12 issue about, what is the purpose of the carbon  
 13 filter units and what was the position of the  
 14 Environmental Quality Commission when they  
 15 required that the carbon filters be placed on  
 16 the system?  
 17 Point number 8 in our November  
 18 letter says, and I will just read  
 19 it, "Furthermore, the desire to change the  
 20 point of compliance undermines the state's  
 21 legal arguments made in the September 30th,  
 22 1998 respondent's reply to memorandum in  
 23 support of motion for summary judgment and  
 24 opposition to cross motion for summary  
 25 judgment." A lengthy title saying, they

22

1 opposed the petitioner's move to, it gets  
 2 fairly lengthy to get into it, but basically  
 3 opposing the petitioner's arguments.  
 4 But here is the essential point that  
 5 I would like people to have. "Throughout the  
 6 litigation and as stated in the reply, the  
 7 state made it quite clear that there is  
 8 substantial evidence in the record to support  
 9 the finding that the PAS carbon filters are an  
 10 appropriate extra protection against  
 11 emissions."  
 12 The document continues, "Moreover,  
 13 no credit was taken for further reduction in  
 14 emissions that will be provided by this extra  
 15 protection."  
 16 It's astonishing to read that they  
 17 are now requesting the point of compliance in  
 18 order to take credit for emissions level  
 19 because the incinerators cannot meet the  
 20 emissions standards that they said they could  
 21 meet back in '97.  
 22 It all comes back to the issue of  
 23 best available technology.  
 24 Fundamentally, I believe this permit  
 25 modification request actually supports our

23

1 litigation. I thank the Army and the DEQ for  
 2 providing us this.  
 3 One of the other astounding things  
 4 in this is that the carbon filters, and it's  
 5 admitted in the fact sheet, if you read through  
 6 it, that the carbon filters had not been tested  
 7 and designed or used before, but now through  
 8 the -- through testing at Umatilla, and at  
 9 another facility, that they have been proven.  
 10 But what it says to me, they haven't  
 11 been used over a lengthy period of time so we  
 12 can understand what happens during upset  
 13 conditions, micro-poppers, which is a new term  
 14 that I just learned in reading some information  
 15 that I received.  
 16 And so I am very concerned about the  
 17 taking the credit for the carbon filters,  
 18 applying them in a situation when they haven't  
 19 been proven.  
 20 We have upset conditions. We don't  
 21 understand how the carbon filters are going to  
 22 act in these upset conditions.  
 23 I think we are actually increasing  
 24 the risk to our communities by using this  
 25 unproven technology.

24



1 I asked for documentation from DEQ  
 2 to state that, yes, we feel that these  
 3 conditions can, the carbon filters can indeed  
 4 handle these types of problems.  
 5 So, I think understanding off-normal  
 6 conditions and the application of the carbon  
 7 filters to the incinerators is an important  
 8 thing. It is no different than putting a  
 9 carbon filter on your wood stove, if you have  
 10 to maintain correct furnace conditions in order  
 11 for the furnace to operate correctly so the  
 12 carbon filters would work if you had one on  
 13 your wood stove.  
 14 Well, we all understand what happens  
 15 when you don't pay attention to your wood  
 16 stove. More smoke comes out the stack and the  
 17 conditions are not appropriate for burning.  
 18 One of the other things that's quite  
 19 confusing is that the fact sheet uses the word  
 20 actual. I'm confused about what actual  
 21 emissions really are. Are those the emissions  
 22 from the surrogate testing? Are those -- It's  
 23 just quite not understandable exactly what they  
 24 are asking for in this point of compliance.  
 25 The other thing is, is that with the

25

1 answer some of the questions that I have been  
 2 asking for all these months, since back in  
 3 November.  
 4 Thank you. And I oppose the permit.  
 5 Thank you.  
 6 MR. DADOLY: Thank you. R. A.  
 7 Bradshaw.  
 8 MR. BRADSHAW: I am for it.  
 9 The sooner we get rid of these rockets, the  
 10 better off we are. We are only dealing with  
 11 rockets. We have other stuff out there that's  
 12 even worse. And the stuff is old. It's been  
 13 sitting there for 40 years. The longer you  
 14 wait, the worst it's going to get. Bye.  
 15 MR. DADOLY: Thank you.  
 16 Cynthia Bounds.  
 17 MS. Bounds: My name is  
 18 Cynthia Bounds. I just recently moved to this  
 19 area. And I actually moved here to work at the  
 20 Umatilla Depot.  
 21 I have been in demilitarization for  
 22 close to 10 years now, and I worked out on  
 23 Johnston Island. I then moved to Russia where  
 24 I also worked in demilitarization. And now I  
 25 have come here to continue that mission.

27

1 carbon filters, and it really all comes back to  
 2 the air contaminant discharge permit and the  
 3 state's desire to bring equanimity, if you  
 4 will, between the air contaminate discharge  
 5 permit and the hazardous waste permit.  
 6 Well, the problem with the tinkering  
 7 with the air contaminant discharge permit is  
 8 that it has the dunnage incinerator, yet there  
 9 is no dunnage incinerator. If you are going to  
 10 be adjusting the values in the air contaminant  
 11 discharge permit, you should be willing enough  
 12 to offer a Class 3 permit modification that  
 13 removes the dunnage from the permit, rather  
 14 than this piecemeal removal of the secondary  
 15 waste streams and the other things from the  
 16 dun.  
 17 I would love Michael Moore to come  
 18 running in here and be running around, where's  
 19 the dun, where's the dun, start interviewing  
 20 people, where did it go?  
 21 We were sold five incinerators, now  
 22 we have four. What happened to the fifth one?  
 23 I have a lot of questions. I hope  
 24 at the end of people giving testimony, that we  
 25 can actually have people up here that can

26

1 As I started my career, I would have  
 2 never guessed that this would have been my  
 3 chosen profession.  
 4 As it turned out, it's something  
 5 that I believe in. It's important because it's  
 6 needed. And I have witnessed this first hand.  
 7 When I first went to Johnston  
 8 Island, I had no idea what chemical weapons  
 9 were. I had very little knowledge of how they  
 10 were manufactured, why they were made. I had  
 11 no idea how or when they were used. Needless  
 12 to say, my learning curve was huge.  
 13 And to this day I sit in amazement  
 14 wondering how we ever created these to begin  
 15 with.  
 16 I now have handled these munitions.  
 17 I have worked with the agent first hand. I  
 18 have witnessed how persistent these chemicals  
 19 are.  
 20 While working on Johnston Island we  
 21 processed each of the munition types. And I  
 22 started working directly with these munitions,  
 23 the agent and the material casings.  
 24 What I found was, is that the agent  
 25 itself is not deteriorating. It's still just

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1 as persistent as it was 40 years ago when we  
 2 created these.  
 3 And what's happening is the casings  
 4 and the components are deteriorating, creating  
 5 a situation that makes them very unstable.  
 6 With every munition that was opened, we found  
 7 that the agent itself was still fully intact,  
 8 maybe changing color slightly or reacting with  
 9 various subtleties to the atmosphere or  
 10 exposure.  
 11 But the true variable was in the  
 12 dismantlement of the components and the  
 13 casings. And by continuing to leave those  
 14 sitting for every day that we continue to argue  
 15 about how to destroy them, just creates a  
 16 hazard for everyone in the community and all of  
 17 us who are handling those munitions.  
 18 To deny this permit mod. just slows  
 19 the feed rates and continues the potential  
 20 increase for overall emissions to the  
 21 atmosphere and the danger to each person who's  
 22 working with those emissions -- or those  
 23 munitions.  
 24 I want to go on record in favor of  
 25 this permit modification and encourage no

29

1 safely than quickly pushing these ammunitions  
 2 through our incinerator and perhaps in our  
 3 haste causing an accident at the depot. I am  
 4 against the permit.  
 5 MR. DADOLY: Thank you.  
 6 That's all I have for people who are signed up  
 7 to testify. Is there anybody else?  
 8 (Pause in the proceedings).  
 9 MR. DADOLY: It's 7:35. And I  
 10 would like to close this hearing.  
 11 MR. WILKINSON: Could I start  
 12 my questions? Sue? I've got a stack of them.  
 13  
 14  
 15 (7:35 p.m.)  
 16  
 17  
 18 \* \* \*  
 19  
 20  
 21  
 22  
 23  
 24  
 25

31

1 further delays.  
 2 MR. DADOLY: Thank you. Judy  
 3 Brown.  
 4 MS. BROWN: Hello. I am Judy  
 5 brown. And I am a resident of Irrigon.  
 6 We are the city in the closest  
 7 proximity to the Army Depot and to the  
 8 incinerators. The very worst case scenario, it  
 9 would be only a matter of a few minutes before  
 10 a contaminant from a spill would reach our  
 11 city. I teach school at A. C. Houghton  
 12 Elementary. We practice monthly our  
 13 over-pressurization drill and try to keep  
 14 everyone safe at A. C. Houghton, and everyone  
 15 in Irrigon has been working on keeping  
 16 themselves safe also, by learning what the  
 17 procedures are in case of an accident at the  
 18 depot.  
 19 Where Mrs. Bounds and I agree is  
 20 that I believe the chemicals must be taken care  
 21 of. But it's how they should be taken care of.  
 22 I think that we are lowering our standard for  
 23 the emission controls if we change the permit,  
 24 and increase the feed rate.  
 25 I'd rather work slower and more

30

1 STATE OF OREGON )  
 2 County of Umatilla ) ss.  
 3  
 4 I, William J. Bridges, do hereby  
 5 certify that at the time and place heretofore  
 6 mentioned in the caption of the foregoing  
 7 matter, I was a Certified Shorthand Reporter  
 8 for the State of Oregon; that at said time and  
 9 place I reported in stenotype all testimony  
 10 adduced and proceedings had in the foregoing  
 11 matter; that thereafter my notes were reduced  
 12 to typewriting and that the foregoing  
 13 transcript consisting, of 31 typewritten pages  
 14 is a true and correct transcript of all such  
 15 testimony adduced and proceedings had and of  
 16 the whole thereof.  
 17 Witness my hand at Pendleton, Oregon,  
 18 on this \_\_\_\_\_ day of March, 2004.  
 19  
 20  
 21  
 22  
 23 William J. Bridges  
 24 Certified Shorthand Reporter  
 25 Certificate No. 91-0244  
 My certificate expires: 10-31-05

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# **ATTACHMENT F**

## **Public Comment Summary and Department Response**

Permit Modification Request UMCDF-03-041-PFS(3)  
"Change in Incinerator Emissions Compliance Point"  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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**PUBLIC COMMENT SUMMARY AND DEPARTMENT RESPONSES**  
**Permit Modification UMCDF-03-041-PFS(3)**  
**“Change in Incinerator Emissions Compliance Point”**

**I. Summary of Comments Received**

The first public comment period for Permit Modification UMCDF-03-041-PFS(3) (“Change in Incinerator Emissions Compliance Point”) was held open for 60 days from September 17 through November 17, 2003. The Permittees held a public information meeting on October 21, 2003 in Hermiston, Oregon. At the close of the first comment period the Department of Environmental Quality (DEQ or Department) had received eight comments, four opposing the permit modification request and four in support.

After reviewing the permit modification request, the Permittees’ response to the Department’s Notice of Deficiency (issued November 5, 2003), and the public comments received during the first comment period, the Department made a tentative decision to recommend to the Environmental Quality Commission (EQC or Commission) that the permit modification request be approved. The Department then opened a comment period from January 14 through March 1, 2004 (45 days) to invite comment on the Department’s tentative decision to recommend approval. There were two public hearings held during the second comment period—the first during the February 5, 2004 meeting of the Commission in Portland, and the second on February 18 in Hermiston. Four persons testified before the Commission on February 5 (two were representatives of the same organization) and fifteen offered oral testimony at the February 18 hearing. Ten persons provided written comment during the second comment period.

In total, the Department received eighteen written comments from sixteen different commenters and eighteen oral comments from sixteen commenters (some people provided written comments during both comment periods and/or testified at both hearings). In summary, there were 28 commenters.<sup>1</sup> Eighteen commenters expressed support for the modification, nine were against, and one did not take a position specifically on the permit modification (although the commenter did express concerns similar to concerns expressed by some who opposed the modification).

Section II below summarizes the comments that were received in support of the proposed permit modification and Section III is the Department’s response. A summary of the comments opposing the modification is presented in Section IV. Section V presents the

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<sup>1</sup> In the case of GASP and the Confederated Tribes of the Umatilla Indian Reservation more than one individual provided comment on behalf of their respective organizations—these were counted as one “commenter.”

Department's responses to comments opposing the proposed modification and to some of the questions posed by the commenters regarding operation of the pollution abatement system carbon filter system (PFS). Many of the issues identified by commenters are also discussed within the body of this staff report under "Key Issues."

The Department would like to thank all of the persons and organizations who took the time to send in their comments.

## **II. Summary of Comments Supporting the Permit Modification**

The commenters expressing support included elected officials from Morrow and Umatilla Counties, and the Mayor of Hermiston. The Hermiston Development Corporation, the Oregon Water Coalition, and the Confederated Tribes of the Umatilla Indian Reservation all expressed support for the permit modification. There were also twelve individuals who supported the permit modification, including a past Mayor of Hermiston and the former Superintendent of Hermiston schools. Several of the individuals testifying in support of the modification indicated they were employed at the Umatilla Chemical Agent Disposal Facility (UMCDF) or at the Umatilla Chemical Depot (UMCD).

Most of the commenters who supported the permit modification specifically mentioned their concern about the risk associated with schedule delay if the permit modification was denied. Two commenters stated that there are a fixed number of munitions to be processed at UMCDF and they believed that atmospheric emissions would be essentially the same whether the munitions are processed at a faster rate for a short period of time or at a slower rate over a longer period of time. Two commenters expressed their opinion that it is emissions to the atmosphere that really matter, not the emissions into the carbon filters.

A summary of the written and oral comments from persons supporting the permit modification request is presented in Table F-1 beginning on the following page. The first column of the table indicates where in Attachments D and/or E a transcript of the commenter's oral testimony can be found and/or where in Attachment G the written comment is located.<sup>2</sup>

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<sup>2</sup> The first column of Tables F-1 (and Table F-2 in Section IV) also include the "Item No." for written comments. The DEQ's Chemical Demilitarization Program maintains a database of all documents related to the Umatilla project and all incoming and outgoing correspondence is assigned a unique identifying number for tracking purposes, referred to as the "DEQ Item No." As of April 26, 2004 the Umatilla database lists 15,327 documents, some dating back to the 1970s.



**Table F-1. Summary of Comments Supporting the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Dennis D. Doherty Umatilla County Commissioner</p> <p>Attachment E Page E-8</p> <p>Attachment G Page G-17 [Item No. 03-1936]</p>	<p>Commissioner Doherty submitted written comments during the first comment period and provided oral testimony on February 18, 2004 at the public hearing in Hermiston. He supports the permit modification because of his concern over the potential delay in the destruction of the stockpile.</p> <p>In his written comments Commissioner Doherty pointed out that allowed emission rates are not being changed and that the proposed modification "offers demonstrable upside, and little downside, if any." In his oral testimony he echoed his written comments and stated that there are four interests at issue: 1) our national interest in fulfilling our treaty commitments to destroy the weapons; 2) the state's interest; 3) the local interest ("to reduce the exposure that the local community has to any risk"); and 4) the taxpayer's interest. Commissioner Doherty calculated that the potential 64-month delay in destroying the rockets would cost the taxpayer an extra \$576 million. He does not believe that approving this permit modification would make the community "less safe."</p>
<p>Rodney S. Skeen Ted Haigh Confederated Tribes of the Umatilla Indian Reservation</p> <p>Attachment D Page D-30</p> <p>Attachment G Page G-19 [Item No. 03-1966]</p> <p>Attachment G Page G-43 [Item No. 04-0225]</p>	<p>Dr. Skeen provided written comments during the first comment period on behalf of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR). Mr. Haigh's oral testimony on February 5, 2004 before the EQC echoed the CTUIR's written comments. The CTUIR supports the proposed permit modification.</p> <p>In his written comments Dr. Skeen stated that he concurs with the UMCDF Permittees' statement that "there will be no detrimental human health or environmental impacts resulting from implementation of this [permit modification request]." Dr. Skeen pointed out that approving the modification would result in "no net increase in the total quantity of material released over the lifetime of the plant" because there are a fixed number of munitions to be processed. Dr. Skeen presented an equation to illustrate that "a slow feed of munitions over a longer time will produce a lower concentration of hazardous materials in the exhaust gas when compared to a higher feed rate, but that concentration will be produced for a longer time." He concluded that "this change [will not have] an adverse impact to the CTUIR."</p>



**Table F-1. Summary of Comments Supporting the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Bob Severson Mayor City of Hermiston</p> <p>Attachment G Page G-21 [Item No. 03-2027]</p>	<p>Mayor Severson provided written comments during the first comment period in support of the proposed permit modification. While acknowledging that he "understand[s] the risks of a major incident involving the storage and disposal of chemical weapons are both extremely low," Mayor Severson stated that "if we don't grant this modification, we could be burning chemical agents for an additional five years. We would be putting the community at risk of an accident or incident involving storage of chemical agents for a greater length of time."</p>
<p>Chester Prior President Hermiston Development Corporation</p> <p>Attachment G Page G-22 [Item No. 03-2073]</p>	<p>Mr. Prior provided written comments during the first comment period supporting the proposed permit modification on behalf of the Hermiston Development Corporation.</p> <p>Mr. Prior encouraged the EQC to "grant this permit request for the community's general welfare." He also stated that "This request enhances project efficiency, maximizes safety and allows the facility to move forward to chemical agent destruction. This is a reasonable approach to adapt to conditions and standards that have changed since the permit was granted in 1997 and to incorporate the knowledge and experience gained in the past years in the national chemical weapons disposal program."</p>
<p>Morrow County Commission</p> <p>Attachment G Page G-40 [Item No. 04-0184]</p>	<p>Judge Terry K. Tallman, Commissioner John Wenzholz and Commissioner Ray Grace submitted written comments during the second comment period on behalf of Morrow County supporting the proposed permit modification.</p>
<p>Jer D. Pratton Hermiston</p> <p>Attachment G Page G-41 [Item No. 04-0201]</p>	<p>Dr. Pratton submitted written comments during the second comment period supporting the proposed permit modification. Mr. Pratton supports "a process that can happen as quickly as is possible..." because further delay increases the risk and "not granting this permit modification or substantially delaying it is not honoring the original plan and promise to our Hermiston community." He also stated that "there are a fixed number of munitions to be burned at the depot. To burn them a few over a long time, or to burn more over a short time will result in essentially the same quantity of compounds released in the air."</p>



**Table F-1. Summary of Comments Supporting the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>John Herron Hermiston</p> <p>Attachment D Page D-39</p>	<p>Mr. Herron provided oral testimony at the February 5, 2004 meeting of the EQC in Portland. Mr. Herron supports the proposed permit modification and stated that "the main issue for my family and friends is that the standards for emissions do not change at all and that the process itself does not change at all." While acknowledging the past commitments of the Army to meet the emission standards prior to the carbon filters, he pointed out that there was also a commitment to destroy the chemical weapons. He expressed his concern that denying the permit modification request would "increase the storage time of the rockets and increase the risk to my family and friends."</p>
<p>Randall D. Kowalke Hermiston</p> <p>Attachment G Page G-49 [Item No. 04-0216]</p>	<p>Mr. Kowalke submitted written comments during the second comment period supporting the proposed permit modification. He stated that his research has led him to believe that "while expediency should not be the top factor in the plan for destruction, needlessly adding five or more years to this process because the Army has to measure the test results with an elastic yard stick can not be justified either. We should not let 'perfect' be the enemy of the 'very good'." Mr. Kowalke also stated his belief that "the science is sound" and that "the process is proven and effective."</p>
<p>David Wallick Hermiston</p> <p>Attachment E Page E-5</p>	<p>Mr. Wallick provided oral testimony at the February 18, 2004 public hearing in Hermiston supporting the proposed permit modification because of his concern about the risk of delaying destruction of the stockpile.</p>
<p>Brian Cimmiyotti Hermiston</p> <p>Attachment E Page E-9</p>	<p>Mr. Cimmiyotti provided oral testimony at the February 18, 2004 public hearing in Hermiston in support of the proposed permit modification because of his concern about the potential for delaying the destruction of the stockpile.</p>

**Table F-1. Summary of Comments Supporting the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Eric Reise Hermiston</p> <p>Attachment E Page E-9</p>	<p>Mr. Reise provided oral testimony at the February 18, 2004 public hearing in Hermiston supporting the proposed permit modification. Mr. Reise stated that he believes "these weapons of mass destruction should be destroyed in a safe and expeditious manner" and that "the technology that is currently being proposed is the best way to achieve this goal."</p>
<p>R.A. Bradshaw Hermiston</p> <p>Attachment E Page E-11</p>	<p>Mr. Bradshaw provided oral testimony on February 18, 2004 at the Hermiston public hearing. He supports the proposed permit modification because "the sooner we get rid of these rockets, the better off we are."</p>
<p>Cynthia Bounds Kennewick, WA</p> <p>Attachment E Page E-11</p>	<p>Ms. Bounds provided oral testimony at the February 18, 2004 public hearing in Hermiston supporting the proposed permit modification to avoid any further delay in the destruction of the stockpile. Ms. Bounds stated that her ten years of experience working with chemical weapons has shown her that deterioration of the weapons "just creates a hazard for everyone in the community and all of us who are handling those munitions. To deny this permit mod just slows the feed rates and continues the potential increase for overall emissions to the atmosphere and danger to each person who's working with those munitions."</p>
<p>Tim Mabry Hermiston</p> <p>Attachment G Page G-50 [Item No. 04-0307]</p>	<p>Mr. Mabry submitted written comments during the second comment period supporting the proposed permit modification. Mr. Mabry questioned delaying the process "...over the point at which we sniff the exhaust. If the carbon filters are a functioning part of the system why not include them for testing purposes?" Mr. Mabry encouraged the Department to use the experience at other operating sites that shows the process works.</p>



**Table F-1. Summary of Comments Supporting the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>William F. Myers Hermiston</p> <p>Attachment G Page G-51 [Item No. 04-0308]</p>	<p>Mr. Myers submitted written comments during the second comment period supporting the proposed permit modification. Mr. Myers stated that "if your job is to ensure the public that the emissions are safe, then it stands to reason that the testing needs to be done with the results reflecting the actual quality of air released. To test prior to the completion of the entire filtering process is of value if only to see that the early stages are operating properly, but it is of no value to the safety of the final release into the environment." Mr. Myers believes that "the longer the delay, the more dangerous the situation becomes..."</p>
<p>Vikki &amp; Mark Born Hermiston</p> <p>Attachment G Page G-52 [Item No. 04-0309]</p>	<p>Mrs. and Mr. Born submitted written comments during the second comment period supporting the proposed permit modification.</p>
<p>Frank and Beverly Harkenrider Hermiston</p> <p>Attachment G Page G-53 [Item No. 04-0329]</p>	<p>Mr. and Mrs. Harkenrider submitted written comments during the second comment period supporting the proposed permit modification. Mr. and Mrs. Harkenrider believe that "ninety percent of the people want chemical weapons out of here now" and that UMCDF should be allowed to "take credit for an additional filter system already installed, permitted by the state, and paid for by taxpayers."</p>
<p>Harmon Springer, Oregon Water Coalition Hermiston</p> <p>Attachment G Page G-54 [Item No. 04-0328]</p>	<p>Mr. Springer submitted written comments on behalf of the Oregon Water Coalition during the second comment period. The Coalition supports the proposed permit modification to prevent further delay in the destruction of the chemical weapons stockpile because "obsolete chemical warfare weapons just sitting in storage become a greater danger to the public."</p>

### **III. Department Response to Comments Supporting the Permit Modification**

The Department's responses to comments supporting the permit modification are reflected in the Department's recommendation to the Commission to approve the permit modification. Further discussion of some of the issues identified in the comments supporting the permit modification can be found in the discussion of Key Issues in the Staff Report and in Table F-3 in Section V.

### **IV. Summary of Comments Opposing the Permit Modification**

The commenters expressing opposition to the proposed modification include eight organizations (submitted in three written comments) and seven individuals (several of which are members of one or more of the organizations that submitted comments). Organizations indicating their opposition include GASP (a local Hermiston group opposing incineration), Chemical Weapons Working Group (a national organization that opposes incineration), Oregon Wildlife Federation, Oregon Chapter of the Sierra Club, Oregon Public Interest Research Group, Oregon Toxics Alliance, Oregon Chapter of Physicians for Social Responsibility, and Oregon Rural Action.

A summary of the written and oral comments from persons opposing the permit modification request is presented in Table F-2<sup>3</sup> beginning on the following page. The first column of the table indicates where in Attachments D or E a transcript of the commenter's oral testimony can be found and/or where in Attachment G the written comment is located. The second column summarizes the comment and in some cases provides a brief response or clarification (the response is in Ariel font). More detailed Department responses are presented in Table F-3 in Section V, beginning on Page F-16.

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<sup>3</sup> One commenter (Mr. Lockwood) who provided testimony at the February 18 public hearing in Hermiston did not state a position regarding this permit modification request. However, his comment is included in Table F-2 because he mentioned several concerns that were also expressed by some of the commenters opposing the modification.



**Table F-2. Summary of Comments Opposing the Permit Modification Request**  
**UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Stephen A. McFadden Dallas, TX</p> <p>Attachment G Page G-1 [Item No. 03-1915]</p>	<p>Mr. McFadden submitted written comments during the first comment period. Mr. McFadden urged the Department to deny the permit modification request. He believes that the proposed modification implies that "the UMCDF incinerator will not meet design criteria, and cannot be run within the limits of the burn permit without evaluating its compliance with it muzzled with the carbon filter 'gas mask'." He also expressed his concern about the possibility of a fire within the carbon filters.</p> <p><b>[Note:</b> Mr. McFadden submitted comments on numerous subjects. His comments specific to this permit modification begin near the bottom of Page G-6.]</p> <p><i>See Table F-3, Responses 1, 2, and 6.</i></p>
<p>Stuart Dick Pendleton, OR</p> <p>Attachment E Page E-9</p> <p>Attachment G Page G-15 [Item No. 03-1937]</p>	<p>Mr. Dick submitted written comments during the first comment period and gave oral testimony on February 18, 2004 at the public hearing in Hermiston. Mr. Dick is adamantly opposed to the proposed permit modification.</p> <p>In his written comments Mr. Dick expressed his concern about the number of permit changes and that "the army has never successfully demonstrated...that incineration can safely incinerate thirty rockets per hour nor has the pollution filtration system ever demonstrated (scientifically proven) it could trap dangerous and cancer forming emissions from going into the atmosphere."</p> <p>During his oral testimony Mr. Dick berated the Department and the EQC and stated that he believes that the community has "been lied to every step of the way," and that the number of permit modifications that have been approved is an example of "what we have been told, we don't get." Mr. Dick believes that "there's never any concern for the welfare and the health of the citizens" and that "we are guinea pigs here."</p> <p><i>See Table F-3, Responses 1, 2, 7, 9, and 11.</i></p>

**Table F-2. Summary of Comments Opposing the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Oregon Wildlife Federation, et al.</p> <p>Attachment G Page G-23 [Item No. 03-2092]</p>	<p>The Oregon Wildlife Federation (OWF) (and other named organizations) comments were primarily based on the OWF's review of several documents related to the carbon filter system, particularly a document titled "Risk Assessment of the Pollution Abatement Filter System for the Umatilla Chemical Agent Disposal Facility," prepared for the U.S. Army Program Manager for Chemical Demilitarization by Mitretek in September 1998. (This document is referred to here as the "PFS Risk Assessment.")</p> <p><b>[Note:</b> A summary of the PFS Risk Assessment was received by the Department on October 19, 1998 (Item 98-1416) and the full document on January 14, 1999 (Item No. 99-0066). This document was previously reviewed by the Department during proceedings related to the PFS in 1999 and is referenced in the 1999 Staff Report to the EQC (included here as Attachment L). There are several types of "risk assessments" associated with the chemical demilitarization facilities—see Table F-3, Response 6 for further discussion on risk assessments.]</p> <p>Several of OWF's comments (Comments 1, 3b, 3h, and 4) expressed concern about the risk posed by the PFS and that "Relying on ATB [Agent Trial Burn] data with the PFS engaged as reflecting actual operational capabilities over the duration of the GB campaign ignores data and information in the Army's own PFS Risk Assessment."</p> <p><b>[Note:</b> These comments seemed to be based on a misunderstanding that the proposed modification will allow UMCDF to assess emissions compliance after the PFS during testing of an incinerator, but that the PFS will not be used during normal operations. This is incorrect—the PFS must be operational any time an incinerator is feeding hazardous waste.]</p> <p><i>See Table F-3, Responses 2 and 3.</i></p> <p>OWF's comments included criticism of the assumptions used by the authors to calculate the risks of the PFS. OWF Comment 2 stated that relying on data with the PFS engaged ignores the PFS Risk Assessment finding that "The PFS does not reduce the risk from accidents related to agent stack release." In addition, the commenters believe that the assumption in the PFS Risk Assessment that the PFS operates at optimum capture efficiency "conflicts with the standard and accepted approach of incorporating conservative default values for parameters used to calculate excess cancer risk and other health effects" and that "Adequate consideration of increased worker risk associated with the PFS has not been done." The commenters also note that the PFS Risk Assessment used much lower percentages for the time that UMCDF incinerators would operate under "upset" conditions than those that were used for the Department's Health Risk Assessment.</p>



**Table F-2. Summary of Comments Opposing the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Oregon Wildlife Federation, et al.</p> <p>Attachment G Page G-23 [Item No. 03-2092]</p> <p>(CONTINUED)</p>	<p><b>[Note:</b> The Department has previously reviewed the PFS Risk Assessment and responding to each of the OWF comments about the document is beyond the scope of this Staff Report. However, it should be noted that some of OWF's comments about the PFS Risk Assessment seem to be based on incorrect interpretations. For example, OWF correctly quotes the conclusion from the PFS Risk Assessment that "The PFS does not reduce the risk from accidents related to agent stack release," but incorrectly interprets the meaning of the conclusion. The conclusion was referring to the fact that the PFS is risk-neutral in terms of being a potential <u>cause</u> of an accident that could result in an agent release. In fact, the PFS reduces the potential of an agent release from the stack during a furnace upset because of the capacity of the carbon to adsorb any excess emissions from the furnaces.</p> <p>The Department concurs that the PFS Risk Assessment is a valid document to review when assessing the safety and efficacy of the PFS. However, there have been numerous additional documents developed in the intervening years to evaluate the PFS. None of those documents have given the Department reason to change its statement from a 1999 Staff Report (See Attachment L, Page L-9): "The Department believes that the fixed-bed design of the UMCDF carbon filtration system is not unique, and has been demonstrated as effective when applied to...waste incineration facilities."]</p> <p style="text-align: center;"><i>See Table F-3, Responses 2, 3, and 6.</i></p> <p>OWF also stated its belief that because UMCDF "failed to perform as anticipated" during Surrogate Trial Burns and that the expected duration of UMCDF's operation has "more than doubled" since the PFS Risk Assessment report was completed, that both the Quantitative Risk Assessment and Health Risk Assessment for UMCDF should be repeated prior to agent operations."</p> <p style="text-align: center;"><i>See Table F-3, Responses 1, 5, and 6.</i></p> <p>Comments 3d and 3e expressed the commenters' doubt about the operational reliability of the PFS, "probable malfunctions associated with the PFS," and that upset conditions could result in "a release of all pollutants captured by the PFS." In addition, OWF is concerned about the use of PFS emergency bypass and believes that "sampling of the emissions upstream of the PFS would capture conditions that are likely to occur during activation of the [emergency PFS bypass] and present a clearer and more accurate picture of emissions released into the atmosphere during the campaign..."</p>

**Table F-2. Summary of Comments Opposing the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Oregon Wildlife Federation, et al.</p> <p>Attachment G Page G-23 [Item No. 03-2092]</p> <p><b>(CONTINUED)</b></p>	<p><b>[Note:</b> As stated in a Note above, the PFS must be operational any time an incinerator is feeding hazardous waste. Consequently, the most "accurate" picture of emissions released into the atmosphere during operations is actually reflected by the emissions measured after the PFS.]</p> <p style="text-align: center;"><i>See Table F-3, Responses 2, 3, and 5.</i></p> <p>OWF also pointed out that additional data regarding emissions and waste characterization are now available that were not available at the time UCMDF's permit was issued. The commenters stated that "Without accurate waste characterization capabilities, based on data which post-dates [Johnston Atoll Chemical Agent Disposal System] test burns, emission assumptions in the context of the current [permit modification request] are virtually worthless."</p> <p style="text-align: center;"><i>See Table F-3, Responses 1 and 5.</i></p>
<p>Karyn Jones J.R. Wilkinson GASP et al.</p> <p>Attachment D Page D-34</p> <p>Attachment E Pages E-7 and E10</p> <p>Attachment G Page G-35 [Item No. 03-2093]</p> <p>Attachment G Page G-55 [Item No. 04-0331]</p>	<p>GASP submitted comments during both written comment periods and offered oral testimony at both public hearings. GASP is opposed to the permit modification.</p> <p><b>[Note:</b> In their written comments submitted on March 1, 2004 GASP requested an extension of the public comment period so that they would have more time to review documents. On March 5 the DEQ denied the request for an extension because of the Department's belief that there had been more than adequate time (over five months since the original submittal of the permit modification request) for GASP to request and review documents relevant to the modification request.]</p> <p>GASP expressed concern about "...the blatant continuation of piecemeal changes to the UMCDF Hazardous waste Permit that, in turn, are fundamental changes to the technology, the Permit, and the assurances made by the Army and the State to Oregonians." GASP goes on to say that "...we were assured that the carbon filter systems were added protection. Now through testing, the incinerators have demonstrated that they can not meet key emissions regulations and in order to comply with regulations the Army and State must now take credit for calculated carbon removal efficiencies." GASP also believes that the Army "misled the public" about its ability to achieve a 40 rocket per hour feed rate..." and that the risk of storage has been overstated.</p> <p style="text-align: center;"><i>See Table F-3, Responses 1, 6, 7, 9, and 11.</i></p>



**Table F-2. Summary of Comments Opposing the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Karyn Jones J.R. Wilkinson GASP et al.</p> <p>(CONTINUED)</p>	<p>GASP also pointed out that the State has previously used the fact that no "credit" was taken for the reduction in emissions provided by the carbon filters to support its contention that the carbon filters were not part of its finding that incineration was "Best Available Technology." GASP believes that giving credit for the carbon filters voids the 1997 EQC finding that incineration is Best Available Technology.</p> <p style="text-align: center;"><i>See Table F-3, Response 8.</i></p> <p>GASP also expressed many concerns related to whether or not the PFS is a sufficiently "demonstrated" technology, and that the PFS poses additional operating risks and produces waste for which there is no disposal plan. GASP highlighted its concerns about carbon waste by noting that their review of the Phase 2 Quantitative Risk Assessment (QRA) indicates that the figures given in one of the appendices concerning the amount of agent that will be captured on the carbon filters do not "equate" to the required incinerator destruction removal efficiency for the incinerators, nor do they match the figures that the DEQ had given them.</p> <p><b>[Note:</b> The information GASP was reviewing concerning the amount of agent that will be captured on the carbon filters was actually related to the amount of agent that will be captured on the carbon filters used to filter the agent from the Munitions Demilitarization Building that <u>houses</u> the incinerators, not the carbon filters on the incinerators themselves. Because the building filters are capturing agent vapors from the most toxic areas of UMCDF (such as the room where the munitions are actually punched and drained prior to processing), the building filters do in fact retain a significant amount of agent.]</p> <p style="text-align: center;"><i>See Table F-3, Responses 2, 4, and 6.</i></p> <p>GASP also has concerns about "what protection the filters offer to workers and the public under upset and/or off-normal operational conditions," and that the state should take action to investigate the allegations concerning agent monitoring made by a witness during recent court proceedings.</p> <p style="text-align: center;"><i>See Table F-3, Responses 2, 3, and 6.</i></p>

**Table F-2. Summary of Comments Opposing the Permit Modification Request  
UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"**

Commenter	Summary of Comment
<p>Susan Jones Hermiston</p> <p>Attachment E Page E-6</p>	<p>Ms. Jones provided oral testimony at the February 18, 2004 public hearing in Hermiston. Ms. Jones opposes the proposed permit modification because she believes that the only reason for the modification is to "get the schedule back up to date for the Army." Ms. Jones stated that the Army, the Department, and the EQC all assured the public during the original permitting process that there would be no "attempt to change the point of emissions testing." Ms. Jones does not believe that there is any evidence to support the Department's statement that there will be no negative impact to human health and the environment if the modification is approved.</p> <p style="text-align: center;"><i>See Table F-3, Responses 6, 7, and 11.</i></p>
<p>Marilyn Post Irrigon</p> <p>Attachment E Page E-6</p>	<p>Ms. Post provided oral testimony on February 18, 2004 at the public hearing in Hermiston. Ms. Post opposes the permit modification because she sees it as a lowering of standards and does not believe that "Oregon needs to lower its own standards to suit any business or the Army or our federal government." Ms. Post stated that "if not burning the rockets as fast as they want to be burned is part of that implication, then let it be so."</p> <p style="text-align: center;"><i>See Table F-3, Responses 1 and 7.</i></p> <p>Ms. Post also expressed her concern that "in Utah [the carbon filters were] not permitted [for use] because it was not a proven filtering system," and she expressed her belief that "there should be a little bit more evidence of that before it's actually used in Oregon." Ms. Post also expressed concern about the "long-term effects of what's going to come out of the smoke stacks."</p> <p style="text-align: center;"><i>See Table F-3, Responses 2, 3, 6, and 10.</i></p>
<p>Debbie Burns Irrigon</p> <p>Attachment E Page E-7</p>	<p>Ms. Burns provided oral testimony at the February 18, 2004 public hearing in Hermiston. Ms. Burns opposes the permit modification and stated that she is against incineration and that "the Army is now using safer technology at other sites."</p> <p>[<b>Note:</b> Ms. Burns is referring to the fact that several of the chemical weapon stockpile sites around the country are using neutralization technology in lieu of incineration to destroy the chemical agent.]</p>



<b>Table F-2. Summary of Comments Opposing the Permit Modification Request UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point"</b>	
<b>Commenter</b>	<b>Summary of Comment</b>
Gail Horning Hermiston  Attachment E Page E-7	Ms. Horning provided oral testimony at the February 18, 2004 public hearing in Hermiston. Ms. Horning is opposed to the proposed permit modification.
Frank Lockwood Kennewick, WA  Attachment E Page E-7	Mr. Lockwood provided oral testimony on February 18, 2004 at the public hearing in Hermiston. Mr. Lockwood did not state his position on this specific permit modification, but expressed his concern about the "continuing pattern" of changing standards when they become "inconvenient." Mr. Lockwood also expressed his concern about the amount of secondary waste that will be generated at UMCDF.  <i>See Table F-3, Responses 4 and 9.</i>
Judy Brown Irrigon  Attachment E Page E-12	Ms. Brown provided oral testimony at the February 18, 2004 public hearing in Hermiston. Ms. Brown opposes the proposed permit modification because she believes that it is a lowering of the emission standards. Ms. Brown would rather that UMCDF "work slower and more safely" because of the possibility that "haste [could cause] an accident at the depot."  <i>See Table F-3, Responses 1, 6, and 7.</i>

**V. Department Responses to Comments Opposing the Permit Modification**

<b>Table F-3. Department Responses to Comments Opposing the Modification</b>	
<b>Response No.</b>	<b>Comment and Department Response</b>
<b>1.</b>	<p><b>Comment(s):</b> Several commenters opposing the permit modification believe that the Department, the Commission, and the public in general were misled by the U.S. Army about the capabilities of the incinerators at UMCDF. The commenters believe that because UMCDF now needs to take credit for the emissions reduction provided by the PFS to meet compliance standards it demonstrates that the incinerator design is inadequate. Several commenters believe that approving this permit modification request is a lowering of Oregon’s standards.</p> <p><b>Response:</b>            It has been repeatedly stated over the years (both before and after the issuance of the UMCDF permits) that the UMCDF incinerators were designed to meet all regulatory standards even without the presence of the PFS. These statements were made not only by the Army, but also by oversight agencies such as the National Research Council, the Centers for Disease Control, the Department, and the Commission. With the limited exception of some metals from one incinerator, to a large extent these statements have proven to be true.</p> <p>Three surrogate trial burns (STBs) have been conducted to date at UMCDF. Surrogate trial burns are designed to simulate the same , or worse, conditions (including type of waste feed and feed rates) that are expected during chemical agent operations. Testing is then conducted to determine whether the furnace and pollution abatement system can operate at that feed rate and stay within the current emission limits and operating setpoints.</p> <p>The STBs measure such things as the Destruction Removal Efficiency (DRE) for organic compounds and Metals Removal Efficiency (MRE) for inorganic compounds. DRE is a measure of how well the incinerator destroys “organic” compounds, in this case the surrogate material used to simulate chemical agent. Metals such as lead, cadmium, and mercury cannot be destroyed like organic compounds. MRE is a measure of how well the incinerators’ pollution abatement systems remove metal from the gas stream so that they are not released out the stack into the environment.</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

Response No.	Comment and Department Response
	<p>STBs also test the incinerators' ability to meet emission standards. In some cases emissions are stated as a concentration (how much of a compound is contained in a volume of air, such as "pounds per cubic foot") and in other cases they are stated as a rate (how much of a given compound is being released during a given time period, such as "grams per second" or "pounds per hour"). Both types of emission standards exist for UMCDF.</p> <p>Using Liquid Incinerator 1 (LIC1) as an example, the STB measured the emission rates of 10 different metals and the DRE of two different surrogates (agent simulant). In addition to the emissions of the metals and the surrogates, measurements were made of emissions of particulate, carbon monoxide, dioxins and furans, hydrogen chloride, chlorine, and volatile and semi-volatile organic compounds. The results from the STB on Liquid Incinerator 1 (LIC1) showed that the incinerator was able to meet all performance standards and all emission limits even when those emissions were measured before the PFS. For example, emissions of dioxins during tests both "before" and "after" the PFS were not only below the maximum permitted limit, but also below the analytical detection limit. The detection limit is 100 times lower than the permitted limit.</p> <p>The performance standard for LIC1 is 99.9999% DRE (known as "six nines"). The LIC1 STB averaged (over four test runs) a DRE of 99.9999945% for semi-volatile organic compounds and 99.99997% for volatile organic compounds.</p> <p>LIC2 is an identical unit and should have similar results, although its STB has not yet been conducted. The STB on the Metal Parts Furnace has been conducted and preliminary results indicate that it, too, was able to meet all of the performance standards and emission limits without taking credit for the PFS. The Deactivation Furnace System (DFS) also performed very well during its STB (even without the PFS). However, it was unable to meet every single one of the metal emission limits during certain feed conditions.</p> <p>The STB on the Deactivation Furnace System (DFS) included test runs to simulate three different rocket feed rates: 40 rockets per hour; 7.5 rockets/hour; and about 2 rockets/hour. Results indicate, however, that the DFS was unable to achieve compliance with four of the 10 metal emission</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

Response No.	Comment and Department Response
	<p>limits measured before the PFS. The required DRE for the surrogates was met during all test conditions, as were emission limits for every other measured parameter. (It is possible, although it can't be known for certain until agent trial burns are conducted, that the metal emission exceedances during the STB were actually an artifact of the form of the metal that was fed to the furnace during the STB.)</p> <p>Test results generated to date indicate that the incinerators at UMCDF actually perform quite well and are able to achieve performance standards and meet emission limits even without the additional emission reductions provided by the PFS. The limited exception noted to date is that under some test conditions the Deactivation Furnace System will not be able to meet some metal emission limits without the additional PFS reduction. The Department believes that the incinerators are performing as designed.</p> <p>Selected results from the STBs on the UMCDF LIC1 and DFS are included in Attachment N to this Staff Report. The results from the tests of the LIC and DFS at the Anniston Chemical Agent Disposal Facility are also included in Attachment N.</p>
2.	<p><b>Comment(s):</b> Commenters opposing the permit modification contend that the PFS is not “demonstrated” technology, has not been used elsewhere, and has never been “scientifically” proven to be capable of capturing pollutants. Other commenters believe that the PFS poses a risk of fire (with the subsequent release of captured pollutants), could cause furnace upsets, poses risks to workers, and that the long-term reliability of the PFS is unknown.</p>
	<p><b>Response:</b> Carbon filtration for the purposes of cleaning air streams has a long history of use in many industries and is in fact a proven and effective method of capturing organic compounds. At the time the HW Permit was issued in early 1997 the UMCDF PFS was only a very preliminary design and there were very little data in the record that specifically demonstrated the feasibility of using carbon filters to treat incinerator exhaust gas.</p> <p>However, in the intervening years the design of the PFS has fully matured, additional data have become available, and UMCDF has taken the necessary steps to submit all of the required information to the Department.</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

<b>Response No.</b>	<b>Comment and Department Response</b>
	<p>The Department and Commission conducted an in-depth review of the PFS in late 1999, and concluded that the PFS should be retained in the UMCDF design (see the 1999 Staff Report included here as Attachment L).</p> <p>The Department has received and reviewed numerous documents related to design, performance, and safety of carbon filter technology. The design and operation of the UMCDF PFS has been updated and upgraded several times in the last five years. Automatic Waste Feed Cutoffs and other operating requirements in the UMCDF HW Permit prohibit the feeding of hazardous wastes (including chemical agent and munitions) into an incinerator if the components of its pollution abatement system, including the PFS, are not fully operational.</p> <p>The PFS carbon filter systems have been demonstrated to be effective not only at the demilitarization facilities in Anniston, Alabama and Pine Bluff, Arkansas; but also here at the Umatilla facility. The Anniston facility has moved on to chemical agent operations and discussions with the Alabama Department of Environmental Management indicate that there have not been problems with the operation of the PFS. The UMCDF has successfully completed three surrogate trial burns (on the Liquid Incinerator 1, the Deactivation Furnace System, and the Metal Parts Furnace) with the carbon filter system both "online" and "offline." No significant problems were encountered and the results show that the PFS is effective in further reducing emissions to the atmosphere (see Attachment N).</p> <p>The UMCDF Hazardous Waste Permit includes numerous requirements to ensure the long-term reliability and performance of the carbon filter systems. There are requirements concerning items such as monitoring of the carbon to ensure adequate adsorption capacity remains and required frequency of carbon bed change-out (in addition to specific operating requirements related to inlet moisture and temperature limitations mentioned in Response 3 below).</p> <p>The PFS has been demonstrated to be effective and has the capacity to capture and retain transient flue gas emissions under both normal and upset furnace operating conditions. The large capacity of the PFS to adsorb organic compounds provides an additional measure of safety to anyone exposed to the emissions from UMCDF furnaces. This is particularly true</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

Response No.	Comment and Department Response
	for the UMCDF workers who spend the most time in the closest proximity to the common stack.
3.	<p><b>Comment:</b> Commenters opposing the permit modification state that measuring emissions after the carbon filters will not account for emissions that will occur when the carbon filters are in “bypass mode” and so will not reflect actual conditions during agent destruction operations.</p>
	<p><b>Response:</b> The PFS is required to be in operation at all times that hazardous waste is being fed into an incinerator (with the limited exception for testing purposes, an exception that will no longer be allowed if this permit modification is approved). UMCDF Hazardous Waste (HW) Permit Conditions VI.G. (related to surrogate operations) and VII.G. (related to agent operations) require that “The...carbon filter unit for any furnace system shall be in operation during the treatment of waste...”</p> <p>Consequently, measuring emissions after the carbon filters is actually more reflective of actual conditions (and emissions to the atmosphere) during agent operations than measuring the emissions entering the carbon filters.</p> <p>The PFS is equipped with a “bypass” feature to protect the carbon in the filter units from high temperatures (which pose a fire risk) and from high moisture in the gas stream (wetting the carbon reduces its effectiveness). Sensors are installed in the duct work leading to a PFS unit and if temperature or moisture limits are exceeded the bypass will open and flue gases from that incinerator are routed around the PFS. The opening of a carbon filter bypass immediately triggers an “Automatic Waste Feed Cutoff” which stops additional waste feed to the affected furnace. Waste feed may not resume until allowed operating ranges are back in compliance with permitted limits.</p> <p>It is important to note that the PFS will not be bypassed during <u>furnace</u> upset conditions, unless the furnace upset conditions are having effects downstream that are resulting in <u>PFS</u> upset conditions, in which case the Automatic Waste Feed Cutoff will activate. In fact, the PFS provides a large “buffer” capacity to capture excess pollutants that might occur if a furnace is not operating at its optimum conditions.</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

Response No.	Comment and Department Response
4.	<p><b>Comment:</b> Commenters opposing the modification point out that the used (“spent”) carbon filters from the PFS will become a large secondary waste stream that will have to be put into storage because there is no plan in place to treat the used (spent) carbon.</p>
	<p><b>Response:</b> The Department concurs that spent carbon will be a large secondary waste stream from UMCDF operations, and that it will be stored at the Umatilla Chemical Depot (UMCD). Carbon will be one of the very last waste streams treated at UMCDF because the proposed treatment technology requires modifications to the interior of the Deactivation Furnace. However, it should be noted that this waste stream will exist regardless of whether this permit modification is approved.</p> <p>Ensuring that there will be no “legacy waste” left at the Umatilla Chemical Depot has been, and continues to be, a high priority for both the Department and the Commission. In September 2001 the Commission directed the Department to prepare a modification to the UMCDF HW Permit to add requirements related to the start of surrogate and agent operations, many of which were related to resolving secondary waste treatment and disposal issues. The modification was approved in March 2002 and added numerous requirements to the UMCDF HW Permit related to the final disposition of secondary waste from both UMCDF and the waste generated from many years of storage operations at UMCD.</p> <p>UMCDF has complied with the requirements imposed in 2002 and there are now permitted treatment plans in place for all of the UMCD and UMCDF wastes, with the exception of multi-agent contaminated UMCD wastes and spent carbon from both UMCD and UMCDF. Per the HW Permit requirement, the Army has kept the Department apprised of progress on the development and implementation of carbon treatment technology. The Army has formally notified the Department of its intention to use the same carbon treatment technology at UMCDF that was successfully demonstrated and used at the Johnston Atoll Chemical Agent Disposal System (JACADS). Future permit modification requests will finalize plans for these last two remaining secondary waste streams. The Department is satisfied with UMCDF’s progress on resolving the secondary waste issues.</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

<b>Response No.</b>	<b>Comment and Department Response</b>
5.	<p><b>Comment:</b> Commenters point out that there is now additional information available about the operation of the incinerators and characterization of the chemical agents and secondary waste. New regulations have been put into effect and there is new information about the type and amount of emissions from chemical demilitarization incinerators. Commenters on both sides of the issue emphasize that decisions should be based on the most recent information available and reflect actual on-site conditions.</p>
	<p><b>Response:</b></p> <p>The Department concurs with commenters that decisions should be based on the best and most recent information available concerning actual on-site conditions. The Umatilla Chemical Agent Disposal Facility is no longer a design contained in reams of documents and drawings—it is now a functional, operating full-scale facility poised to start destruction of a chemical weapons stockpile. Many of the decisions that previously had to be based on extrapolations, engineering calculations, performance predictions, and scientific theories can now be based on empirical observations, analytical data, and operation test results.</p> <p>New regulations have been put in place, new information is available from ongoing analyses of the composition of the various chemical agents, and there is a considerable amount of new experience gained from operations at UMCDF and other demilitarization facilities. Experience has shown that the PFS works as designed and provides the added emissions reduction that the Commission was looking for in 1997 (see Attachment N).</p> <p>Regulatory control of air emissions from combustion units, both nationally and at the state level, has traditionally been applied to the point that the emissions are released to the atmosphere because it is those emissions that might affect human health and the environment. The Department is not aware of any other facility with a similar requirement to meet emissions limits at a point before the final stage of its pollution abatement system. The PFS on each of the UMCDF incinerators is an integral part of its overall pollution abatement system. It has proven to be effective in reducing emissions to the atmosphere and it is a necessary component for UMCDF to achieve compliance with regulations that have been put into effect since the time the original permit was issued.</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

Response No.	Comment and Department Response
	<p>The Department understands why the Commission imposed the original requirement in 1997. However, in light of the demonstrated operation of the PFS and the promulgation of new regulations, the Department believes that it is an appropriate time to reconsider the requirement that UMCDF demonstrate emissions compliance before the PFS.</p> <p>It is sound science, and sound policy, to encourage facilities to install the best pollution control technology possible. To require the installation of a very expensive piece of pollution control technology and then not allow the facility to take credit for its emission-reducing effects could serve to deter others from installing such equipment. The Department would also like to avoid the need for repeated test periods during live agent operations in which the PFS must be taken off-line in order to determine the level of emissions that are entering the carbon filters (a circumstance not foreseen in 1997 when the permit was issued). The Department, and we believe the local community, is more concerned about what is actually coming out of the stack.</p>
6.	<p><b>Comment:</b> Some commenters believe that the Army’s PFS Risk Assessment and Quantitative Risk Assessment, and the Department’s Health and Ecological Risk Assessments, should be repeated to reflect new estimates of operating duration, the risks of operating the PFS, more realistic estimates of “upset” conditions for the furnaces, the risks to the workers, and more conservative estimates of the ability of the PFS to absorb pollutants. Other commenters believe that the risks of continued storage of the stockpile have been greatly overstated and that the Department has nothing on which to base its statement that approving this permit modification would not have an adverse impact on human health and the environment.</p>
	<p><b>Response:</b> There are two types of risk assessments under discussion here: The “Quantitative Risk Assessment” (QRA) is a process that the Army uses to assess both worker and public risks from accidents during storage and processing. These include “internal” events, such as dropping a pallet of munitions from a forklift, a fire within the main building that spreads to the building carbon filter units, or an explosion during rocket processing. The QRA also analyzes risks from “external” events such as earthquakes or airplane crashes that could result in the collapse of a storage igloo or part of</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

<b>Response No.</b>	<b>Comment and Department Response</b>
	<p>the Munitions Demilitarization Building where the incinerators are located.</p> <p>The other type of risk assessment is known as a “Health Risk Assessment” (HRA) (combined in this case with an “Ecological Risk Assessment”). The HRA is conducted by the Department using EPA risk assessment guidance. The HRA assesses the risks to human health (and animals) from chronic long-term exposures to normal day-to-day emissions from the UMCDF. The HRA does not assess the impacts of a catastrophic release resulting from an accident, although it does evaluate air concentrations resulting from normal emissions under worst-case meteorological conditions that might result in an “acute” exposure.</p> <p>(The “PFS Risk Assessment” referred to extensively by OWF in its comments was a PFS-specific risk assessment prepared by the U.S. Army that, among other things, was a combination of a QRA and an HRA. It’s information was subsequently incorporated into the “Phase 2 QRA” discussed below.)</p> <p>Both a QRA and an HRA were prepared before UMCDF was built. They were called the “Phase 1 QRA” and the “Pre-Trial Burn Health and Ecological Risk Assessment (PreRA),” respectively. The Phase 1 QRA concluded that the risk of continued storage far outweighed the risk of processing. The PreRA concluded that emissions from day-to-day operations of UMCDF would not pose unacceptable risks to either human health or the environment. Both documents were reviewed and extensively discussed by the Commission prior to the 1997 decision to grant the UMCDF HW Permit.</p> <p>Because UMCDF had not actually been constructed yet, both the Phase 1 QRA and PreRA used the information available in the permitting documents. The Phase 1 QRA did not assess any risks associated with the operation of the PFS because the Army had not yet decided that the PFS would be constructed. The PreRA accounted for the PFS’s effects on stack temperature and flow rates for dispersion modeling purposes, but did not account for any emission reductions provided by the PFS.</p> <p>The Army updated its QRA by completing a “Phase 2 QRA” in late 2002 using the most recent “as-built” design, updated risk models, and other</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

<b>Response No.</b>	<b>Comment and Department Response</b>
	<p>more recent information to assess storage and processing risks. The Department believes that the issues identified by the commenters were addressed in the Phase 2 QRA, such as the extended operating duration and the risks posed by operation of the PFS. The Phase 2 QRA did not indicate that incidents involving the pollution abatement system carbon filters contributed in any significant way to either public or worker risk.</p> <p>A summary of the Phase 2 QRA is included in this Staff Report as Attachment M. The Phase 2 QRA reached the same overall conclusion as the Phase 1 QRA—although both risks are small in comparison to other risks we face every day, storage risks still far exceed processing risks (Pages M-20 and M-21 present some comparisons of risk between UMCDF operations and everyday risks, such as getting hit by a car.).</p> <p>The Department intends to conduct a Post Trial Burn Health Risk Assessment (PostRA) after the first on-site test data from agent operations are available from UMCDF. A new risk assessment protocol, using the most up to date information available has been developed and undergone public comment. The new protocol will be finalized before UMCDF starts agent operations and will be updated to reflect the most current information just before the actual PostRA is conducted. UMCDF will not be allowed to process munitions at full permitted rates until the PostRA is completed and results demonstrate that operations will not pose unacceptable risks.</p> <p>The Department does not believe that moving the compliance point to a point after the PFS will result in any adverse impacts to human health or the environment. Moving the compliance point will not change the permitted emission limits. The PreRA methodology was based on an assumption that compounds would be emitted from the common stack at the maximum permitted rate. In the case of metals (such as lead and mercury) the emissions were assumed to be even higher than the maximum permitted emission rate to account for times when the furnaces might be operating in “upset” conditions. No emissions reduction was assumed due to the presence of the carbon filter units. Because the emissions will still be at or below the same limits that were used for calculations in the PreRA, there would be no change in results.</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

Response No.	Comment and Department Response
7.	<p><b>Comment:</b> Several commenters opposing the modification believe that the Army has greatly exaggerated the maximum rocket feed rate through the Deactivation Furnace System (DFS). Consequently, the estimates of the schedule delay that will result from restricting the rocket feed rate (if the modification is denied) are also greatly exaggerated. Several of the commenters believe that approving the permit modification will be a decision that puts speed ahead of safety, especially unacceptable to the commenters because they believe that the risk of storage is overstated.</p>
	<p><b>Response:</b> The Department concurs with the commenters that the permitted feed rate of forty rockets/hour through the DFS has rarely, if ever, been achieved by other demilitarization facilities. The Department also questioned the basis of the projected schedule delay that was stated within the permit modification request (PMR). The Department required in its PMR Notice of Deficiency (NOD) to UMCDF that additional information be submitted and that UMCDF provide a detailed analysis of the schedule and the assumptions that went into the calculations. In fact, most of the Department's NOD items were specifically related to gathering additional information from UMCDF about schedule calculations.</p> <p>Commission members were provided with the NOD and UMCDF's Response to the NOD. Although it is beyond the scope of this document to go into great detail about the information provided, the Department is satisfied that UMCDF used reasonable assumptions in its calculations of the 64-month schedule delay that would be caused by restricting the feed rate to the DFS to two rockets per hour.</p>
8.	<p><b>Comment:</b> One commenter believes that the 1997 statutorily-required finding by the Commission that incineration is "Best Available Technology" is void because UMCDF must now take credit for the PFS to meet standards.</p>
	<p><b>Response:</b> The 1997 Commission Order (included in this Staff Report as Attachment J) granting the UMCDF Hazardous Waste Storage and Treatment Permit found that:</p> <p style="padding-left: 40px;">"Applying the BAT [Best Available Technology] criteria adopted by the Commission and based on the administrative record the</p>



**Table F-3. Department Responses to Comments Opposing the Modification**

Response No.	Comment and Department Response
	<p>Army's proposed incineration technology satisfies the requirements for use of best available technology for destruction of agent at Umatilla. With the inclusion of carbon filters the proposed incineration technology will also employ the highest and best practicable emission control technology."</p> <p>(Paragraph 75 of 1997 Order—see Attachment J, Page J-19)</p> <p>The finding of "best available technology" (as required by statute) was related specifically to incineration. The Commission clarified that in another Order issued in March, 1999. The "Order Clarifying Permit Decision" (included in this Staff Report as Attachment K) . The Clarifying Order specifically stated that the Commission did not rely on the presence of the carbon filter units in making its 1997 finding that incineration represented BAT for destruction of the chemical weapons stockpile at the Umatilla Chemical Depot. The Clarifying Order stated that:</p> <p>"For the purpose of providing an additional measure of safety the Commission has authority to require, and, therefore, has required inclusion of the PAS carbon filters as an additional pollution control component of the baseline incineration technology."</p> <p>(Paragraph 7 of 1999 Clarifying Order—see Attachment K, Page K-3)</p> <p>Nothing in this proposed permit modification request will affect the operation of the PFS ("PAS carbon filters")—an incinerator's PFS must still be in operation at all times waste is being fed and still provides the "additional measure of safety" desired by the Commission. In addition, consideration of this permit modification does not reopen the findings in the original permit.</p>
9.	<p><b>Comment:</b> Several commenters expressed concern that there have been an excessive number of permit modifications since the UMCDF HW Permit was issued. One commenter believes that because there have been so many changes the facility no longer resembles what was originally permitted. Another commenter objected to permits and other standards being changed just because they have proven to be "inconvenient."</p>
	<p><b>Response:</b> There have been approximately 240 HW Permit Modification Requests submitted to the Department since the HW Permit was issued in</p>

**Table F-3. Department Responses to Comments Opposing the Modification**

<b>Response No.</b>	<b>Comment and Department Response</b>
	<p>early 1997. Although the Department acknowledges the apparently high volume of permit modification requests, the significance of changes to the facility, or to the HW Permit, cannot be judged by simply looking at the number of permit modification requests.</p> <p>The Department made a decision very early on in the Umatilla project that all permit-related documents would be tightly controlled and that even the most minor of design changes with potential to affect environmental compliance would require Department notification through permit modifications. For example, UMCDF's entire multi-volume RCRA Part B Permit Application was incorporated into the HW Permit by reference, so even minor changes to any of the supporting documents contained in the Application require a formal submittal of a "permit modification." Design drawings that were part of the Application are also considered "controlled" documents and any change affecting the accuracy of a drawing on file with the Department requires submittal of a new drawing. The Department encourages UMCDF to update the facility design if potential improvements in safety or performance are identified through operations at similar facilities. Consequently, many of the modifications have been as a result of "lessons-learned" at other demilitarization facilities.</p> <p>Permits are intended and designed to be "living documents" that are constantly updated to reflect current conditions and knowledge gained through facility operations. Of the 240 permit modification requests to date, approximately 80% have been "Class 1" modifications and were considered minor changes. Many of the Class 1 modification requests are simply to update specifications and drawings as required by the HW Permit. It is beyond the scope of this document to provide a complete analysis and breakdown of the permit modification requests processed to date. The Department concurs that in a way UMCDF "no longer resembles what was originally permitted"—the facility design as it exists in 2004 is an improvement over what was permitted in 1997 because its design has been updated to reflect new information and operating experience.</p>



<b>Table F-3. Department Responses to Comments Opposing the Modification</b>	
<b>Response No.</b>	<b>Comment and Department Response</b>
<b>10.</b>	<p><b>Comment:</b> The Army’s chemical agent monitors don’t work and the Department should investigate the allegations about the agent monitors by a witness that appeared in a recent Umatilla-related court proceeding.</p> <p><b>Response:</b> The chemical agent monitors at UMCDF have been in use for many years at other chemical demilitarization facilities. The monitors must be tested, challenged, and calibrated on a regular basis to ensure ongoing performance reliability. The Department recently approved a permit modification request by the Permittees to modify the chemical agent monitoring system on the PFS to implement recommendations by the U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (the federal agency responsible for overseeing the Army’s agent monitoring program at demilitarization facilities). The Department believes that the current agent monitoring configuration on the PFS is adequately protective of human health and the environment.</p>
<b>11.</b>	<p><b>Comment:</b> One commenter stated that the community was assured that the carbon filter systems were “added protection” and not necessary to meet emission regulations. Another commenter believes that there was a commitment by the Commission during the permitting process that there would be no “attempt to change the point of emissions testing.”</p> <p><b>Response:</b> The Department concurs with the commenters that commitments have been made by numerous agencies involved with the demilitarization process. The Department and the Commission did make a commitment to the community, implicitly and explicitly, that permitting UMCDF was necessary to ensure that the stockpile would be destroyed as safely and as expeditiously as possible. The country has made a national commitment through a binding international treaty to destroy all of the nation’s chemical weapons stockpiles. And the Commission has stated several times that it considered the carbon filter units as “additional protection.”</p> <p>The Department believes that approving this permit modification as proposed fulfills the commitments cited above. Moving the point of compliance will allow UMCDF to process rockets well within furnace capacity without posing any undue safety, health, or environmental risks. It will prevent the five year schedule delay if the rocket feed rate is slowed to</p>

<b>Table F-3. Department Responses to Comments Opposing the Modification</b>	
<b>Response No.</b>	<b>Comment and Department Response</b>
	<p>two rockets per hour when in fact the furnace that processes rockets has been designed to handle much higher feed rates. Avoiding the schedule delay also contributes to the country's ability to fulfill its treaty requirements and saves the taxpayer a considerable amount of money. There is no proposal to remove the PFS nor to allow operations with the PFS offline. The PFS will still be operational at all times and will still be providing the additional protection envisioned by the Commission in 1997.</p>



# **ATTACHMENT G**

**Public Comments Received  
September 17-November 17, 2003  
and  
January 14-March 1, 2004**

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission



**Written Comments Related to Proposed Permit Modification No. UMCDF-03-041-PFS(3)**

DEQ NO.	TITLE	PAGE
<b>Comments received September 17-November 17, 2003:</b>		
03-1915	Comments from Stephen A. McFadden	G-1
03-1937	Comments from Stuart Dick	G-15 <sup>a</sup>
03-1936	Comments from Dennis D. Doherty, Umatilla County Commissioner	G-17 <sup>a</sup>
03-1966	Comments from Rodney S. Skeen, Confederated Tribes of the Umatilla Indian Reservation	G-19
03-2027	Comments from Bob Severson, Mayor, City of Hermiston	G-21
03-2073	Comments from Chester Prior, President, Hermiston Development Corporation	G-22
03-2092	Comments from Oregon Wildlife Federation; Oregon Chapter of the Sierra Club; Oregon Public Interest Research Group; Oregon Toxics Alliance; Oregon Chapter of Physicians for Social Responsibility; and Oregon Rural Action, Bob Palzer	G-23
03-2093	Comments from Karyn Jones and J.R. Wilkinson, G.A.S.P.; and Oregon Wildlife Federation	G-35 <sup>a,b</sup>
<b>Comments received January 14-March 1, 2004:</b>		
04-0184	Comments from Terry K. Tallman, John Wenzholz, and Ray Grace, Morrow County Commission	G-40
04-0201	Comments from Jer D. Pratton	G-41
04-0225	Comments from Ted Haigh and Rodney Skeen, Confederated Tribes of the Umatilla Indian Reservation (Presentation to the Environmental Quality Commission on February 5, 2004)	G-43 <sup>b</sup>
04-0216	Comments from Randall D. Kowalke	G-49
04-0307	Comments from Tim Mabry	G-50
04-0308	Comments from William F. Myers	G-51
04-0309	Comments from Vikki and Mark Born	G-52
04-0329	Comments from Frank and Beverly Harkenrider	G-53
04-0328	Comments from Harmon Springer, Oregon Water Coalition	G-54
04-0331	Comments from Karyn Jones, G.A.S.P. and Oregon Wildlife Federation	G-55 <sup>a,b</sup>

<sup>a</sup> Also commented orally at the hearing held February 5 (See Attachment D)

<sup>b</sup> Also commented orally at the hearing held February 18 (See Attachment E)



October 15, 2003

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RE: Draft Hazardous Waste Storage Permit for Umatilla Chemical Agent Disposal Facility (UMCDF); Public Comment Period through 5pm 10-15-2003.  
Class 3 Permit Modification Request for Change in Incinerator Emissions Compliance Point; Public Comment Period through 11-17-2003.

Outline:

I. Identity of Commentator:

II. Toxicology of the Organophosphates: Gulf War Health Effects Demonstrate Significant Limitations in the State of the Science:

III. My December 2001 Comments on the Umatilla Incinerator: The Possibility of Other Toxic Mechanisms of Action of Organophosphates; Proposed Policy of No Release of Directly Contaminated Material; "Recycling" Nerve Agent Contaminated Scrap Steel is Misguided; Government has "Strict Liability" for Adverse Effects:

IV. Even Neutralized Organophosphates are Neurotoxic; Shipping Phosphate Brine Off-Site is Misguided:

V. "Launching on Backups": Request for "Change in Incinerator Emissions Compliance Point" Implies that UMCDF Incinerator Will Not Meet Design Criteria:

VI. The Chemical Stockpile Disposal Program Has No Credibility: FPEIS and Site Specific FEIS are Voidable; Legal Problems Result; Overruling NEPA Has Risks:

VII. Blowback: Military Secrecy Can Be Corrosive to American Democracy:

VIII. Closing: Oregon Department of Environmental Quality Should Assume That Everything That They Have Been Told by the U.S. Army About the Toxicity of Organophosphates is False--Then Plan For Maximal Safety Based on Minimum Environmental Release and Complete Traceability:

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

I. Identity of Commentator:

Greetings.

My name is Stephen A. McFadden. A child of the Manhattan Project, I was born and grew up in Kennewick, Washington, won the regional science fair in Richland twice, took first place in the Washington State Science Talent Search, and placed top 40 nationally in the Westinghouse Science Talent Search. After graduating from Kennewick High School (KeHS), I earned degrees in Physics and Computer Science, and interned at 3 U.S. Department of Energy (DOE) research laboratories—as a Hanford NORCUS student, an Argonne URPP, and a Livermore Student Employee.

My interest in the organophosphates began after the state of California sprayed the town of Livermore, California in 1981-2 to control the Medfly weekly with malathion, a quarter of the town each night, coming in at dusk 8 helicopters wide at 300 feet, each week for several months while I was a graduate student at the University of California Davis (UCD) Department of Applied Science (DAS), located at Lawrence Livermore National Laboratory (LLNL), otherwise known as to its students as "Teller Tech". My first public comment on the organophosphates was on the 1989 California State Fruit Fly Environmental Impact Review (EIR), having begun to discern that there were some very serious problems with the toxicology of the organophosphates. While I have held a U.S. DOE "rad-badge" in the nuclear field, my knowledge of the organophosphates has been entirely self-taught from open sources, ranging from books by Stockholm International Peach Research Institute (SIPRI), to Medfly spray battles in California, to Gulf War hearings on "The Hill", to Chemical Weapons conferences at Edgewood Arsenal.

I have been commenting on the Umatilla Chemical Agent Disposal Facility (UCDF) Incinerator at Umatilla Chemical Depot (UCD) since the site-specific Draft Environmental Impact Statement (EIS) published in the Fall of 1991. It was I, for instance, who proposed that project documents be made available in Kennewick, roughly 30 miles away, addressing the risks to Washington State residents. I thus brought up the need to involve Washington State residents in emergency preparedness a decade before it was revealed in the Tri-City Herald in April, 2002 that the risks of one of the agents stored at Umatilla had been understated by a factor of 10, a fact which compromises the risk analysis for not only the \$2.4 Billion dollar Umatilla incinerator, but also the 1988 Final Programmatic Environmental Impact Statement (FPEIS) for the majority of the \$24 Billion dollar Chemical Stockpile Disposal Program (CSDP).

Based on my background with Medfly spray programs, my comments on the Umatilla incinerator over the past dozen years have repeatedly challenged the validity of the toxicology of the organophosphates on which the claim to safety of the



majority of the CSDP program is based. While I did not know it at the time of my 1991 comments, the problems with the toxicology of the organophosphates would soon become evident. Since the 1990 Persian Gulf War, which was the first time that the U.S. "Cold War" chemical defense doctrine, prepared over the course of decades, was ever used by a superpower, in excess of 200,000 U.S. Gulf War veterans have filed for medical disability, and the death count is said to be at around 30,000. It appears to me that so many Gulf War veterans have been disabled or have died that the U.S. government will not even discuss the subject any more—the point has been conceded by political authority simply to take the issue out of the political arena.

I do not presently live near the Umatilla incinerator, although I do have relatives in neighboring communities. The impending startup of the Umatilla CW incinerator, now scheduled for early 2004, is one of the major reasons that I do not presently live there.

It is important to understand, however, that it is not possible for a member of the general public to become an independent expert on the subject of organophosphate toxicology while living in the Southeastern Washington / Northeastern Oregon area. This topic is not textbook material, and the informational resources are just not available to the public in the region—whether or not that information is available to locally to federal government employees in the classified libraries of local federal facilities, or by training at other federal facilities elsewhere. If you want to become an expert on the subject of organophosphates, you will probably have to spend a lot of time with original sources, in places like Bethesda (at NLM), College Park (at NARA), the District of Columbia (at LofC), and Edgewood (at APGEO)—because that is where the original sources are. I spent such time during the early 1990's. If discrimination is allowed against non-residents in the acceptance of public comments on the Umatilla incinerator, then there may be no effective public comments, as a direct result of the nonpairity of access to information between the local citizens and the U.S. Army.

Finally, I allege that a local citizens advisory panel does not have the authority to properly represent the needs of the local community to the state and to the U.S. Army in the circumstance where the U.S. Army has fudged a factor of 10 on the toxicology of the Programmatic EIS, which it is now known to have done. Understanding the strategic military reasons why this misrepresentation was sanctioned does not negate its impact upon domestic politics, either locally or nationally. Further, in the face of such misrepresentation, those citizen representatives who are intelligent and honest are likely to resign, or are likely fail to apply for such a position, considering it a threat to their integrity and reputation. This may explain the high personnel turnover rate in the CSDP program, its contractors, and in its oversight groups, both locally and nationally. To quote George Orwell: "During times of universal deceit, telling the truth becomes a revolutionary act." Few dissidents are willing to volunteer to take such

responsibility beyond authority, rendering themselves complicit in "The Big Lie", leaving the uninformed, naive, and proponents to represent "community interests".

## II. Toxicology of the Organophosphates: Gulf War Health Effects Demonstrate Significant Limitations in the State of the Science:

During the early 1990's, I did a review of the toxicology of the organophosphates. Nothing I found in my research demonstrated to me their safety.

Much more has become known about the toxicology of the organophosphates since the 1990 Gulf War: 12-1/2 years later, we now have over 200,000 injured Gulf War veterans, between those accepted as disabled, those applying for disability, and those deceased.

During the 1990 Gulf War, military personnel were exposed to toxics including trace levels of organophosphate nerve agents, oral carbamate nerve agent treatment enhancer drugs, and organophosphate and carbamate insecticides, plus uniforms impregnated with pyrethroids (which are now known to synergize with at least one carbamate), and the insect repellent DEET (which is now known to synergize with at least one carbamate). This mix of toxicants active against the cholinesterase enzymes of the body, or with synergistic effects on associated neurological mechanisms, has significant under-recognized risks.

The disabilities resulting from the 1990 Gulf War demonstrate that the toxicology of the organophosphates and carbamates is flawed.

I note that the concession by the Pentagon that SOME Gulf War veterans exposed to SOME chemicals were made sick (e.g. with ALS) was made the day that the December 2001 comment period closed on changes to the final approval process for operation of the Umatilla Incinerator.

## III. My December 2001 Comments on the Umatilla Incinerator: The Possibility of Other Toxic Mechanisms of Action of Organophosphates; Proposed Policy of No Release of Directly Contaminated Material; "Recycling" Nerve Agent Contaminated Scrap Steel is Misguided; Government has "Strict Liability" for Adverse Effects:

I suggested in my December 2001 comments that there might be other important mechanisms of action of the organophosphates, such as second messenger effects (e.g. keyword search MEDLINE on malathion and calmodulin), or energy effects (e.g. by nonbiological phosphate compounds monkey-wrenching the cellular mitochondrial Adenosine Tri Phosphate--ATP energy production pathways).



In my December 2001 comments on the Umatilla Incinerator, I proposed a policy of no public release of any material that had been directly contaminated with nerve agents.

This no release proposal was made in response to the proposal to "recycle" scrap steel from Agent GB containers and munitions, presumably into general commerce, a proposal which I called "misguided".

I recommended as an alternative that these materials be "recycled" in a special facility into rebar—reinforcing bar, and that it be used to reinforce the underground high level nuclear waste repository proposed at Yucca Mountain, Nevada, a few hundred miles to the South, where the "recycled" scrap would remain buried for the next ten thousand years. Notably, shortly thereafter the price of scrap steel hit a new low of about \$30 per ton—so low that it led to the institution of import tariffs on steel by the U.S. At about the same time, the construction of the Yucca Mountain facility was approved.

I also invoked the theory of strict liability, indicating that the U.S. government would be liable for any and all damages should their proposed nerve agent scrap "recycling" program go awry. This might occur for example if some risk arbitrage specialist tried to smelt the scrap to steel in an old smelter in, say, the city of Portland, and some of the neighbors got bit. The Feds do not need an epidemic of Gulf War illness in some urban area like Portland: this is simply not productive.

#### IV. Even Neutralized Organophosphates are Neurotoxic; Shipping Brine Off-Site is Misguided:

I was told by a world famous organophosphate toxicologist at a conference earlier this Summer of an experiment where someone exposed rats to NEUTRALIZED Agent GB and a year later the rats had brain damage. I do not have the citation for this research, or know if it has even been published, but he is an eminent researcher, and you can be certain that this research will eventually come out.

Last time I heard such a hint from someone in the research community, I became aware of the PB-Blood-Brain-Barrier problem roughly 2.5 years before it hit the news media, eventually being published by Soreq in Nature Medicine in December, 1996. Such foreknowledge has its advantages. For instance, knowing from library research the PB treatment mechanism and rationale and thus its limitations, hazards, and sensitive subpopulations gave me a long term perspective when attending the NIH meeting held by the Office of Medical Applications of Research (OMAR) in May, 1994 on behalf of the Pentagon titled "The Persian Gulf Experience and Health", where the OMAR organizers used a flawed database query to create a bibliography which tried to spin Gulf War health effects as

psychological, and slated an inquiry panel which relied on a single neurological expert whose opinions I believe were substantially biased.

The significance of the demonstration that >>exposure to NEUTRALIZED Agent GB has long term neurotoxic effects<< is that it demonstrates that organophosphates have toxic effects involving mechanisms which have nothing to do with cholinesterase inhibition. Thus, the whole conventional toxicology of the organophosphates is flawed, overlooking important mechanisms of action.

The Umatilla incinerator has been shipping the phosphate brine from its incinerator stack quench facility during the test burns off-site to Kent, Washington for treatment, after which it is dumped into Puget Sound. If you know the topography, any effluent brine water released down the drain in Kent can be inferred to pass either down the Duwamish River though South Seattle past Harbor Island and Boeing Field and into Elliott Bay, or through Lake Washington, past Mercer Island, through the Evergreen Point Cut, past the University of Washington, through Lake Union, and past Gas Works Park, in order to get to Puget Sound. Coincidentally, these are some of the most densely populated areas in the entire Pacific Northwest region. If there was some previously uncharacterized toxicant in the brine, one could not choose a more hazardous place to release it!!!

The proposal to ship brine off-site is misguided. Given the huge flaws in the toxicology of the organophosphates on which the Chemical Stockpile Disposal Program is based, such disposal would appear to have substantial uncharacterized risks. The point is that, if any of this waste gets out, the U.S. Army does not know what it is going to do, or who it is going to bite. Remember, off-site brine transport and disposal would be carried out by contractors under commercial hazardous waste standards, not under more stringent military or nuclear industry standards.

If the U.S. Army cannot process the quench stack brine quickly enough to keep the incinerator operating, then they should shut down the incinerator. The relative toxicity of agent-to-brine is not the relevant factor; what is relevant is the probability of environmental release of toxicant, and off-site shipping of brine has a high probability of environmental release.

I propose a ban against off-site shipping of brine. If cooling tower brine is kept on-site until disposal, at least exposure, and therefore hazard and liability, can be characterized and minimized, even if it can not be predicted.

V. "Launching on Backups": Request for "Change in Incinerator Emissions Compliance Point" Implies that UMCDF Incinerator Will Not Meet Design Criteria:

A permit modification request filed with Oregon Department of Environmental Quality on September 15, 2003 requests moving the compliance



point for the Umatilla Chemical Agent Disposal Facility (UMCDF) from before to after the carbon filters. This request occurred after construction of the facility was completed and before operation is to begin.

That suggests to me, in the context of multiple failed metal emission test burns over the past year or two, that the UMCDF incinerator will not meet design criteria, and cannot be run within the limits of the burn permit without evaluating its compliance with it muzzled with the carbon filter "gas mask".

In the NASA manned space program, that would be called "launching on backups". Notably, the U.S. manned space program has a strict rule against it.

Incinerators are notorious for "burping", and carbon filters occasionally have problems—e.g. they sometimes need to be changed, raising concerns about a possible "double fault". Notably, such an incident occurred at Rocky Flats in Boulder, Colorado during the plutonium fire there: workers had to go around the site picking up radioactive pieces of the blown out HEPA filters off the grass after the fire. Remember: UMCDF is a gas incinerator, and carbon filters do burn.

Further, moving the compliance point will mean that operation data will be collected after the carbon filters. That means that there would be no way to compare actual operation to the design criteria.

I propose that the Oregon Department of Environmental Quality deny the request by the U.S. Army to move the incinerator emissions compliance point from before to after the carbon filters. They should require that data be collected both before and after the carbon filters, and archive it in perpetuity.

#### VI. The Chemical Stockpile Disposal Program Has No Credibility: FPEIS and Site Specific FEIS are Voidable; Legal Problems Result; Overruling NEPA Has Risks:

On Mar 21, 2002, the Tri-City Herald published an article "VX agent's true toxicity revealed in study at depot" <http://www.umatilladepotnews.com/2002/0321.html>. The TCH VX article indicated that the toxicity of VX had been understated by the U.S. Army by a factor of 10.

This necessarily implies that this situation existed since before the United States unary chemical agent production and transport was halted by President Nixon in 1969 after the Skull Valley Sheep Kill—explained by the National Research Council, and the Guam incident—which was never explained, because no unary agent has been moved in the U.S. since that time.

Personally, I admire Richard Nixon for what I suspect he did. I suspect that President Richard Nixon shut down an insane Johnson Administration Viet Nam war era chemical weapons development and testing program that blew its cover at

Skull Valley and Guam and threatened to start a Cold War chemical arms race that would have had severe blowback on the nations involved. (Those interested in the Cold War chemical weapons arms race might find the book "Cassidy's Run" informative, particularly regarding the relative parity of the U.S. and U.S.S.R. military chemical programs.) Choosing instead to focus on the development of more controllable and verifiable strategic nuclear weapons, President Nixon ordered that the U.S. chemical weapons program be shut down and mothballed. I feel that this history is worthy of being written some day in the not-too-distant future. A people deserve to know their own history.

In the middle of a Cold War, the U.S. public can forgive a bit of lying by their government on military issues for strategic purposes—as long as no one is getting hurt.

The implication of the 2002 VX revelation is that the FPEIS for the \$24 Billion dollar Chemical Stockpile Disposal Program (CSDP) and the site specific Final EIS for the Umatilla Chemical Agent Disposal Facility did not accurately reflect the toxicity of the agents to be destroyed. As a result, the FPEIS and Umatilla Chemical Depot Site Specific EIS are thus legally VOIDABLE.

Now, with a \$600M machine sitting at Umatilla with a lifetime operational cost of \$2.4B, the U.S. Army has to request that its operation be approved by the state of Oregon despite the blatant violation by the U.S. Army of the National Environmental Policy Act (NEPA). Further, in addition to Umatilla, the U.S. Army's \$24B program has incinerators starting at Anniston and Pine Bluff, in addition to an operating one at Tooele, may also be subject to being blocked or shut down by a federal lawsuit filed in Washington, D.C..

Needless to say, this is a bit of a legal problem.

More importantly, it is a bit of an institutional problem.

The true toxicity of VX must have been known to National Research Council experts advising Congress on the Chemical Stockpile Disposal Program, and thus the NRC is necessarily complicit with Army's deceptions in the CSDP EIS's.

Further, the safety tolerances for these agents were set by CDC, and thus either the U.S. Army lied to CDC, or CDC lied to the public, or both, which in any case is significant: The safety factor of 100 was really only a safety factor of 10, which, given the existence of sensitive subpopulations, is really no safety factor.

The U.S. Army lied. The National Research Council lied. CDC was either lied to and/or lied. The Congress, which acted on the advice of the National Research Council, must also have been complicit in the lie, even though Congress, as elected representatives of the people, have significant legitimacy in that choice within the American system of government: there are times when the American



public demand that their elected representatives lie to them—as long as no one is getting hurt. It is also notable that Congress, given its fiscal authority, has the ability to compensate for the consequences of its lies.

The adverse impact of this deception is upon the public credibility of these government institutions.

The key political question to be asked at this time is:

“Why should anyone believe the claim of safety of the CSDP program when the Army, NRC, Congress, and possibly the CDC have all lied about the hazards involved, when we have over 200,000 disabled veterans from the 1990 Gulf War demonstrating that the toxicology of the organophosphates is flawed, when we have good reason to believe that there are hazards of operation whose significance has not been appropriately recognized, and when the historical precedent, from the Hanford “Green Run”, to “The Day They Bombed [St. George] Utah”, to Agent Orange and Gulf War Health Effects, is that victims of U.S. Government environmental releases are rarely compensated?”

In addition to the strategic political question, it is notable that, from the public's point of view, the rules of political decision making have been changed.

In 1991, I made several tens of pages of comments on the UCADF site-specific Draft EIS, and the U.S. Army dutifully published those comments in the final EIS, which is significant to the extent that my comments may have been useful to the understanding of the project by other interested members of the public.

Now, once the U.S. Army has obtained approval of these projects by frauding the EIS's in violation of NEPA, the only effective way to have input to the process is to become a party to a federal suit. Given the politics of this situation, I infer that becoming a party to a suit against the federal government means: 1) one must place one's name formally and permanently into the public record as part of the filing of the lawsuit; 2) one must subject one's self to a potential gag-order by a federal judge on military toxics issues of strategic significance; 3) one is subject to having one's personal medical records subpoenaed by the defendants—as occurred to one plaintiff in the Oregon State suit against the Umatilla incinerator (TCH 10-25-02); and 4) one may face the potential for significant personal financial liability such as might result from a judgement for court costs against the plaintiffs. The rules have been changed.

The current administration has, as a result of recent military events, both the legal authority and political ability to override the NEPA act. The decision to do so should be considered carefully, however.

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The people of the Mid-Columbia region recall a previous time when federal authority mandated an environmental release without local knowledge or review—the 1947 Hanford Green Run—which was apparently ordered by an undisclosed U.S. Air Force official in order to calibrate I-131 monitors being used for the detection of Soviet nuclear shots. A review of the release was written by PNNL in 1952. Fifty-six years after the release, and 51 years after the review, there is a major dose reconstruction effort underway to assess this exposure, and several thousand lawsuits have been filed.

At some point, a valid claim must be made for the safety of the Umatilla Incinerator, something that was not done in the Final Programmatic EIS or any of the site-specific EIS's, many of which were finalized before the problem of Gulf War health effects became recognized as a major problem about October, 1996. Failure to make that case to the public may have implications for both the residents and the government alike, for at least the next half century.

#### VII. Blowback: Military Secrecy Can Be Corrosive to American Democracy:

There is an attitude among native-born U.S. citizens toward strategic military issues that resembles the “first rule of survival in Las Vegas” as explicated by Hunter S. Thompson, the creator of “Gonzo Journalism”, in that famous 1960's epic “Fear and Loathing in Las Vegas”: You can do anything you want; just don't burn the locals.

In short, the U.S. public will accept straight-face lies about strategic military issues as long as no one is getting hurt. The moment that someone gets hurt domestically, the game changes, and the issue gets RESOLVED! Notably, it took almost exactly 3 months from the release of the 1991 Centcom logs to the Gulf War veterans of Georgia—possibly including the ones that later disappeared from 2 secure East Coast federal archive facilities—until the destruction of the Oklahoma City Federal building by a Gulf War veteran who had failed a physical endurance test, a significant coincidence given that someone is also said to be circulating a videotape said to have been taken in an Iraqi bunker during the 1990 Gulf War which is said to show crates of chemical weapons labeled “Shipped from Oklahoma City”, although the OKC hit has been alleged in a federal suit to have links to the Philippines and on to Afghanistan, and thus the veteran may have been used as a false flag misdirection to trigger an extremely divisive and ineffective 18 month long domestic “witch hunt”.

Consider, in that context, the following recent events at UCD:

>>> On September 15, 1999, about 36 construction workers at the Umatilla Chemical Depot got drifted by an unknown chemical which made their skin burn. They were given no medical treatment for hours. Some of them are suing the U.S. Army for this exposure. At least one has developed “toxic encephalopathy”, and



cited to the Tri-City Herald a list of symptoms which looks a lot like "Gulf War syndrome". (TCH 9-30-02) (Notably, many of the welders at UMCDF were dispatched out of a union hall in Pasco, Washington, according to the Tri-City Herald, so health effects of Umatilla exposures may also impact workers of from the Tri-Cities, and thus impact residents of both states.)

>>> The current UMCDF construction contractor, Washington Demilitarization Corporation, sued the former construction contractor, Raytheon Demilitarization Corporation, for alleged misrepresentation made about the project.

>>> The Tri City Herald stated that there was a persistent problem at Umatilla Chemical Depot with "false alarms", which were said not to be due to agricultural pesticide drift. (TCH 10/19/02) (This is reminiscent of the numerous "false alarms" of chemical agent monitors seen during the 1990 Gulf War.)

>>> It was stated in the Tri City Herald a few years ago that the Umatilla Chemical Depot refused to let representatives of Oregon Department of Environmental Quality visit certain chemical weapons storage sites on the Depot.

>>> In copies of testimony on Umatilla Chemical Depot policy making that I received about a year ago, it was said that the head of Oregon Department of Environmental Quality program administrator for UMCDF would have to sign a confidentiality agreement to be given full information on Umatilla Chemical Depot.

>>> In April 2002, the Tri-City Herald published an article titled "VX agent's true toxicity revealed in study at depot", indicating that the toxicity of VX had been understated by the U.S. Army by a factor of 10. This TCH VX article has been basically confirmed in a separate newspaper article out of Anniston quoting Senator Shelby (who happens to be Chairman of the Senate Banking Committee).

>>> In the Fall of 2002, the Oregon Department of Environmental Quality administrator for the UMCDF program pulled the test burn permit after a failed test, then resigned as the Oregon state trial to block the plant started. (TCH 11/1/02)

>>> In the Spring of 2003, the FBI arrested a teacher from Pasco who had allegedly sold about 300 classified documents obtained from the Washington National Guard by her husband to the "Clan" several years before. (TCH 2/6/03) "Clan" members were not arrested. (One might speculate that perhaps they may have been cooperating with the feds in order to stop the proliferation of classified U.S. government documents for the purpose of monetary profit.) Having previously seen the TCH VX toxicity article, I suspected in retrospect that the TCH VX article was published in part because the "Clan" already had the relevant information, and thus this continuing secrecy in the face of dozens of unexplained injuries at UCD stood as an indictment of senior U.S. Army officials for violation of the right to informed consent and other crimes against CSDP site workers and site neighboring communities, an ethical problem of Nurenbergian proportions.

>>> At about the time of the Pasco espionage arrest, a CSDP watchdog group posted an item on their web site saying that they appreciated the material that they were given anonymously by an informant, and would offer their tipster anonymity if they would come and talk to them. I promptly emailed their webmaster and told them that, while I loved their work and admired their significant longevity, during an Administration known for ex-post-facto classification policies they could not possibly offer anyone true anonymity. (This is particularly true since they were advertising the existence of such information on the Internet.) The watchdog group took the item off their web site a few weeks later, and has since sued the U.S. Army to stop CSDP incineration.

Before I continue, let me digress for a moment. One is not awarded an U.S. DOE green "rad-badge" while a "sorcerer's apprentice" at "Teller Tech" at the height of "Star Wars" without being warned of "The Turkey Drop". As policy, I do not keep copies of damaged Gulf War documents on the grounds that they may be unique and therefore traceable, and not only by the Feds, but also by parties other than the U.S. Government who may have a political interest in the field—which is significant in that the extremists, e.g. Zealots, Jihadi's, and Crusaders, always seem to be pulling false-flag political sandbagging operations against each other (soliciting direct action by proxy using third parties). Yet it came to pass that during the Summer of 2002 that someone bounced me a munged Google PDF-to-HTML automatic document translation dredged up out of the Internet surf by the Google search engine, bearing an original source address listed as Quantico.mil, titled "FM 3-9". In the circumstance I did not keep a copy of it, although it appeared to be consistent with my open-source knowledge of military toxics, and appeared in general to be an overall "thumb nail" summary of the field. I won't comment on what FM 3-9 may or may not confirm about the information in the April 2002 TCH VX and Anniston Shelby VX articles, but, whatever it does say, as an U.S. Army field manual, it must be considered to be official U.S. Army doctrine, and as a field manual on a subject of recent military significance, I presume that it has a distribution on the order of a million persons—basically the entire population of U.S. military personnel who are serving or have served in the last half decade.

The impression that I get is that the 36 drifted workers may have been hit by something that not their doctors nor even their lawyers nor the Oregon DEQ understood—at least not at the time—with the admitted toxicity understated by a factor of 10, whether or not they do understand what happened now. Such would be an ethical problem of Nurembergian proportions, particularly when involving with a chemical weapons stockpile site with a large population of transient civilian workers. Consider ability to monitor the health effects of the UMCDF construction population compared to, say, the Agent GB production facility at Rocky Mountain Arsenal (RMA), which had on the order of a hundred workers, many of whom worked at the facility for decades, who could thus be easily monitored for long term health effects.



The impression that I get from all this is that the "Clan" probably has had, if not has, better information on what is going on out at Umatilla Chemical Depot than the Oregon Department of Environmental Quality does, despite the fact that the Oregon DEQ is purported to be monitoring the Army's activities at Umatilla Chemical Depot on behalf of the State of Oregon.

That sort of secrecy is destabilizing to a democracy because it is absolutely corrosive to the normal processes of American government and, most importantly, it is absolutely corrosive to the trust on which governance in the United States is based.

Further, such secrecy cedes power to extremist groups such as the "Clan", and invites a turf war between such extremist groups, such as the "political wilding" that apparently occurred domestically in the U.S. in 1995-6, ending coincident with the cabinet reshuffle following the November 2, 1996 U.S. presidential election.

Finally, that sort of secrecy gives an ethical problem to the citizen representatives and state officials involved in the public policy making process who bear the responsibility for protecting the public interest, who may find themselves unable to speak about what they suspect or know, are fearful of what may occur if they do speak, and are thus threatened with becoming complicit in "The Big Lie". This might be one cause of the "turmoil" seen in the CSDP program during the last 2 years, where the contractor has changed and a number of senior Army and Oregon State officials have been replaced, and the courts are filling up with lawsuits, including one between the current and former UMCDF contractor.

In this context, it is not surprising to see the current Administration getting hammered politically for falsifying EPA statements about the safety of asbestos dust in New York City during the weeks following the destruction of the World Trade Center in September, 2001. If the current Administration cannot even admit the health effects of asbestos, how can they possibly admit the toxicity of "nerve gas"? Maybe someone figures that asbestos is an acceptable surrogate issue that can be discussed in the national media, even if the health effects of nerve gas will never be.

Americans do not mind having their leaders lie to them on military matters—as long as nobody is getting hurt. The day that someone gets hurt as a result of "The Big Lie" the rules change and the problem promptly gets fixed—one way or another. The choice is clear: Play by the rules of American Democracy, or destroy the trust on which American Democracy is based.

Bottom line: Pay off the "drifted" Umatilla Chemical Depot workers like the U.S. Government paid off the Persian Gulf War veterans, or forfeit the credibility of the CSDP, and the belief by CSDP neighbors that the U.S. Government will ever play fair on any military toxics issue. To quote Michelle Malkin, "One of Defense Secretary Donald Rumsfeld's famous rules is: 'If you foul up, tell the president and correct it fast.'" ("PC at the Pentagon", The Washington Post (10/11/03 page A12)

VIII. Closing: Oregon Department of Environmental Quality Should Assume That Everything That They Have Been Told by the U.S. Army About the Toxicity of Organophosphates is False--Then Plan For Maximal Safety Based on Minimum Environmental Release and Complete Traceability:

There is substantial reason to believe that organophosphates are toxic by mechanisms other than cholinesterase inhibition, and that the last 6 decades of toxicology research on the organophosphates is flawed. Given that the toxicology of the organophosphates must now be presumed to be flawed, the hazards at UMCDF can be minimized by several technical means of exposure reduction.

I propose that the Oregon Department of Environmental Quality institute a policy of no public release of any material directly contaminated by nerve agents.

I proposed that Agent GB scrap steel recycling program be canceled, and the material be used to make rebar to be buried in concrete in the Yucca Mountain underground nuclear waste storage facility in Nevada, a facility with a design life of 10,000 years.

I propose that plan to ship phosphate brine off site for processing be canceled, and that, in any case, such brine not be disposed of in Puget Sound, one of the most populated areas in the entire Pacific Northwest region.

I propose that the Oregon Department of Environmental Quality deny the request by the U.S. Army to move the incinerator emissions compliance point from before to after the carbon filters. The U.S. Army has admitted that it lied about the toxicity. Now it wants to reduce the operational safety criteria. At a minimum, data should be collected at both places and archived in perpetuity.

Like the 1990 Gulf War veterans, the drifted Umatilla workers should be compensated for any disability or health effects they may have suffered based on a presumption of work-related disability. This should be a required by the Oregon Department of Environmental Quality as a condition for the issuance of the UMCDF operational permits as a show of good faith by the U.S. Government to the local community.

In short, I propose that the Oregon Department of Environmental Quality assume that everything they have been told by the U.S. Army about the toxicity of organophosphates is false, then design the program for maximal safety based on minimum environmental release and complete traceability.

In the mean time, someone in the U.S. Army has a serious problem of Nurenbergian proportions when the constraints of military secrecy threatens civilian health in communities adjacent to U.S. military facilities. Get it fixed!



Scanned

03-1937

Department of Environmental Quality  
Attn: Mr. Dennis Murphy  
Eastern Region, 256 East Hurlburt, Suite 105  
Hermiston, Or. 97838

Oct. 23, 03


Dear Sirs:

I am writing in opposition to the proposed permit change to change the location of the emissions testing at the Umatilla Chemical Disposal Facility. There have been so many permit changes already approved by the DEQ that the incinerator no longer resembles the plant approved by the state of Oregon in 1997. The DEQ has become the facilitator of the Army and its contractors instead of the regulatory commission established by the state legislature in 1969 to protect the quality of the air Oregonians breathe and the water Oregonians drink.

This particular proposed change is for the sole purpose of speeding up the incineration process from two to four rockets per hour to thirty rockets per hour. The problem is the army has never successfully demonstrated at Johnson Atoll or Utah that incineration can safely incinerate thirty rockets per hour nor has the pollution filtration system ever demonstrated (scientifically proven) it could trap dangerous and cancer forming emissions from going into the atmosphere for Oregonians to breathe.

Mr. Dennis Murphy, representing the DEQ, has stated his support of this permit change in order to speed up the incineration process. I submit the DEQ was not commissioned to expedite the speed of a dangerous incineration technology already mired in lawsuits, mismanagement, and public mistrust. The DEQ was commissioned to protect the quality of the environment for the health and well being of all Oregonians. It is not the place of the regulatory agency commissioned (DEQ) to protect Oregonians to become the advocate of the Army in its endeavor to push incineration of dangerous chemical weapons down the throat of Oregonians.

If the DEQ approves this permit change it is time to call for a government inquiry into the mission and direction of the Oregon Department of Environment Quality.

Sincerely,  
  
Stuart Dick  
Pendleton, Oregon 97801

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY

OCT 27 2003

HERMISTON OFFICE

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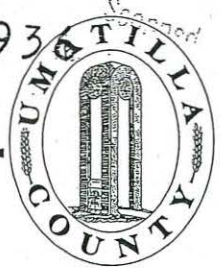
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# Umatilla County

## Board of County Commissioners

03-193



### Commissioners

Bill Hansell  
541-278-6201

Emile Holeman  
541-278-6203

Dennis Doherty  
541-278-6202

Office Manager  
Marcia Wells  
541-278-6204

County Counsel  
Douglas Olsen  
541-278-6208

Budget Officer  
Bob Heffner  
541-278-6209

Director of  
Economic  
Development  
Hugh Johnson  
541-278-6305

Director of  
Human Resources  
James R. Barrow  
541-278-6206

October 24, 2003  
STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED

OCT 27 2003

**HERMISTON OFFICE**

Mr. Dennis Murphey  
DEQ, Eastern Region  
256 East Hurlburt, Suite 105  
Hermiston, Oregon 97838

Re: Class 3 Permit Modification Request UMCDF-03-041-PFS(3)

Dear Mr. Murphey:

The information I have seen and heard supports the following findings:

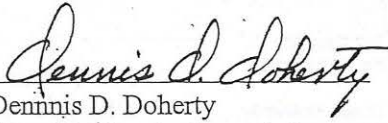
1. The emission rate will not be changed. So, the proposed modification does not "lower the bar" where that important standard is concerned.
2. Most likely, the proposed modification will produce some net reduction of emissions over time, due to the capture of certain efficiencies. The available information on this is vague. But this outcome seemed to be confirmed in the discussion during the presentation on October 21<sup>st</sup>.
3. The proposed modification will accommodate a significant gain in "feed rate" during the rocket campaign. The result would be destruction of the rockets much faster than otherwise. Quantification of the gain may be somewhat speculative, but it seems clear that destruction could proceed much faster.
4. By completing the rocket campaign up to 64 months earlier than otherwise, a safety objective is enhanced, to-wit, more rapid elimination of risk from up to 64 months of continued storage and handling.

It appears to me that this is a modification that offers demonstrable upside, and little downside, if any. As always, though, the community needs hard and honest management from the project side (Army and WDC) and careful evaluation and oversight from the regulator (DEQ/EQC). Lay persons such as myself are not aware of all that the professionals know, so depend on project and regulator personnel for the information on which we base our opinions.

There is one further aspect to address. Cost for an extra 64 months to complete the rocket campaign would be plus or minus \$576 million by my estimation. Safety is the benchmark, not cost. However, if we're going to require the expenditure of an

extra one-half billion dollars plus, there needs to be a solid defensible reason, linked to safety or another important public policy goal. I haven't heard a reason or a linkage.

Based on the above comments, I favor and support the Permit Modification Request (PMR).

  
Dennis D. Doherty  
Umatilla County Commissioner

DDD:mw





CONFEDERATED TRIBES  
of the  
*Umatilla Indian Reservation*

03-1966

P.O. Box 638  
73239 Confederated Way  
PENDLETON, OREGON 97801

Phone (541) 966-2400  
Fax (541) 278-5380

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED

OCT 31 2003

HERMISTON OFFICE

29 October 2003

Mr. Dennis Murphey  
Department of Environmental Quality  
Eastern Region Hermiston Office  
256 East Hurlburt, Suite 105  
Hermiston, OR 97838

Dear Mr. Murphey;

On behalf of the Environmental Science and Technology Program (ESTP) of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), I am submitting the following comments to the Class 3 Permit Modification Request (PMR) UMCDF-03-041-PFS(3) This request proposes to modify the RCRA Hazardous Waste Permit for the Umatilla Chemical Agent Disposal Facility (UMCDF) by moving the RCRA compliance point from its current location before the carbon filters to a location downstream of the filters. The reason for this request is to allow the facility to operate at higher feed rates.

As you are aware, it is the mission of the CTUIR-ESTP to ensure that the emissions from the UMCDF have minimal impact on our natural resources both on, and near, the depot. To make certain that this PMR does not compromise resource protection our staff have reviewed the document and concur with the Permittee's conclusion presented on Page 15; namely that "There will be no detrimental human health or environmental impacts resulting from implementation of this PMR."

Our findings are based on two lines of evidence. First, if RCRA compliance is met at the common stack (post-filter) the resulting concentration of hazardous contaminants released to the environment are protective of human health and the environment since these levels were established by the EPA risk assessment process. It is important to note that a Native American subsistence scenario is included in UMCDF risk assessment protocol. Second, moving the compliance point from its current location to a location downstream of the filters results in an increase in the concentration of the hazardous materials released in the stack gas, but no net increase in the total quantity of material released over the lifetime of the plant. Although this result may seem counterintuitive, it becomes clear when it is realized that the UMCDF has a fixed number of munitions that will be processed and that a consistent amount of hazardous compounds are released per unit of feed. Hence, a slow feed of munitions over a longer time will produced a lower concentration of hazardous materials in the exhaust gas when compared to a higher feed rate, but that concentration will be produced for a longer time. This result can be further illustrated by comparing a mass balance for the 1<sup>st</sup> contaminant type released during munitions incineration. For both a pre-filter and post-filter compliance point this mass balance reduces to:

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TREATY JUNE 9, 1855 ✦ CAYUSE, UMATILLA AND WALLA WALLA TRIBES

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Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

$$M_{i,total} = \sum_j N_j (1 - \varepsilon_{i,j})(1 - DRE_{i,j})(1 - \xi_{i,j})(a_{i,j})$$

Where:

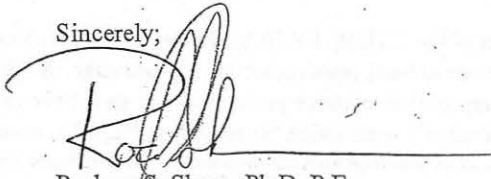
$M_{i,total}$ =	Total mass of the $i^{\text{th}}$ contaminant released
$N_j$ =	Number of munitions of the $j^{\text{th}}$ type at UMCDF
$\varepsilon_{i,j}$ =	PFS (pollution filter system) removal efficiency for $i^{\text{th}}$ contaminant from the $j^{\text{th}}$ type of munition
$DRE_{i,j}$ =	Furnace system DRE (destruction and removal efficiency) for $i^{\text{th}}$ contaminant from the $j^{\text{th}}$ type of munition
$\xi_{i,j}$ =	PAS (pollution abatement system) removal efficiency for $i^{\text{th}}$ contaminant from the $j^{\text{th}}$ type of munition
$a_{i,j}$ =	Mass of $i^{\text{th}}$ contaminant released from the $j^{\text{th}}$ type of munition

Since the system removal efficiencies and the destruction and removal efficiency can be expected to be approximately equal regardless of the location of the compliance point,  $M_{i,total}$  will be the same for both a pre-filter or post-filter compliance point.

The fact that the compliance concentration is protective of the human health and the environment and that no net increase in emissions will occur suggests that the proposed change will not increase the impact of the UMCDF on our natural resources. In fact, we may see a net reduction in the facilities impact by the change since a much shorter operating life will result and less secondary waste will be generated and processed.

In conclusion, we do not foresee this change as having an adverse impact to the CTUIR. If you have any questions concerning this matter please feel free to contact me at (541) 966-2413.

Sincerely,



Rodney S. Skeen, Ph.D, P.E.  
Chemical Engineer, CTUIR-ESTP

Cc:  
Armand Minthorn, Member, CTUIR-BOT  
Stuart Harris, Manager, CTUIR-ESTP  
File





03-2027  
Office of the Mayor  
180 N.E. 2nd Street  
Hermiston, OR 97838-1860  
Phone (541) 567-5521 • Fax (541) 567-5530  
E-mail: bseverson@hermiston.or.us  
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STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
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NOV 07 2003

HERMISTON OFFICE

November 6, 2003

Dennis Murphey  
Oregon Department of Environmental Quality  
256 East Hurlburt, Suite 105  
Hermiston, Oregon 97838

Dear Dennis,

I attended the October 21 public hearing on the Change in Incinerator Emissions Compliance Point and listened with great interest to the presentation and follow-up discussion on the pros and cons of granting this permit modification request.

The most important point stated at the meeting was that if we don't grant this modification, we could be burning chemical agents for an additional five years. We would be putting the community at risk of an accident or incident involving storage of chemical agents for a greater length of time.

In my years of following this program, I understand the risks of a major incident involving the storage and disposal of chemical weapons are both extremely low. However, in comparing the two risks, in the National Research Council reported in December 2003 that "the risk to the public and to the environment of continued storage overwhelms the potential risk of processing and destruction of stockpiled chemical agent... The destruction of aging chemical munitions should proceed as quickly as possible."

In the interests of community safety, I urge Oregon's Department of Environmental Quality and Environmental Quality Commission to grant this permit request. Please contact me at Hermiston City Hall, 541 567-5521 if you have questions.

Sincerely,

Bob Severson  
Mayor of Hermiston

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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Hermiston  
Development  
Corporation

03-2073 Scanned

Thomas F. Gilleese, President and Director  
1-800-633-4256 Nov. 14, 2003

P.O. Box 1246  
Hermiston, OR 97838

Mr. Dennis Murphey  
Oregon Department of Environmental Quality  
Eastern Region Hermiston Office  
256 East Hurlburt, Suite 105  
Hermiston, OR 97838

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED

NOV 17 2003

HERMISTON OFFICE

Dear Mr. Murphey,

Thank you for the opportunity to comment on the U.S. Army's permit request to change the compliance point for incinerator emissions to after the Carbon Filter System.

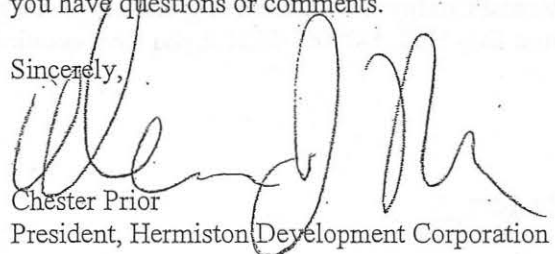
Established in 1965, the Hermiston Development Corporation is a non-profit organization that supports the economic diversity and vitality of the greater Hermiston area. We have 44 members representing all aspects of the business community.

In 1996 and 1997, as the Oregon Environmental Quality Commission considered granting permits for the Umatilla Chemical Agent Disposal Facility, we endorsed both the Army's program and the Environmental Quality Commission's measures to improve upon it to ensure the utmost protection of human health and the environment. In its deliberations, the EQC wisely placed a condition on this facility to install a Carbon Filter System to provide an extra measure of community protection.

It is in this spirit that we encourage the Environmental Quality Commission to grant this permit request for the community's general welfare. This request enhances project efficiency, maximizes safety and allows the facility to move forward to chemical agent destruction. This is a reasonable approach to adapt to conditions and standards that have changed since the permit was granted in 1997 and to incorporate the knowledge and experience gained in the past six years in the national chemical weapons disposal program.

Again, thank you for the opportunity to comment, and please feel free to contact me if you have questions or comments.

Sincerely,



Chester Prior  
President, Hermiston Development Corporation

George Anderson, Director (503) 567-7800  
Jess Foster, Director (503) 567-2291  
Dennis Barnett, Director (503) 567-5215

Larry Simmons, Director (503) 567-6271  
Roe Gardner, Director (503) 567-3831  
Chester Prior, Director (503) 376-8444

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting



FONSECA Stacy

**From:** OLIVER Sue  
**Sent:** Monday, November 17, 2003 4:55 PM  
**To:** 'Karyn J. Jones'  
**Cc:** FONSECA Stacy  
**Subject:** RE: SC comments forward

Thank you Karyn, we have received these comments you forwarded from the Sierra Club.

Stacy, please log in

thanks

-----Original Message-----

**From:** Karyn J. Jones [mailto:karynj@oregontrail.net]  
**Sent:** Monday, November 17, 2003 4:45 PM  
**To:** MURPHEY Dennis; OLIVER Sue  
**Subject:** SC comments forward

### COMMENTS ON THE

### PROPOSED CHANGE IN INCINERATOR EMISSIONS COMPLIANCE POINT FOR THE US ARMY UMATILLA CHEMICAL DEMILITARIZATION FACILITY

PERMIT MODIFICATION TRACKING #: UMCDF-03-041-PFS(3)

HAZARDOUS WASTE PERMIT # : ORQ 000 009 431

NOVEMBER 17, 2003

Submitted by: Oregon Wildlife Federation; Oregon Chapter of the Sierra Club; Oregon Public Interest Research Group; Oregon Toxics Alliance; Oregon Chapter of Physicians for Social Responsibility; Oregon Rural Action, Bob Palzer

Submitted to:

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

EASTERN REGION

256 E. HURLBURT SUITE 105

HERMISTON, OR 97838

On behalf of those named above and hereafter referred to as "Commentors" the following comments are submitted on the above referenced Class 3 Permit Modification Request # UMCDF-03-041-PFS(3). The Department established a comment deadline of 5:00 p.m. on November 17, 2003, and we request that our comments will be entered into the administrative record.

11/17/2003

**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

**Page G-23**

## GENERAL OBSERVATIONS

The incorporation of the PFS at the UMCDF is another in the long line of examples of the Army and their contractors subverting the permitting process via pre-conceived assumptions based on public relations, rather than technical knowledge and sound science.

In 1994 the National Resource Council (NRC) recommended that activated carbon filter beds should be "evaluated" by the Army. And that only "if warranted" should such equipment be installed "after site specific estimates of benefits and risk".

The Applicant's statement in their application for this MOD that, in 1994 the NRC "recommended adding carbon filters to the furnace systems" (@ page 10) is false and is intentionally mis-stated to influence the ODEQ.

Shortly after the 1994 NRC Report, the Army went out to communities and "sold" the PFS as a additional safety measure before doing any risk-benefit analysis. They also incorporated the PFS into their permit application to OEQC prior to such analysis. They have repeatedly represented the PFS as an important safety measure (to communities) or as unnecessary (to the Oregon EQC)

Furthermore, representations were made, and the OEQC stated that "The incinerators are designed to meet all applicable regulatory criteria without the PAS carbon filters. AR 40 (CD 2, folder 10A, at permit Condition VII.A.8). Now, after realizing, due to inadequate waste characterizations and/or inadequate performance capability, that without the PFS, the required emissions standards can not be attained they submit this MOD.

It is well past time for the OEQC and ODEQ to stop allowing the Army and their contractors to change their rhetoric when the need suits them, while at the same time disallowing adequate public understanding and participation. "The lack of a single document containing clear, graphical, and quantitative answers to the basic questions of PFS risks is likely to be a burden to effective decision making and is a critical lapse if the public is to follow or have input to the results." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-12) and, "The ambivalence displayed by the Army in involving the public in the PFS decision, in part, was because the Army does not believe keeping the PFS entails significant risk." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-19) and, "The decisions about the employment of the PFS do not appear to have benefited from meaningful public review or comment." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-20).

This disregard for public involvement in the Army's Change Management Plan as in effect tossed the issue at the feet of the ODEQ, as witnessed by this comment period on the PFS. The Army's continued disregard for informing and involving the public on matters associated with the UMCDF should not be relegated to the regulatory process.

Regarding Statement on page one (1) of the MOD request wherein the Applicant states, "Although bypassing of the PFS units for short-term testing does not pose a health risk, conducting the chemical agent trial burns with the PFS online will provide additional

11/17/2003

Change in UMCDF Compliance Point  
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protection from emissions entering the atmosphere." (emphasis added). The Army has stated on numerous occasions that no credit would be taken for the PFS during ATB emissions sampling. Furthermore, the Army's own documents state, "The risk results do not show that significant health and safety benefits are realized from the PFS..." (*Risk Assessment of the Pollution Abatement Filter System for the Umatilla Chemical Agent Disposal Facility*; Mitretek Technology Report; Prepared for U.S. Army Office of the Program Manager for Chemical Demilitarization; September 1998; Contract NO. DAAM01-95-D-002: @ xvii)

Their own risk assessments show that multiple areas of risk actually increase, some significantly (ie: worker risk by 385X), as a result of the addition of the PFS (see below).

Now that they can't meet the RCRA emissions standards around which the UMCDF permit was issued without the PFS, and theorize that with it they will meet these standards., They want to perform a carefully orchestrated and extremely short term burn and represent it to Oregonians and the OEQC as protective over the long term operational life of the facility.

This post hoc rationalization and flagrant attempt to subvert the regulatory process is only the latest in a series of such manipulations by the Army and their contractors in connection with this program ( ie: DUN; BRA).

Commentors stress that the OEQC is required to perform it's duties in the best interest of the citizens of the State of Oregon, it is NOT required, nor allowed by law, to ignore such practices as those continually engaged in by this permit applicant (ie: intentionally misrepresenting known shortcomings of the application when submitted only to use the Modification process later as a means of averting program schedule slippage).

\*\*\*\*\*

- Regarding Statement on page one (1) of the MOD request wherein the Applicant states, "Although bypassing of the PFS units for short-term testing does not pose a health risk, conducting the chemical agent trial burns with the PFS online will provide additional protection from emissions entering the atmosphere." (emphasis added)

**I) PFS Risk Assessment Ignored:**

**Comment 1:** Relying on ATB data with the PFS engaged as reflecting actual operational capabilities over the duration of the GB campaign ignores data and information in the Army's own PFS Risk Assessment (RA).

"*New*" Releases from the PFS. The PFS could act as a reservoir for toxic pollutants (and possibly small quantities of chemical agent) that could subsequently be released in concentrated quantities during "new" accidents." (*Risk Assessment of the Pollution Abatement Filter System for the Umatilla Chemical Agent Disposal Facility*; Mitretek Technology Report; Prepared for U.S. Army Office of the Program Manager for Chemical Demilitarization; September 1998; Contract NO. DAAM01-95-D-002: page 4-11).

The purpose of an ATB is to gather data that reflects the anticipated operational

performance and capability during the period of the task (ie: campaign) for which the ATB is being conducted.

The short term operational period of the ATB (4 days) compared with the GB Campaign (anticipated to be between 64 and 84 months) does not address the potential risk noted above and is therefore not a demonstrative nor a reliable measure of the emissions which could be emitted from the UMCDF common stack during the campaign.

Sampling of the emissions upstream of the PFS would allow, via calculation, a clearer and more accurate picture of emissions released into the atmosphere during the campaign, assuming the "New" Releases occur.

Commentors therefore oppose approval the MOD Request on these grounds.

**Comment 2:** Relying on ATB data with the PFS engaged ignores the finding that, "The PFS does not reduce the risk from accidents related to agent stack release. The QRA results show that the PFS is relatively risk neutral. .... the PFS has no net effect on the overall individual or societal risk from stockpile disposal activities..." (Ibid. @ xvi)

Commentors therefore oppose approval the MOD Request on these grounds

**Comment 3:** Commentors are outraged that the Applicants conveniently omitted referencing, much less attaching, their PFS Risk Assessment (RA) for UMCDF to the MOD request. It is obvious that the Army's own RA on the PFS is a critical element in considering approval/denial of the MOD and more importantly in ODEQ's duties to protect the citizens and the environment of the State.

Commentors also point out the unmistakable connection between the narrow scope of the areas covered within this MOD, "to change the emissions point of compliance for the UMCDF incinerators from upstream of the pollution abatement system carbon filter system to downstream of the filter system", as intrinsically connected to the long term anticipated operational capability of the facility. It is, after all, the ATB's which are supposed to demonstrate anticipated operational reliability and capability over the longer term.

Therefore, Commentors note the following excerpts from the *Risk Assessment of the Pollution Abatement Filter System for the Umatilla Chemical Agent Disposal Facility*. Mitretek Technology Report; Prepared for U.S. Army Office of the Program Manager for Chemical Demilitarization; September 1998; Contract NO. DAAM01-95-D-002 and insist they, and all other data incorporated within this RA, must be considered in the context of ODEQ's consideration of this MOD request:

(a) "The original UMCDF HRA assumed the presence of a PFS, but no credit was taken for the capture efficiency of the filters. For the UMCDF PFS evaluation, that HRA is revised to estimate the effects from stack emissions of a facility configuration that did not have a PFS (unchanged chemical emissions but dispersion governed by appropriate flow rates and temperatures). (Ibid. @ xv)

**Comment 3(a):** Obviously the UMCDF failed to perform as anticipated during it's

11/17/2003

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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Surrogate Trial Burns (STB's) or this MOD would not have been submitted. If the MOD is approved, a new HRA would be required to be done and approved prior to agent operations being initiated at any level.

Commentors therefore oppose approval the MOD Request on these grounds

**(b)** "The risk results do not show that significant health and safety benefits are realized from the PFS..." (Ibid. @ xvii)

**Comment 3 (b):** If the permit MOD is approved, Applicants must repeat the STB's to demonstrate reliable emissions rates for all furnaces.

Commentors therefore oppose approval the MOD Request on these grounds

**(c)** "Campaign duration was 3.2 years...." (Ibid. @ 3-6)

**Comment 3 (c)** Since the PFS RA was completed in 1998, revised operational schedules for UMCDF have been officially adopted by the Army and state operations are now anticipated to run for 7.1 years, more than double. Each campaign has been lengthened, and thus, the increased risk time (as noted in the PFS RA) from operating the PFS for extended periods of time must be included in a QRA and HRA for UMCDF, as ATB's alone will not consider these added risks.

Commentors therefore oppose approval the MOD Request on these grounds

**(d)** ".....[a]ny upset conditions that could result in the atmospheric release of all carcinogenic pollutants captured on the filters would, in the worst case, cause the total cancer risk to be the same [as without the PFS]." (Ibid. @ 3-9)

**Comment 3 (d):** Recognizing that this risk factor (upset condition leading to a release of all pollutants captured by the PFS) would lead to a resulting equal amount of pollutants as if the PFS were not given credit during the STB's and the ATB's, it is illogical for ODEQ to allow credit to be taken for the PFS during these Trial Burns (TB's). Only if this risk factor is ignored can any credit be legitimately given to the PFS during TB's. It is inappropriate and for the Army, it's contractors and particularly for ODEQ to ignore any such risk factor simply to acquiesce to the Applicants desires to be able to pass a Trial Burn. That is exactly what will transpire if ODEQ approves this MOD.

Commentors therefore oppose approval the MOD Request on these grounds

**(e)** "For the purpose of this study, it is assumed that the PFS operates at optimum capture efficiency." (Ibid. @ 4-8).

11/17/2003

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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**Comment 3 (e)** The stated assumption conflicts with the standard and accepted approach of incorporating conservative default values for parameters used to calculate excess cancer risk and other health effects. Furthermore, it conflicts with repeated acknowledgments throughout the PFS RA which highlight the shortcomings of current knowledge surrounding operational reliability of the PFS. It also ignores identified probable malfunctions associated with the PFS. Incorporating these identified possible malfunctions and the use of standard conservative default values makes the assumption inappropriate and unacceptable, resulting in what would be an assumption that the PFS will not operate at optimum capture efficiency.

These factors, coupled with other statements found in the PFS RA, should force ODEQ to assume that the identified risk factors contained in the PFS RA are understated based on the assumption articulated on page 4-8. Examples of which include:

- "The results, which were discussed earlier in Section 6-1, show that there is essentially no difference between the calculated cancer risk values for the configuration with and without the PFS, particularly when conservative assumptions in the original HHRA protocol are adjusted to reflect more accurate conditions." (Emphasis added : Ibid. @ 6-3) (ie: the PFS not operating at optimum conditions).
- "How far the actual risks are below the estimated risks depends on the conservatism (or protectiveness) of the input values to the HHRA. Thus, whether the incremental benefit is worth achieving is subject to value judgment." (Emphasis added : Ibid. @ 6-3).
- "The results of the QRA and HE (Hazard Evaluation) indicate that the PFS does not lead to a net reduction in accident-related risks." (Ibid. @ 603)
- "Similar to the argument presented for interpreting HHRA results, the small increase in QRA calculated risk that results from having the PFS is difficult to discuss with confidence because of the uncertainty in the estimates." (Emphasis added : Ibid. @ 6-4)

Commentors note the contradictions between the overarching assumption noted at "(e)" and the subsequent examples reflecting the inappropriateness of such an assumption. Commentors therefore oppose approval the MOD Request on these grounds.

**(f)** "...[t]he original UMCDF HHRA used an extremely conservative approach in estimating emissions. It was assumed that emissions rates for regulated pollutants were the maximum rates observed over several test runs at JACADS. In addition, it assumed such emissions over 3.2 years of continuous operation instead of using values based on the amount of munitions and agent actually to be destroyed." (Ibid. @ A-1)

**Comment (f):** Commentors note that the tremendous growth in the data available since the "test runs at JACADS" associated with emissions. In fact, Applicants admit as much by stating, "[J]ACADS trial burns were not conducted at expected worst-case conditions, the UMCDF allowable emissions rates, established based on JACADS adjusted emissions, may be lower than those demonstrated during trial burns with metal spiking at the UMCDF." (Current MOD Request @ 9).

One such illustration is in the area of waste characterization. Examples include, but are

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Change in UMCDF Compliance Point  
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not limited to:

- "Flue gas emissions tests made during trial burn operations at JACADS and TOCDF for ungelled GB M-55 rockets showed higher levels of lead than permitted." (Assessment of Processing Gelled GB M55 Rockets at Anniston; National Research Council; 2003 @ 39).
- "An additional delay occurred at the Umatilla site when the facility was temporarily shut down I October 2002 by state regulators because furnaces were producing an unanticipated high amount of heavy metals during surrogate agent testing." ( Chemical Weapons: Sustained Leadership, Along with Key Strategic Management Tools, Is Needed to Guide DOD's Destruction Program: GAO # GAO-03-1031; @ 20)
- "Sampling was conducted to establish quantification parameters for the detection of mercury, arsenic, and other metals relevant for the health risk assessment. Analysis of the samples collected at CAMDS verified that the sediment at the bottom of some ton containers contained excessive levels of mercury,". (Annual Status Report on the Disposal of Chemical Weapons and Materiel for Fiscal Year 2001; Program Manager for Chemical Demilitarization; September 30, 2001; @ 43)
- "[p]reliminary results from the sampling of agent HD ton containers at the TOCDF indicate higher levels of mercury not previously anticipated." (Current MOD Request @ 14) .

Without accurate waste characterization capabilities, based on data which post-dates JACADS test burns, emission assumptions in the context of the current MOD are virtually worthless.

Furthermore, as mentioned previously, the 3.2 years operational schedule for UMCDF has also been revised to 7.1 years. ( Chemical Weapons: Sustained Leadership, Along with Key Strategic Management Tools, Is Needed to Guide DOD's Destruction Program: GAO # GAO-03-1031; @ 33) . Therefore, to "assume such emissions over 3.2 years of continuous operation instead of using values based on the amount of munitions and agent actually to be destroyed ." grossly underestimates the UMCDF operational period and consequently the chronic exposures associated with such an extended operational period.

Commentors therefore oppose approval the MOD Request on these grounds.

**(g)** The PFS RA lowers the anticipated process upset operational percentage from 20% for non-metals and 5% for metals to 2% for both. (Ibid. @ A-2), although there is no basis for this assumption contained in the report.

**Comment 3 (g):** Recent experience at ANCDF and TOCDF, after which UMCDF is modeled, does not support this assumption. In addition to Section **II** below, addressing the engagement of the ESV (Emergency Safety Vent) during such upsets, the frequency of process upsets also impacts the performance of the PFS at UMCDF.

The addition of the PFS can actually increase upset condition percentages, as it can admittedly increase agent release accidents, "The PFS could increase the frequencies of

existing agent release accidents in the baseline QRA, due to additional system complexities and interactions with the baseline furnace/PAS systems." And, "Interactions between the PFS and the existing systems might also lead to releases from outside the PFS boundary that were not modeled in the baseline QRA," (Ibid. @ 4-10 and 4-11).

Two primary examples of how the PFS "can adversely impact the operations of the furnaces (ie: create upset conditions) are identified in the PFS RA for UMCDF: 1) blockage of the exhaust stream flow and 2) subsequent loss of ID (Induced Draft). (Ibid. @ 4-11).

In considering this *class* of initiator, the following "top events" were identified:

- Agent Vapor Explosion in the MPF (MPFAGVP);
- Agent Vapor Explosion in the MPF Airlock (MPFARDL);
- MPF Natural Gas Explosion (MPFNGAS);
- DFS Natural Gas Explosion (DFSNGAS);
- LIC Room Release (LICROOM)

(Ibid. @ 4-12)

Any of the above listed occurrences associated with the PFS would be considered "upsets" and since they are new factors, not considered in the existing UMCDF QRA, to assume a lower percentage of upsets than have occurred at the previous baseline facilities appears to defy logic.

In fact, according to the PFS RA, the percentage increase for in frequency of such upsets, due to the PFS is as follows:

MPFAGVP - Increase of 385 %

MPFARDL - Increase of 9%

MPFNGAS - Increase of 168 %

DFSNGAS - Increase of 4%

LICROOM - No Increase

(Ibid. @ 4-13)

This information clearly reflects in inappropriateness of lowering the anticipated upset condition percentage while increasing the likelihood of deployment of the ESV, which renders the PFS inoperable.

Commentors note that short term ATB's will not reflect the possibilities contained herein

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for upset conditions.

Commentors therefore oppose approval the MOD Request on these grounds.

**(h)** Tables 4-9 of the PFS RA indicate no change in the Acute Fatality Risk Upset Sequences with or without the PFS in 4 of the 5 upset scenarios in section **(g)** above. (Ibid. @ 4-15)

Table 4-10 of the PFS RA indicate little or no change in the Public Cancer Risk of PAS Upset Sequences with or without the PFS 3 of the 5 upset scenarios in section **(g)** above. (Ibid. @ 4-16).

"[T]he Army's conclusion to retain the PFS at Anniston and Umatilla is based neither on the kind nor quality of analysis needed to support a change from existing permit requirements." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-9).

**Comment 3(h)** : UMCDF, having failed its STB's without credit being given to the PFS, can not legitimately take credit for PFS capability in its ATB's and realistically conclude that such PFS capability will reflect the long term operational experience during the period of any disposal campaign.

Any credit taken of the PFS during ATB's is not justified based on the PFS RA.

Commentors therefore oppose approval the MOD Request on these grounds.

## **II) Emergency Safety Vent (ESV):**

**Comment 4:** During certain upset conditions the PFS will be By-passed via the ESV (Air Contamination Discharge Permit § 3.1).

"If the RH (Relative Humidity) exceeds 80% or the temperature exceeds 180°F, the by-pass around the PFS is automatically activated." (Letter to Wayne Thomas from the Centers for Disease Control and Prevention; February 11, 2002; Page 1).

"It should be noted that if either temperature or humidity of the exhaust exceeds pre-set limits, the charcoal beds are, in any case, bypassed." (Ibid. @ page 2).

Allowing ATB's with the PFS online ignores the designed automatic activation of bypassing the PFS if the relative humidity exceeds 80% or the temperature exceeds 180° F.

It is assumed there are additional conditions around which the ESV will be deployed (ie: startup, shutdowns and malfunctions) (See 40 CFR 63.1206(c)(4)(ii)(A))

The short term operational period of the ATB (4 days) compared with the GB Campaign (anticipated to be between 64 and 84 months) does not address the potential conditions noted above for ESV activation and is therefore not a demonstrative nor is it a reliable measure of the emissions which could be emitted from the UMCDF common stack during operations.

Sampling of the emissions upstream of the PFS would capture conditions that are likely to occur during activation of the ESV and present a clearer and more accurate picture of emissions released into the atmosphere during the campaign, assuming such conditions will occur.

Commentors therefore oppose approval the MOD Request on these grounds.

### **III) Worker Risk:**

**Comment 5:** Adequate consideration of increased worker risk associated with the PFS has not been done.

Commentors find it offensive that the Applicant would request this MOD for what appears to be their unitary objective of being able to use the post PFS STB data to allow them to move into the ATB phase, using only post PFS data and ignore the evidence of increased risks the PFS poses to their own work force.

"[a] PFS would also increase worker risk by making the facility more complex and introducing new scenarios for potential facility upsets and failures." (Carbon Filtration for Reducing Emissions from Chemical Agent Incineration; NRC; 1999 @ 3)

"The Phase 2 QRA that addresses worker risk associated with agent procession at the TOCDF was used by analogy to provide insight into possible accident scenarios at Anniston and Umatilla, since these facilities are expected to use similar design and operating practices. This evaluation predicts that worker risk will increase with the PFS because of a new possible processing accident scenario." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-7)

"The Phase 2 QRA for the TOCDF, however, identified an accident scenario involving the failure of the additional operating controls necessitated by the PFS that could increase the potential frequency of a MPF explosion severe enough to breach the primary containment around this incinerator." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-7 and 5-8).

"Neither the potential reductions in risk to the public nor the potential increases in risk to workers resulting from the PFS have been adequately characterized." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-16)

"Careful assessment of worker risk as well as independent, extensive technical review of the underlying PFS HRA and QRA reports is required to meet standards of scientific and public defensibility." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-24)

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"[o]perating and maintenance requirements for the PFS may contribute added industrial risk to onsite workers and this has not been evaluated." (Carbon Filter Report, Concurrence Draft II; NRC; December 3, 1998 @ 5-25)

Clearly, many holes remain in the assessment of risks posed to workers with the PFS engaged during operations. Engaging the PFS in the ATB's merely to reach a "passing grade" and thereby move forward with agent processing at UMCDF ignores the recommendations of the NRC and flies in the face of the Army's rhetoric of "safety first".

Nowhere in the MOD is the consideration of worker safety mentioned nor considered.

Commentors therefore oppose approval the MOD Request on these grounds.

Oregon Wildlife Federation

3430 SE Belmont, #101, Portland, OR 97214;

Oregon Toxics Alliance

1192 Lawrence St., Eugene, OR 97440;

Oregon Public Interest Research Group Foundation

1536 SE 11th Ave., Portland, OR 97214;

Oregon Chapter of Physicians for Social Responsibility

921 SW Morrison St., Suite 500, Portland, OR 97205;

Oregon Rural Action

105 Fir #208, P.O. Box 1231, LaGrande, OR 97850;

Bob Palzer

Oregon Chapter of the Sierra Club

2950 SE Stark, Suite 110, Portland, OR 97214

11/17/2003

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Washington Public Interest Research Group

3240 Eastlake Ave., E, Suite 100, Seattle, WA 98102;

11/17/2003

**Change in UMCDF Compliance Point  
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FONSECA Stacy

03-2093

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**From:** OLIVER Sue  
**Sent:** Monday, November 17, 2003 5:03 PM  
**To:** 'Karyn J. Jones'  
**Cc:** FONSECA Stacy  
**Subject:** RE: GASP comments

Comments received Karyn.

Stacy, please log in as comment on UMCDF-03-041-PFS(3).

Thanks

-----Original Message-----

**From:** Karyn J. Jones [mailto:karynj@oregontrail.net]  
**Sent:** Monday, November 17, 2003 4:59 PM  
**To:** MURPHEY Dennis; OLIVER Sue  
**Subject:** GASP comments

G.A.S.P.

P.O. Box 1693

Hermiston, OR 97838

November 17, 2003

Mr. Dennis Murphy

Oregon Department of Environmental Quality

Chemical Demilitarization Program

Eastern Region, Hermiston Office

256 E. Hurlburt, Suite 105

Hermiston, OR 97838

**RE:** GASP and Oregon Wildlife Federation Comments  
Umatilla Chemical Agent Disposal Facility (UMCDF)  
No. ORQ 000 009 431

11/20/2003

**Change in UMCDF Compliance Point  
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Change in Incinerator Emissions Compliance Point

UMCDF-03-041-PFS(3)

Dear Mr. Murphy:

I am submitting the following comments on the above referenced Permit Modification Request (PMR) on behalf of G.A.S.P., the Oregon Wildlife Federation, Mark Jones, Pius and Gail Horning, Debra McCoy-Burns, Stewart Dick, Susan Jones and myself. The Department of Environmental Quality (DEQ) established today at 5:00 p.m. as the deadline and we anticipate that our comments will be entered into the Administrative Record. In addition, we are incorporating by reference all previous correspondence, *GASP v. EQC* trial records, *GASP I, II and III* record pertaining to the pfs carbon filter system. We also support comments submitted by the Chemical Weapons Working Group and Sierra Club Oregon Chapter.

According to PMR Background, there are two reasons for this request. These are to provide, "a consistent approach for complying with two sets of regulations (Resource Conservation and Recovery Act [RCRA] and Maximum Achievable Control Technology [MACT])," and to "eliminate the need to test the incinerators during agent trial burns with the PFS units bypassed." Fundamentally, these two desires confirm plaintiff arguments set forth in *GASP v. EQC*, and based on the Army and DEQ desire to change the point of compliance for meeting various federal and state regulations, it represents the failure of the State of Oregon to protect our human health and environment.

The first desire to apply "a consistent approach" between RCRA and MACT at UMCDF is laudable, but disingenuous for the following reason. We believe the State should have taken action during the renewal of the Air Contaminant Discharge Permit (ACDP). In fact, we requested "consistency" in our detailed comments submitted on March 29, 2002, and what is especially disturbing about the current PMR is the blatant continuation of piecemeal changes to the UMCDF Hazardous Waste Permit that, in turn, are fundamental changes to the technology, the Permit, and the assurances made by the Army and the State to Oregonians.

For example, our March 2002 comments on the ACDP Notice of Intent to Comply (NIC) include this quote on paragraph 42 and question to DEQ: Because the EPA, "removed all NIC requirements from the MACT regulation ... the facility now has no obligation to comply with the NIC requirements." What will be done in the interim to assure compliance by the Permittees? [Emphasis added.] We renew our March 2002 observations that the "*Air Contaminant Discharge Permit Renewal contains fraudulent information, incomplete information, inaccurate information and out of date information. We ask that the Department of Environmental Quality reject the Air Containment Discharge Permit Renewal.*"

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Our request to have the ACDP revoked was, apparently, ignored by DEQ, yet the current PMR confirms our comments on the inadequacy of the ACDP. What DEQ failed to provide, either in response to our comments or in this PMR, is how they plan to remedy such structural ACDP problems. We believe this can only occur through a permit revocation. Furthermore, the recent ACDP renewal included the dunnage incinerator, so the State MUST describe how it will "tinker" the MACT while recognizing the ACDP includes the DUN, which has been removed through illegal Army construction practices and through State sanctioned, piecemeal approvals.

During the permitting process, the Army, EQC, NRC, and DEQ went to great lengths to trumpet the incinerators as best available technology and that burning would meet all regulations. With a pat on the back and a wink of an eye, we were assured that the carbon filter systems were added protection. Now through testing, the incinerators have demonstrated that they can not meet key emissions regulations and in order to comply with regulations the Army and State must now take credit for calculated carbon removal efficiencies.

The desire to, "eliminate the need to test the incinerators during agent trial burns with the PFS units bypassed," is a grave departure from what the community was promised during the permitting process. This obvious switch reveals the truth of the matters we comment on. For example, Mr. Richard Condit requested that the EQC make, "factual findings regarding the ability of the ...carbon filter system...to collect and retain chemical warfare agent." His statement was made at a special EQC meeting on August 8, 1999 (99-2145), and we renew our demand for publication of supporting data to demonstrate that we and our local agricultural economy are not the Army's guinea pigs for testing new pollution control schemes.

The PMR refers to UMDCF and to Anniston testing, but nothing demonstrates the long-term, sustained PFS capabilities to perform as sold, and no spent carbon management plan projects disposal decisions. In fact, our recent comments on the Draft Storage Permit (03-1229) specially pointed to the failure of the Army and State to identify a spent carbon disposal plan.

Furthermore, we believe the desire to change the point of compliance undermines the State's legal arguments made in the September 30, 1998, *Respondents' Reply to Memorandum in Support of Motion for Summary Judgment and in Opposition to Cross-Motion for Summary Judgment*. Throughout the litigation and as stated in the Reply (p. 12), the State makes it quite clear that, "there is substantial evidence in the record to support the finding that the PAS carbon filters are an appropriate extra protection against emissions." The document continues: "Moreover, no "credit" was taken for further reductions in emissions that will be provided by this extra protection." It is astonishing to read the PMR justifications in the context of what has been DEQ gospel, and until there is measured, not calculated data on carbon filter efficiencies any "credit" guess is just that, a guess.

The inability to predict PFS function during upset or "off-normal" conditions creates conditions possible for catastrophic events. This is particularly troublesome given the hundreds of Class I, II,

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and III permit modifications already approved by the DEQ because many of these modifications make basic changes to operational conditions. The addition of the PFS carbon filters complicates the ability to isolate and control for ideal incinerator operations. Furthermore, the data used by the pre-trial burn risk assessment and its spawns are based on the assumption that the incinerators operate at regulatory levels, which is now demonstrated as not true. The risk documents rest on the assumption that the carbon filters are added protection, but this PMR now calls on the PFS carbon to achieve regulatory levels.

Therefore, we assert that the action this PMR contemplates will increase risks to our peoples' health and safety and our economic livelihoods because the PFS has not been demonstrated. If the UMCDF can not meet current standards without such major adjustments then the pre-trial burn risk assessment and its spawn should not be manipulated to take "credit" for the PFS without a thorough public review.

We are not assured by the reasoning present in PMR section "J," PFS Bypass Emissions Testing-MACT Issues. This section excuses the failure of UMCDF to comply with MACT while bypassing the PFS and while meeting M55 rockets design feed rates. The State makes the case that without the PFS "credit" the feed rate would hinder UMCDF operations. Hence, the PFS "credit" is the mechanisms to make the Army's permitted M55 feed rates appear marginally close and During the public meeting held on this pmr representatives admitted that they have been unable to acheive a feed rate of 40 M55 rockts per hour for any sustained time period. This confirms that the State and the Army plan to reduce human health and safety by placing schedule ahead of safety. We believe that feed rate is a subservient goal to achieving the legal mandates to achieve maximum levels to protect human health and the environment.

And we further assert that the Army never sustained the feed rates submitted in their Application, which the State accepted without question and engraved in the Permit. How could the State knowingly accept information that on its face was inaccurate at best? We assert the Army misled the public about feed rates in order to have an appealing schedule and to get the technology approved.

In conclusion, the DEQ and EQC should deny the PMR and revoke the Permit in order to achieve the desires outlined in the PMR (consistency and eliminate the bypass). We oppose the continued use of PMRs to make piecemeal, yet substantial changes to the Permit (and ACDP) and to incinerator design and operations; therefore, we request that the EQC conduct formal proceedings to document data and to propose language that resolves the "consistency" conflicts espoused by the PMR. The only way to achieve this goal is to revoke the ACDP and the Permit. Furthermore, the need to take "credit" for the carbon filters reveals State court documents as contrary to what the State is now asking for. If approved, we believe the State is sanctioning a rush to burn that outweighs the protection of the public health and safety. If you have any further questions, please contact me at 541.567-6581, or JR Wilkinson at 541/276-9782.

Sincerely,

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Change in UMCDF Compliance Point  
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Karyn J. Jones, GASP Director

James R. (JR) Wilkinson, GASP Researcher

11/20/2003

**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

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04-0184

COUNTY COURT

P.O. Box 788 • Heppner, Oregon 97836  
(541) 676-5620 FAX: (541) 676-5621

TERRY K. TALLMAN, Judge  
email: ttallman@co.morrow.or.us  
Boardman, Oregon  
JOHN E. WENHOLZ, Commissioner  
email: jwenholz@co.morrow.or.us  
Irrigon, Oregon  
RAY GRACE, Commissioner  
email: rgrace@co.morrow.or.us  
Heppner, Oregon

January 28, 2004

Dennis Murphey  
Department of Environmental Quality  
700 SE Emigrant, Suite 330  
Pendleton, OR 97801

COPY

Subject: Letter in support of Permit Modification Request; UMCDF-03-041-PFS (3).

Dear Mr. Murphey:

This letter will serve to inform you that the Morrow County Court supports approval of the subject PMR, submitted by the permittee (UMCDF), titled, "Change in Incinerator Emissions Compliance Point." It is our understanding that this request will change the emissions compliance point from the inlet of the carbon filters to the exit of the carbon filters and that there will be no changes to final emission standards.

If you have any questions, please feel free to call us.

Terry K. Tallman  
County Judge

John Wenholtz  
County Commissioner

Ray Grace  
County Commissioner

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
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JAN 30 2004

State of Oregon  
Dept. of Environmental Quality  
Eastern Region • Pendleton

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting



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33886 River View Drive  
 Hermiston, OR 97838  
 January 28, 2004

Mr. Dennis Murphy  
 Oregon Department of Environmental Quality  
 Eastern Region Hermiston Office  
 256 East Hurlburt, Suite 105  
 Hermiston, OR 97838

STATE OF OREGON  
 DEPARTMENT OF ENVIRONMENTAL QUALITY  
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FEB. 03 2004

Dear Mr. Murphy,

**HERMISTON OFFICE**

Please accept this letter as recommendation and endorsement for approval of the Umatilla Chemical Agent Disposal Facility Class 3 permit modification No. UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point." I am writing as a private citizen living in the Hermiston area. I have been both a participant and observer in this long process to construct a disposal facility.

My interest previously was that of Superintendent of schools for the Hermiston School District for a decade and as Chamber of Commerce president and director of nine years. Naturally, for the welfare of our students and community, I was concerned about our munitions and chemical agent stockpile and finding a reliable remedy to rid our area of these hazards. So, I became involved in the permitting process.

After a number of years of listening and studying, I have come to these conclusions:

- (1) Having a munitions and chemical agent stockpile in our immediate area could be hazardous. Therefore, it is better that it is gone.
- (2) Just as I age and become more infirm and fragile with each passing year, so does the stockpiled material. To handle it at any time is potentially hazardous. To handle it in future years as it becomes more fragile rather than now is simply not wise. The probability for a hazardous situation increases as time passes. Thus, the sooner the chemical agent is gone, the probability for hazard is decreased.
- (3) On February 12, 1997 the permit was granted for this disposal facility. Our community was promised the chemical agent would be destroyed. The permit was in effect, and we were on the pathway to obtaining our goal of a safer community. In my view, not granting this permit modification or substantially delaying it is not honoring the original plan and promise to our Hermiston community.
- (4) Just like any life endeavor, more is known today than was known a decade ago. Technology, data, and science have increased our knowledge base

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Change in UMCDF Compliance Point  
 May 20-21, 2004 EQC Meeting

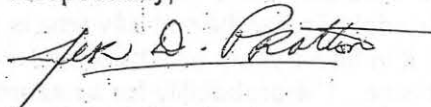
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more than when the original permit was studied and granted in 1996 and 1997. As a result, the carbon filter was added to insure further protection. This was an excellent action to provide an extra measure of community protection. My understanding is that this exceeds standards at both Johnson Island and Toule chemical disposal facilities and is equal to standards of three other facilities recently made operational.

- (5) Indeed I believe our permit standards for the disposal facility should be high. However, since other incineration plants, specifically Johnson Island and Toule, Utah, have been operational, successful, and safe, I see no logical reason to greatly exceed those standards.
- (6) There are a fixed number of munitions to be burned at the depot. To burn them a few over a long time, or to burn more over a short time will result in essentially the same quantity of compounds released in the air. The only difference is a slower rate of burn will take as much as five years longer, thus prolonging the probability of exposure and materials that are even more fragile. My vote is for a process that can happen as quickly as is possible with a rapid rate of burn.
- (7) It is my understanding the class three permit modification has been studied and reviewed by the DEQ staff. And, that the staff has recommended approval to the DEQ commission. I strongly urge the DEQ commission to accept and approve their own staff's work and recommendation.

Thank you for the opportunity to comment. Based on my observations these past six years, I urge the Oregon Department of Environmental Quality and Environmental Quality Commission to grant this permit request.

Respectfully,



Jer D. Pratton, Ed. D.



# **GTUR Technical Perspective on PMR UMCDF-03-041-PFS(3)**

**Presented by:  
Confederated Tribes of the Umatilla Indian Reservation  
Environmental Science and Technology Program**

**Presented to:  
Oregon Environmental Quality Commission**

**February 2004**

07-0225



# CTUR Technical Staff Supports UMCDF-03-041-PFS(3)

Comments provided on 29 October 2003 state:

“...our staff have reviewed the document and concur with the Permittee’s conclusions presented on page 15; namely that *‘There will be no detrimental human health or environmental impacts resulting from implementation of this PMR.’*”

Board of Trustees supported this opinion at both a meeting on 27 October 2003 with Mr. Don Barclay (UMCDF) and a meeting on 12 November 2003 with Mr. Dennis Murphey (Oregon DEQ)



# Reasons for Opinion (1 of 3)

- Meeting emissions standards at the exhaust stack (post carbon filters) is protective of human health and the environment
- Permitted Emission concentrations are set based on accepted human health and ecological risk modeling
  - Evaluates long-term health risks (resulting from recalcitrant compounds accumulating in the environment)
  - Evaluates short-term health risks (resulting from inhalation of 1-hour maximum concentrations from the UMCDF during worst case conditions)
- UMCDF Risk Assessment includes a Native American Subsistence Scenario which restricts emissions more than typical urban scenarios



# Reasons for Opinion (2 of 3)

Moving the compliance point will not result in an increase in UMCDF emissions over the lifetime of the plant

- Total emissions  $\propto$  (Concentration) x (Flow rate) x (Time)
- Stack flow rate is same for both cases
- Concentration increases if compliance point is moved
- Total operating time decreases if compliance point is moved



# Total Emissions Are Set By Processing Characteristics

Total amount of a compound (i) emitted during incineration of a given munition type for both compliance points is given by:

$$M_i = N(a_i)(1 - DRE_i)(1 - \xi_i)(1 - \varepsilon_i)$$

Where:

- $M_i$  = Mass of  $i^{\text{th}}$  contaminant emitted over life of UMCDF
- $N$  = Number of munitions of that type at UMCDF
- $a_i$  = Amount of  $i^{\text{th}}$  contaminant per munition
- $DRE_i$  = Furnace system DRE for  $i^{\text{th}}$  contaminant
- $\xi_i$  = PAS removal efficiency for  $i^{\text{th}}$  contaminant
- $\varepsilon_i$  = PFS removal efficiency for  $i^{\text{th}}$  contaminant

Parameters are same for both cases except  $\varepsilon_i$  which may increase at higher concentrations (i.e. better removal efficiency)



# Contact Information

➤ **Mr. Ted Haigh, Air Quality Specialist**

• **Phone: (541) 966-2414**

• **Email: [tedhaigh@cmhrc.com](mailto:tedhaigh@cmhrc.com)**

➤ **Dr. Rodney Skeen, Chemical Engineer**

• **Phone: (541) 966-2413**

• **Email: [rodsk@cmhrc.com](mailto:rodsk@cmhrc.com)**



Randall D Kowalke  
1314 NE Gladys Drive  
Hermiston, OR 97838

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February 6, 2004

Mr. Dennis Murphey  
Oregon Department of Environmental Quality  
Administrator Chemical Demilitarization Program  
256 E Hurlburt, Suite 105  
Hermiston, OR 97838

RE: Public Comment, Modification of the UMCDF HW Permit

Dear Mr. Murphey:


I am writing to encourage the Oregon Department of Environmental Quality to APPROVE the Umatilla Chemical Agent Disposal Facility's (UMCDF) request for a change in Incinerator Emissions Compliance Point.

I have been following the activities at UMCDF since locating in this community approximately a year ago as the result of joining the senior staff at Umatilla Electric Cooperative. I had previously been living on the Oregon Coast where I served on the Board of Directors of Central Lincoln PUD after having spent twenty years in Alaska heavily involved in the energy industry. Obviously I was concerned about the magnitude and nature of the materials being stored at the Depot. This concern motivated me to gather as much information as possible as to the danger in the stockpile, what was being done to eliminate the weapons and what risk the "solutions" presented. I certainly will not suggest that I have learned all there is to know about the aforementioned issues but what I have learned indicates to me that the destruction of these weapons needs (in the words of the National Research Council (NRC) ad hoc committee looking into this issue) to "proceed as quickly as possible, consistent with operational activities designed to protect the health and safety of the workforce, the public and the environment". I contend that the approval of the request for a change in the Compliance Point meets the NRC finding. The NRC committee also joined with their predecessors in 1994 and 1997 in finding that "the risk to the public and to the environment of continued storage overwhelms the potential risk of processing and destruction of the stockpiled chemical agent".

Additionally my research has led me to believe that while expediency should NOT be the top factor in the plan for destruction, needlessly adding five or more years to this process because the Army has to measure the test results with an elastic yard stick can NOT be justified either. We should NOT let "perfect" be the enemy of the "very good".

The science is sound. The process is proven and effective. The only way to protect those of us living in the danger zone is to eliminate the weapons. Grant the request and start the process!

Sincerely,



Randall D. Kowalke

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DEPARTMENT OF ENVIRONMENTAL QUALITY  
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Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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78891 Doherty Rd.  
Hermiston, OR 97838

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February 24, 2004

Dennis Murphey  
Administrator, Office of Director Chemical Demilitarization Program  
State of Oregon, Department of Environmental Quality  
East Region Hermiston Office  
256 E. Hurlburt Ave., Suite 105  
Hermiston, OR 97838

Re: Permit Modification Request UMCDF-03-041-PFS (3) Permit No. ORQ 000 009 431

Dear Mr. Murphey,

I have lived in Hermiston for 28 years. I live in the "red zone". I have followed the process for a long time (since the National Science Foundation people were here). I'm on your mailing list. I don't worry about the nerve gas except as relates to the length of the permitting process.

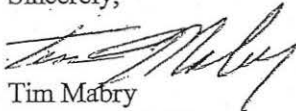
I appreciate DEQ's diligence in protecting the public interest. I think that interest is also well served by bringing this permitting process to a conclusion.

The process proposed has been well identified and examined. It seems to me that agreement has been substantially reached on how to incinerate. Why delay the process over the point at which we sniff the exhaust. If the carbon filters are a functioning part of the system why not include them for testing purposes. It seems to me that the other operating incineration sites show the process works.

Every expert I heard on this subject agrees the greatest risk is the continued deterioration of the agent and propellant in those rockets. Let's not lose site of the larger need in our quest to do it just right.

Finally, I understand that through experience gained in operating the other sites that substantial time can be saved in changing the order of destruction of the agent. Let's use that experience and finish the job.

Sincerely,



Tim Mabry

TM

cc: Shelley Ingram, Kathy Eldrige, Steve Meyers, Ted Kulongoski

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
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Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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February 25, 2004

Mr. Dennis Murphey  
Oregon Dept. of Environmental Quality  
Eastern Region, Hermiston Office  
256 East Hurlburt, Suite 105  
Hermiston, Oregon 97838

Dear Mr. Murphey,

As a resident of the city of Hermiston since 1934, I would like to share my opinions with you and address a few issues in regards to the incineration project at the Umatilla Army Depot.

I understand from the newspapers that the permit to incinerate now needs to be modified to allow the testing to be done past the carbon filters. If your job is to ensure the public that the emissions are safe, then it stands to reason that the testing needs to be done with the results reflecting the actual quality of air released. To test prior to the completion of the entire filtering process is of value if only to see that the early stages are operating properly, but it is of no value to the safety of the final release into the environment. The testing should be done with the "released" emissions and not based upon results in early stages of the process.

As such, my vote would be to get on with the burning. We have had enough of this delay tactic program by an uninformed, "sky is falling", group of people who in the most part don't even live in this area. The longer the delay, the more dangerous the situation becomes as these containers continue to deteriorate.

Simply put, start the fire and get it done!

Sincerely,



William F. Myers

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED

FEB 27 2004

HERMISTON OFFICE

1997 NORTH 1ST PLACE  
HERMISTON, OR 97838

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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FILE 04-0309

Scanned

February 24, 2004

Department of Environmental Quality  
256 E. Hurlburt  
Hermiston, OR 97838

RE: Proposed Class 3 Permit Modification Request

To Whom It May Concern:

My husband and I understand that the Army and Washington Demilitarization Company have asked for the Class 3 Permit Modification to change the compliance check point for emissions from the incinerator. We are in favor of granting this request.

Sincerely,

Mark Born  
Vikki Born  
80680 Glemm Road  
Hermiston, OR 97838

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED

FEB 27 2004

HERMISTON OFFICE

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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FILE 04-0329

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February 26, 2004

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED

Dennis Murphey  
Oregon Department of Environmental Quality  
256 East Hurlburt, Suite 105  
Hermiston, OR 97838

MAR 01 2004

HERMISTON OFFICE

Dear Sir:

Please approve the Umatilla Chemical Agent Disposal Facility's "change in emissions compliance" request and get on with destroying chemical weapons.

If this request is granted, there will be no extra emissions from the stack, no change in emission standards and no new equipment installed. It will allow the Umatilla project to take credit for an additional filter system already installed, permitted by the state, and paid for by taxpayers.

We agree with the East Oregonian editorial that said it's time to move on with the project and begin incineration. We have been discussing it since the first meeting in Irrigon in 1984, and now is the time to make a move. The economy isn't great, and instead of spending \$250,000 a day on a plant that's not operating, let's get the show on the road. People are sick and tired of the government wasting money.

The new colonel knows what he is doing. They know that they're doing out there and we trust them to get the job done safely. All you ever hear on Main Street and in the coffee shops is, "Let's get it done and stop hassling with it." Ninety percent of the people want chemical weapons out of here now; let's let them do their job.

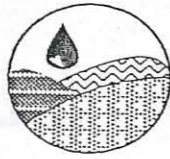
Signed,



FRANK HARKENRIDER  
BEVERLY HARKENRIDER  
935 South First Street  
Hermiston, OR 97838

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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# OREGON WATER COALITION

P.O. Box 1276, Hermiston, OR 97838. Phone: 541-564-0279. Email: [owc@eotnet.net](mailto:owc@eotnet.net)

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March 1, 2004

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
RECEIVED

MAR 01 2004

**HERMISTON OFFICE**

Dennis Murphy, Administrator  
Oregon Department of Environmental Quality  
256 E. Hurlburt Avenue  
Hermiston, Oregon 97838

Dear Sir,

When a disposal project is as complicated, and the treaty, environmental and human safety requirements are as stringent as is the case with the destruction of chemical weapons at the Umatilla Chemical Depot, time overruns occur.

And time is becoming our enemy.

Obsolete chemical warfare weapons just sitting in storage become a greater danger to the public. And as time slips away some procedures already paid for are required to be upgraded.

I understand that the designers and builders of the demil plant at Umatilla Chemical Depot are asking for, and the Oregon DEQ is recommending that all carbon filters built into the plant be used to obtain and maintain the federal air quality regulations.

It is my understanding that part of these filters were originally to be redundant equipment, but that added air quality requirements are now being made on the plant and that all of these filters are needed in order for the plant to operate as designed. And, in the time frame for which it is designed.

Please let us get on with the most rapid destruction of these deadly chemical warfare weapons that our current technology and regulations will allow.

Harmon Springer  
Oregon Water Coalition

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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ILES Lena

**From:** OLIVER Sue  
**Sent:** Monday, March 01, 2004 5:09 PM  
**To:** 'Karyn Jones'; MURPHEY Dennis; INGRAM Shelly  
**Cc:** ILES Lena  
**Subject:** RE: comments-PFS-030104

We received your comments at 4:59 pm Karyn.

Lena, please log this in as a public comment on PMR UMCDF-03-041-PFS(3).

thanks

-----Original Message-----

**From:** Karyn Jones [mailto:karynj@oregontrail.net]  
**Sent:** Monday, March 01, 2004 4:59 PM  
**To:** OLIVER Sue; MURPHEY Dennis; INGRAM Shelly  
**Subject:** comments-PFS-030104

G.A.S.P.  
P.O. Box 1693  
Hermiston, OR 97838

March 1, 2004

Mr. Dennis Murphy, Administrator  
Oregon Department of Environmental Quality (DEQ)  
Chemical Demilitarization Program  
Eastern Region, Hermiston Office  
256 E. Hurlburt, Suite 105  
Hermiston, OR 97838

RE: G.A.S.P. and Oregon Wildlife Federation Comments  
Umatilla Chemical Agent Disposal Facility (UMCDF)  
No. ORQ 000 009 431  
Change in Incinerator Emissions Compliance Point  
UMCDF-03-041-PFS (3)

Dear Mr. Murphy:

On behalf of G.A.S.P., the Oregon Wildlife Federation, the Sierra Club, and the Chemical Weapons Working Group, on behalf of Karyn Jones, Mark Jones, Debbie McCoy-Burns, Janice Lohman, Judy Brown, Marilyn Post, Stuart Dick, and plaintiffs, we submit the following comments and, in many ways, our comments echo those submitted during the November 2003 "first round."

We opposed this PMR last year and do so today, but we now request additional time to consider the DEQ's February 27 answers to our February 11 questions, which we raised in one form or another last November and again at the DEQ Hermiston hearings on February 5 and 18. We are

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baffled why DEQ appeared initially responsive, but later on was dismissive of our concerns and our efforts to understand better the technical aspects of this PMR. At this time, we believe our concerns were either unresolved by the answers we received, were ignored, or are at best partially addressed by information received too late to consider.

Our frustration extends to our repeated requests for ALL relevant documents. We did not anticipate that we would need to scour the record for specific document titles, but rather we had relied on DEQ providing ALL relevant documents upon request. If a document is referenced, is relied on as supporting documentation, or is relevant because it is part of DEQ's "succession" of documents related to a PMR (in this case the September 2003 PMR, Notice of Deficiency, and Army response and data), we should have received them promptly too. If that is too burdensome, then there should be clear references in a PMR, or in the DEQ "Fact Sheet," that identifies ALL relevant documents. Until this is clarified and ALL documents provided and reviewed, we feel our request for additional time is justified.

For example, DEQ in its February 27 response referenced the Phase 2 Quantitative Risk Assessment (QRA) published in December 2002, but we have not received that document. The QRA that we do have is the June 2001 Preliminary Draft UMCDF QRA, yet we understand that the Army/DEQ did not publicly release the final QRA because of alleged national security issues. It is not responsive of DEQ to reference a secretive document as an answer to G.A.S.P.'s questions. Mr. Wilkinson specifically asked, "What did DEQ do to evaluate whether or not the [carbon] filters ACTUALLY increase risk of fire and/or other hazards based on their operational use?" The implication of DEQ's reference to the secret QRA is, "Trust us-we're from the government," and that is not fulfilling the Agency's public duties and its regulatory responsibilities.

The primary duty of the DEQ is *"To protect people and the environment by overseeing the safe destruction of the chemical agents at the Umatilla Chemical Depot as soon as possible."* We at G.A.S.P. disagree with the DEQ and Army mantra that the fastest destruction schedule possible fulfills the DEQ mandate. In stark contrast, we believe DEQ fulfills its mandate by maintaining emission levels below established regulatory levels and, as envisioned by this PMR, moving the point of compliance protects only schedules, budgets, and personnel. Protecting the schedule is not protective of the people and the environment as stated in the DEQ mission. Furthermore, if "as soon as possible" is DEQ's mission, then DEQ should have implemented the Army's proposed "Speedy Neut" plan.

More troublesome is that DEQ failed to provide any reference to its regulatory authority to implement "as soon as possible" as an override to protection of public health and safety. Additionally, the data and reports that the Commenter are presently aware of does not support a serious risk of storage threat. On what factual basis does DEQ believe that the risk of storage for a few more months or a few more years would create a significant risk to the community?

While we oppose this PMR, we are equally grateful for the ICQ's insistence of "online" operations of the carbon filters. According to the June 2001 Draft QRA (Table M4-4, Agent Collected on Filters from Campaigns at UMCDF), the filters will capture 19,659 pounds of agent that would otherwise spew onto our agricultural economy and into our communities. We only can hope that the Table's "collected" figure represents 100% capture of the unburned agent.

Nevertheless, incineration was sold to Oregonians as best available technology capable of complete agent destruction (actually 99.9999%), yet 19,659 divided by 7,424,780 pounds of stored agent does not equate to "six-9's" destruction removal equivalency, so is the QRA wrong

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or do the furnaces not operate as sold?

In the February 27 response, the DEQ identified "800 tons of spent carbon filters will have to be disposed of at the end of the munitions campaign" while the M4-4 chart quantifies the remaining agent on the filters as 3,895 pounds (apparently, agent decomposes). The Army and the State of Oregon claim that "no legacy wastes" will remain at the Umatilla Depot, but that claim appears to be incorrect. What demonstrated disposal plan for carbon filters has the State approved for the final disposition of this form of UMCDF legacy wastes? The DEQ answered on February 27 that, "UMCDF has notified the DEQ of there [sic] intention to use the Deactivation Furnace System to dispose of spent carbon from UMCDF operations."

During the permitting process, the Army marketed the dunnage incinerator (DUN) as their carbon filter disposal method. The Army representative Mr. Drew Lyle affirmed that statement to the DEQ during his slide presentation on February 28, 2000, with the following phrases, "DUN Testing at CAMDS / Conducted Development Testing 1987-1988 / Demonstrated Agent and Carbon Processing." In a later slide titled "DUN Testing/Operations at JACADS," he stated, "Trail [sic] Burn Test Successfully Completed December 1994 / Processed Dunnage 1995-1996." He concludes his presentation with the, "Basis for including DUN in FEB 95 application / Demonstration Testing CAMDS/JACADS/TOCDF / State Criteria / Only Proven and Demonstrated Furnace." (Attached as Exhibit 16, Affidavit of Wayne Thomas, June 26, 2002.)

It is astounding that DEQ still allows the Army to "skate" without a carbon filter disposal plan; yet, more troublesome is the timeline of events of Mr. Lyle's presentation raises when compared to events testified to by Mr. Thomas during the *G.A.S.P. III* trial. G.A.S.P. attorney Mr. Mick Harrison is questioning Mr. Thomas about the status of the dunnage incinerator when the following was revealed:

8 Q Okay. Can you tell the Court what the  
9 history of the Army's communications to the State  
10 have been over time as to when they planned to use  
11 the Dunnage incinerator, and when they planned not to  
12 use it and when they might have changed their mind  
13 again?

14 A I will do my best.

15 Q Thank you.

16 A The Dunnage incinerator is a treatment  
17 unit that is included in the original application.  
18 We were notified, I believe, it originally started in  
19 some of the monthly meetings we were having that the  
20 Army was evaluating putting the Dunnage incinerator  
21 on hold and not constructing that or installing that  
22 unit.

23 We kind of got a clue that they might be  
24 doing that because they put up a wall in the plant  
25 and we thought, how are they going to get the  
1 incinerator through there, you know? They are going  
2 to have to take the wall down here. We might have  
3 something going on.

4 That was the first clue that we got from  
5 our construction observation of the site. And I  
6 think the first written formal correspondence was a

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7 letter in August of '98, I believe, where we were  
8 formally told that as of that date the DUN was on  
9 hold.

10 And, let's see, subsequently we had  
11 discussions with the Army about that, and what that  
12 meant and how the waste streams would be managed that  
13 were targeted for the DUN, and we had a special EQC  
14 meeting in August of '99, almost, I think it was by  
15 the day and a year later than when we got the letter  
16 just coincidentally.

17 And the Army came in and talked about the  
18 Dunning incinerator and the issues of managing  
19 secondary waste. Let's see --

20 Q What did they say about the Dunning  
21 incinerator?

22 A Well, let's see --

23 Q I don't need an exact quote, just in a  
24 nutshell, the essence of what they were saying.

25 A Well, in a nutshell, it is kind of hard  
1 to do as well. I would say that the Army said that  
2 the Dunning incinerator would operate at the feed  
3 rates that it was permitted to do and they were  
4 evaluating --

5 THE COURT: Would not or would?

6 THE WITNESS: Would operate.

7 And they were evaluating different  
8 options for the wastes that were targeted for the  
9 DUN, in particular waste carbon treatment was  
10 something that they were looking at.

(G.A.S.P. v. EQC, Volume 6C, 10/28/02, pages 67-69.)

If a DEQ inspector discovered in August 1998 a wall where the DUN was to be installed and meetings were already taking place in 1999 to remove the DUN, then why would it not be the responsibility of the DEQ and the EQC to unilaterally revoke the permit and to conduct an investigation given Mr. Lyle's February 2000 statements? Actually, we assert that the State should have revoked the permit immediately on discovery of the wall. Yet, the Army knowingly submitted information in 2000 that DEQ knew was not true, so the only conclusion reached is that the Army and State engaged in actions to mislead the public, at best, on the ability of the furnaces to operate as sold. Where is a Class III PMR to remove the DUN and to identify the final disposition of all UMCDF wastes?

We believe that DEQ and Army have embarked on a slippery slope with this PMR and the role the carbon filters play in operational, worker, and public safety. In the January 1998, Evaluation of the Pollution Abatement Filter System for Chemical Agent Disposal Facilities. Methodology for Evaluating Risks (AR #99-0227), the Mitretek System authors summarize a 1994 National Research Council conclusion that, "There was insufficient data available at the time to conclusively determine whether the increased complexity created safety risks that would offset the potential benefits."

However, the DEQ now believes the carbon filters are demonstrated as stated in the Fact Sheet.

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Unfortunately, the PMR fails to present factual evidence or a summary of the data that supports the DEQ claim, therefore, DEQ expects G.A.S.P. to rely solely on statements rather than facts. The only available information was in the Army's response to DEQ's Notice of Deficiency and we just received that information and have yet to evaluate it thoroughly. This is one reason for our request for additional time to comment. Nevertheless, our concerns remain on what protection the filters offer to workers and the public under upset and/or off-normal operational conditions.

Above all else, the change in the point of compliance as envisioned by this PMR deals a serious blow to the State's credibility. The Army assured the State throughout the permitting process (and beyond) that the burners were efficient and that the emissions would meet regulatory standards before entering the carbon filters. We now know this is not true. If more pollutants exit the Pollution Abatement System (PAS) than originally modeled, then the pronouncement that the Army cannot meet the emission standards without the carbon filter "credits" presents a circular argument when there is no change to the health or safety risk assessments. At the time of the 1997 permit approval, the carbon filters were not proven technology and were added to the PAS as an added safety margin. Documents submitted by the State to the Court during *G.A.S.P. v. EQC* confirm the filters as added safety measures. Now the State believes they are a necessity.

The change in point of compliance also conjures serious environmental monitoring nightmares. During the August 2003 *G.A.S.P. III* trial, an Army CAMDS monitoring technician Mr. Cramer testified as to stack monitoring equipment limitations and to calibration problems associated with the Automatic Continuous Air Monitoring System (ACAMS) and the Depot Area Air Monitoring System (DAAMS). The ACAMS are relied on to alarm in the event of agent release and the DAAMS are used to confirm a release, and Mr. Cramer clearly identified problems with the existing Utah facility monitoring systems while describing his options for system improvements. The Army apparently ignored his concerns and his improvements. Regardless of Army actions (or failures), we believe that the State must investigate his allegations and implement his improved, or some other, monitoring system.

Mr. Cramer's testimony on the Army's inadequate common stack monitoring technology was quite revealing, but the Agency's silence on this matter is more troubling. This is particularly true when monitoring problems are combined with another approved PMR, Carbon Filter System Agent Monitoring Changes UMCDF-03-014-PFS (2), which deleted mid-bed agent monitoring in the carbon filters. The inadequate monitoring systems, the removal of mid-bed sampling, and the moving of the point of compliance all point to a compromised ability to detect escaping unburned agent.

The two PMRs and the inadequate stack monitors undermine the ability of the Agency to fulfill its mandate to protect human health and the environment. Focusing on schedule at the cost of inadequate monitoring and at ignoring emission levels places all Oregonians at greater risk, but we also fear for the workers who are placed daily in harm's way.

The State has thus far failed to take any actions to investigate the allegations made by Mr. Cramer and to identify the potential impacts to UMCDF operations that inadequate monitoring suggests. Likewise, the Agency has failed to implement corrective actions to mitigate the inadequate ACAMS and the removal of the mid-bed DAAMS from the carbon filters. We believe the compromised monitoring systems combined with the effect of the two PMRs can create imminently dangerous situations from the uncontrolled release of chemical agent that can harm our lives and our property. In this manner, we believe that the State has ignored crucial evidence to fulfill its responsibilities and has thus increased risk.

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Change in UMCDF Compliance Point  
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The following comments offer more direct comment on the PMR:

1. According to PMR Background, there are two reasons for this request. These are to provide, "a consistent approach for complying with two sets of regulations (Resource Conservation and Recovery Act [RCRA] and Maximum Achievable Control Technology [MACT])," and to, "eliminate the need to test the incinerators during agent trial burns with the PFS units bypassed." Fundamentally, these two desires confirm plaintiff arguments set forth in *G.A.S.P. v. EQC*, and based on the Army and DEQ desire to change the point of compliance for meeting various federal and state regulations, it represents the failure of the State of Oregon to protect our human health and environment. The MACT changes should have been anticipated by DEQ and the Army during the permitting process.

"On May 19, 1993, EPA announced the release of its Draft Hazardous Waste Minimization and Combustion Strategy. The goals of the Strategy were to, first, achieve reductions in the amount of hazardous waste generated in this country and, second, to further improve the safety and reliability of hazardous waste combustion in incinerators and boilers and industrial furnaces (BIFs). The announcement signaled the Administrator's intention for EPA to take a leadership role in reaching a balanced resolution of the difficult hazardous waste issues involved. Since May 1993, EPA has led a broad and open national effort to take a fresh look at how to achieve a fully integrated waste management program in which economically sound source reduction decisions are given proper emphasis, and how to delineate the appropriate role for hazardous waste combustion." (US EPA Hazardous Waste Combustion Fact Sheet)

2. The first desire to apply "a consistent approach" between RCRA and MACT at UMCDF is laudable, but disingenuous for the following reason. We believe the State should have taken action during the renewal of the Air Contaminant Discharge Permit (ACDP) if, indeed, consistency is the goal. In fact, we requested "consistency" in our detailed comments submitted on March 29, 2002, and what is especially disturbing about the current PMR is the blatant continuation of piecemeal changes to the UMCDF Hazardous Waste Permit that, in turn, are fundamental changes to the technology, the Permit, and the assurances made by the Army and the State to Oregonians.

3. For example, our March 2002 comments on the ACDP Notice of Intent to Comply (NIC) include this quote on paragraph 42 and question to DEQ: Because the EPA, "removed all NIC requirements from the MACT regulation . . . the facility now has no obligation to comply with the NIC requirements." What will be done in the interim to assure compliance by the Permittees? [Emphasis added.] We renew our March 2002 observations that the *"Air Contaminant Discharge Permit Renewal contains fraudulent information, incomplete information, inaccurate information and out of date information. We ask that the Department of Environmental Quality reject the Air Containment Discharge Permit Renewal."*

4. Our request to have the ACDP revoked was, apparently, ignored by DEQ, yet the current PMR confirms our comments on the inadequacy of the ACDP. What DEQ failed to provide, either in response to our comments or in this PMR, is how they plan to remedy such structural ACDP problems. We believe this can only occur through a permit revocation. Furthermore, the recent ACDP renewal included the dunnage incinerator, so the State MUST describe how it will "tinker" the MACT while recognizing the ACDP includes the DUN, which has been removed through illegal Army construction practices and through State sanctioned, piecemeal approvals.

5. During the permitting process, the Army, EQC, and DEQ went to great lengths to trumpet the incinerators as best available technology and that burning would meet all regulations. With a

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Change in UMCDF Compliance Point  
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pat on the back and a wink of an eye, we were assured that the carbon filter systems were added protection. Now through testing, the incinerators demonstrate that they can not meet key emissions regulations and in order to comply with those regulations the Army and State must solicit credit for calculated carbon removal efficiencies consequently BAT no longer applies as defined at the time of permitting by the EQC.

6. The desire to, "eliminate the need to test the incinerators during agent trial burns with the PFS units bypassed," is a grave departure from what has been the party line. This obvious switch reveals the truth of the matters we comment on. For example, Mr. Richard Condit requested that the EQC make, "factual findings regarding the ability of the ...carbon filter system...to collect and retain chemical warfare agent." His statement was made at a special EQC meeting on August 8, 1999 (99-2145), and we renew our demand for publication of supporting data to demonstrate that we and our local agricultural economy are not the Army's guinea pigs for testing new pollution control schemes.

7. The PMR refers to UMDCF and to Anniston testing, but nothing demonstrates the long-term, sustained PFS capabilities to perform as sold, and no spent carbon management plan projects disposal decisions. In fact, our recent comments on the Draft Storage Permit (03-1229) specially pointed to the failure of the Army and State to identify a spent carbon disposal plan.

8. Furthermore, the desire to change the point of compliance undermines the State's legal arguments made in the September 30, 1998, *Respondents' Reply to Memorandum in Support of Motion for Summary Judgment and in Opposition to Cross-Motion for Summary Judgment*. Throughout the litigation and as stated in the Reply (p. 12), the State makes it quite clear that, "there is substantial evidence in the record to support the finding that the PAS carbon filters are an appropriate extra protection against emissions." The document continues: "Moreover, no "credit" was taken for further reductions in emissions that will be provided by this extra protection." It is astonishing to read the PMR justifications in the context of what has been DEQ gospel, and until there is measured, not calculated data on carbon filter efficiencies any "credit" guess is just that, a guess.

9. The inability to predict PFS function during upset or "off-normal" conditions creates conditions possible for catastrophic events. This is particularly troublesome given the hundreds of Class I, II, and III permit modifications already approved by the DEQ because many of these modifications make basic changes to operational conditions. Our call for an inventory of these PMRs has gone unanswered.

10. The addition of the PFS carbon filters complicates the ability to isolate and control for ideal incinerator operations. Furthermore, the data used by the pre-trial burn risk assessment and its spawns are based on the assumption that the incinerators operate at regulatory levels, which is now demonstrated as not true. The risk documents rest on the assumption that the carbon filters are added protection, but this PMR now calls on the PFS carbon to achieve regulatory levels.

11. Therefore, we assert that the action this PMR contemplates will increase risks to our peoples' health and safety and our economic livelihoods because the PFS has not been demonstrated. If the UMDCF can not meet current standards without such major adjustments then the pre-trial burn risk assessment and its spawn should not be manipulated to take "credit" for the PFS without a thorough public review.

12. We are not assured by the reasoning present in PMR section "J," PFS Bypass Emissions Testing-MACT Issues. This section excuses the failure of UMDCF to comply with MACT while

3/2/2004

Change in UMDCF Compliance Point  
May 20-21, 2004 EQC Meeting

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bypassing the PFS and while meeting M55 rockets design feed rates. The State makes the case that without the PFS "credit" the feed rate would hinder UMCDF operations. Hence, the PFS "credit" is the mechanisms to make the Army's permitted M55 feed rates appear marginally close. This confirms that the State and the Army plan to reduce human health and safety by placing schedule ahead of safety. We believe that feed rate is a subservient goal to achieving the legal mandates to achieve maximum levels to protect human health and the environment.

13. And we further assert that the Army never sustained the feed rates submitted in their Application, which the State accepted without question and engraved in the Permit. How could the State knowingly accept information that on its face was inaccurate at best? We assert the Army misled the public about feed rates in order to have an appealing schedule and to get the technology approved. One of the justifications of increasing the feed rate so that the process will be completed ahead of the current schedule. Over the years the schedule has been changed numerous times. Over the years the public has been told that destruction operations would be completed by 1995, 1997, 1998, 1999, 2000, 2001, 2003, and 2004. Commenters do not believe that the proposed feed rates will be met during actual operations or that the new schedule will be met if the PMR is granted.

In conclusion, the DEQ and EQC should deny the PMR and revoke the Permit in order to achieve the desires outlined in the PMR (consistency and eliminate the bypass). We oppose the continued use of PMRs to make piecemeal, yet substantial changes to the Permit (and ACDP) and to incinerator design and operations; therefore, we request that the EQC conduct formal proceedings to document data and to propose language that resolves the "consistency" conflicts espoused by the PMR. The only way to achieve this goal is to revoke the ACDP and the Permit.

Furthermore, the need to take "credit" for the carbon filters reveals State court documents as contrary to what the State is now asking for. If approved, we believe the State is sanctioning a rush to burn that outweighs the protection of the public health and safety. If you have any further questions, please contact me at 541.567-6581, or JR Wilkinson at 541/276-9782.

In conclusion, the Department of Environmental Quality (DEQ) established today at 5:00 p.m. as the deadline and we anticipate that DEQ will enter our comments into the Administrative Record. In addition, we are incorporating by reference all previous correspondence, *G.A.S.P. v. EQC* trial records, and *G.A.S.P. I, II, and III* documents and transcripts, as well as all prior comments on this issue by G.A.S.P. et al and CWWG.

Sincerely,

Karyn J. Jones, G.A.S.P. Director  
James R. (JR) Wilkinson, G.A.S.P. Researcher

3/2/2004

**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

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# **ATTACHMENT H**

**“Response to Concerns”  
prepared by  
UMCDF Permittees**

(DEQ Item No. 04-0299)

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
US ARMY CHEMICAL MATERIALS AGENCY  
UMATILLA CHEMICAL AGENT DISPOSAL FACILITY  
78072 ORDNANCE ROAD  
HERMISTON, OREGON 97838

COPY 5.0

04-0299

FEB 26 2004

Program Manager for the  
Elimination of Chemical Weapons

ENV-04-0050

SUBJECT: Umatilla Chemical Agent Disposal Facility (UMCDF) Hazardous Waste Permit  
(ORQ 000 009 431) – Response to Concerns on Class 3 Permit Modification Request (PMR)  
UMCDF-03-041-PFS(3), Change in Incinerator Emissions Compliance Point

Dennis Murphey, Program Administrator  
Chemical Demilitarization Program  
Oregon Department of Environmental Quality  
256 East Hurlburt Avenue, Suite 105  
Hermiston, Oregon 97838

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
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FEB 26 2004

Dear Mr. Murphey:

HERMISTON OFFICE

References:

- a. Letter, UMCDF, ENV-03-0288, September 15, 2003, subject: Submittal of Class 3 PMR UMCDF-03-041-PFS(3), Change in Incinerator Emissions Compliance Point.
- b. Letter, Department of Environmental Quality (DEQ), DEQ Item No. 03-1991(19), November 5, 2003, subject: Notice of Deficiency (NOD) Class 3 PMR UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point."
- c. Letter, UMCDF, ENV-03-0369, December 1, 2003, subject: Response to NOD on Class 3 PMR UMCDF-03-041-PFS(3), Change in Incinerator Emissions Compliance Point.
- d. Letter, DEQ, DEQ Item No. 04-0059(19), January 14, 2004, subject: Transmittal of Proposed Modified UMCDF HW Permit – PMR UMCDF-03-041-PFS(3) "Change in Incinerator Emissions Compliance Point."

This letter addresses concerns identified regarding the Class 3 PMR to change the incinerator emissions compliance point based on information received during the 60-day public comment period, as well as comments made during the Department public hearings held on February 5 and 18, 2003.

The key concerns identified relevant to the Class 3 PMR were:

- a. The Pollution Abatement System Carbon Filter System (PFS) and carbon filtration equipment and processes are not proven technology.
- b. Risk to the public will increase from changing the Resource Conservation and Recovery Act compliance point from before the PFS to after the PFS.

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

c. Taking credit for the PFS means that the incinerator does not perform as it was designed and it needs the help of a PFS to meet regulatory requirements.


d. The permitted Deactivation Furnace System rocket feed rate of 40 rockets per hour has never been achieved and the demonstrable rocket processing rate is well below 30 rockets per hour.

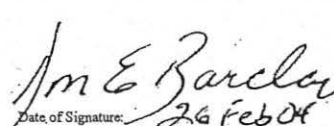
e. Schedule is being placed ahead of safety by taking credit for the PFS so that a higher feed rate can be performed.

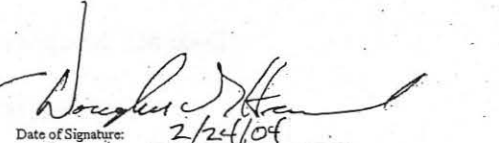
The attached information includes a response to each one of the listed concerns and provides a conclusion based on the discussions presented.

If you have any questions, please call our technical point of contact, Mr. Wendell Wrzesinski, (541) 564-7053.

Sincerely,

  
Date of Signature: 26 Feb 04  
David E. Holliday  
Lieutenant Colonel, CM, USA  
Commander  
\*CERTIFICATION STATEMENT

  
Date of Signature: 26 Feb 04  
Don E. Barclay  
UMCDF Site  
Project Manager  
\*CERTIFICATION STATEMENT

  
Date of Signature: 2/24/04  
Douglas G. Hamrick  
Washington Demilitarization Company  
Project General Manager  
\*CERTIFICATION STATEMENT

Enclosure

\*I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION ACCORDING TO A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS.



Copies Furnished:

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Bend, Oregon 97701

Mr. Hiroshi Dodohara, U.S. Environmental Protection Agency, Fibers and Organics Branch, MC  
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Mr. Dan Duncan, U.S. EPA, Region 10, 1200 Sixth Avenue, Seattle, Washington 98101

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**UMCDF Response to Public Comments and Concerns on the PFS Class 3  
Permit Modification Request [UMCDF-03-041-PFS(3)]**

The subject permit modification request (PMR) was submitted to the Oregon Department of Environmental Quality (DEQ) on September 16, 2003. A public information meeting on the PMR was held on October 21, 2003. The 60-day comment period for the PMR began September 17, 2003, and ended November 17, 2003. The 45-day comment period held by the DEQ began January 14, 2004 and runs through March 1, 2004. The decision on the PMR will be made by the Environmental Quality Commission (EQC) and has been tentatively identified as May 20-21, 2004.

The following information is provided to clarify the UMCDF position and respond to concerns based on information received during the 60-day public comment period as well as comments made during the DEQ public hearings held on February 5 and 18, 2003.

Key concerns identified relevant to the Class 3 PMR were:

1. The PFS and carbon filtration equipment and processes are not proven technology.
2. Risk to the public will increase from changing the RCRA compliance point from before the PFS to after the PFS.
3. Taking credit for the PFS means that the incinerator does not perform as it was designed and it needs the help of a PFS to meet regulatory requirements.
4. The permitted DFS rocket feed rate of 40 rockets per hour has never been achieved and the demonstrated rocket processing rate is well below 30 rockets per hour.
5. Schedule is being placed ahead of safety by taking credit for the PFS so that a higher feed rate can be performed.

The following addresses each of the concerns identified:

1. **The PFS and carbon filtration equipment and processes are not proven technology.**  
The use of the PFS to reduce emissions to the atmosphere has been demonstrated and should be recognized as an important element in controlling air emissions from UMCDF operations. Results from surrogate trial burns conducted to date at the UMCDF demonstrate that the PFS is an effective air pollution control unit. A PFS has also been proven successful at Anniston Chemical Agent Disposal Facility (ANCDF) during the ANCDF surrogate and agent trial burns and operations.

The PFS consists of a prefilter, a bank of high efficiency particulate air (HEPA) filters, two beds of activated carbon in series and a post carbon HEPA filter. The use of HEPA filters and activated carbon to control particulates, metals, and organic emission is well documented. HEPA and carbon filtration has been used in clean room applications, laboratories, hospitals, and environmental remediation sites. HEPA filters have been used extensively in radioactive waste incineration systems in many countries including Austria, Belgium, Canada, France, Germany, Japan, Russia, Taiwan, the United Kingdom, and the United States. Additionally, U.S. Department of Energy incinerators have used HEPA filters at locations including the Idaho National Engineering and Environmental Laboratory, Los Alamos National Laboratory, Lawrence Livermore National



Laboratory, Rocky Flats Environmental Technology Site, and Savannah River Site. Commercial radioactive waste incinerators worldwide also use HEPA filters.

Carbon bed filters are a commonly used, mature technology that has been used for two decades in full-scale incineration systems throughout the world. Based on the information presented, the PFS and carbon filtration are known and proven technologies. The use of a PFS at UMCDF will reduce emissions of all pollutants as compared to not using a PFS and its use should be recognized. Approval of the PMR will allow the UMCDF to take credit for the additional removal efficiencies provided by the PFS.

2. **Risk to the public will increase from changing the RCRA compliance point from before the PFS to after the PFS.**

The maximum achievable control technology (MACT) emissions compliance point is allowed to be after the PFS units on each incinerator whereas the RCRA emissions compliance point is before the PFS units. Changing the RCRA compliance point from before the PFS to after the PFS will not increase public risk as this action will have no effect on the allowable emission rates required by the permit. The RCRA Permit requires the PFS to be in operation during the treatment of waste, except during the performance of Trial Burns which are short-term periods used to demonstrate emissions prior to the PFS.

During normal operations, the PFS filters are in place and would be operational with or without a change in the emissions compliance point. If there is an upset condition, that requires bypassing the PFS units (i.e., such as high temperature of the inlet to the PFS unit)-an automatic waste feed cutoff (AWFCO) occurs. Per the MACT regulations, bypassing of the PFS unit during abnormal operations is considered use of an emergency safety vent (ESV). As already noted, the UMCDF is not allowed to continue to feed hazardous waste, including M55 rockets, in the event the PFS is bypassed. Thus, since the PFS is required to be online at all times while feeding hazardous waste, the number of ESV events and resulting upset emissions will be the same, regardless of the decision on this PMR.

The UMCDF surrogate trial burn (STB) results provide evidence that the incinerators meet the required emission standards (RCRA and MACT) with the PFS online. A STB must be completed prior to the start of agent processing for each incinerator. The UMCDF STBs are conducted at extreme operating conditions to reflect worst-case emissions. Thus, the PFS in addition to the incinerator and other PAS components are tested under the most severe operating conditions used to establish the long-term AWFCO setpoints. Consequently, the resultant operating limits, required to be calculated from the STB data, are not based on the "optimum capture efficiency" of the PFS as indicated in the public comments.

The permitted allowable emission rates from the UMCDF Common Stack which includes the emission from all of the incinerators, will not increase as a result of approval of this PMR. The UMCDF will still be required to comply with the emission rates used to complete the 1996 Pre-Trial Burn Health and Ecological Risk Assessments (Pre-TB HRA). Thus, the proposed changes in the PMR will not detrimentally impact the environment or public health. In addition to the pre-TB HRA, a Post-TB HRA will be conducted based on UMCDF chemical agent trial burn data collected prior to the DEQ approval of long-term operating conditions for each incinerator. The chemical agent trial burn data will provide verification that the long-term conditions do not detrimentally impact the environment or public health.



Currently, the Permit requires the chemical agent trial burns to be conducted while bypassing the PFS units in order to demonstrate the emissions upstream of the PFS. Approval of this PMR will require the chemical agent trial burns to be conducted with the PFS online. Operating the furnace systems with the PFS online during chemical agent trial burns will result in lower pollutant emissions, which will reduce the risk to human health and environment. Taking credit for their mitigative effects is reasonable and is in line with MACT regulations. The end result of the PMR, if approved, is that the point of compliance for RCRA emissions will be after the last pollution control equipment on the incinerator systems just prior to the exhaust entering the atmosphere (after the PFS). This point of emission compliance is consistent with the traditional location where other industrial facilities are regulated for their air emissions.

If the PMR is denied and the RCRA Permit allowable emission rates must be complied with before the PFS units, a reduction in the metal feed rates would be required. This would result in a lower processing rate of rockets and taking longer to destroy the rockets. The public risk will be increased by 733 percent due to the continued storage of GB and VX rockets. Attachment 1 contains a memorandum from the Science Application International Corporation (SAIC) team that performed the UMCDF Phase 2 Quantitative Risk Assessment explaining the impact on risk from continued storage with a significant reduction in feed rate. Additionally, there will be an increase in Deactivation Furnace System emissions over the life of the facility due to the increase in time to process the munitions and an increase in the quantity of secondary waste produced. The noted increase to public risk and other impacts far outweigh any risk posed by moving the RCRA compliance point.

3. **Taking credit for the PFS means that the incinerator does not perform as it was designed and it needs the help of a PFS to meet regulatory requirements.**

Regulatory emission requirements have changed since the RCRA permit was issued in February 1997. At that time the facility allowable emission rates were based on scaled emission rates from a similar facility and were evaluated by conducting a health risk assessment. The emission rates were established according to RCRA regulations. In September 1999, the EPA finalized the National Emission Standards for Hazardous Air Pollutants for hazardous waste combustors. These standards reflect performance of the best operating hazardous waste combustors, including incinerators as specified by the Clean Air Act. The MACT emissions compliance point for the UMCDF can be after the PFS units on each incinerator whereas the RCRA permit emissions compliance point is before the PFS units. The purpose of changing the RCRA compliance point from before the PFS to after the PFS is to meet both the RCRA and MACT emission requirements without bypassing the PFS during the chemical agent trial burns. A common emission compliance location would also provide consistency throughout the operational life of the UMCDF.

Prior to the 1999 MACT regulations, the PFS was considered added protection in safeguarding against an accidental chemical agent release to the atmosphere and to increase public confidence and acceptance of incineration. Unlike the pollution abatement system (PAS), the PFS was not considered a necessity to operating the chemical agent disposal facilities. By using the PAS and PFS, emission control performance is enhanced and both sets of regulations can be met. Moreover, because safety is of great importance at UMCDF, the combined use of the PAS and PFS is more protective of human health and the environment. The current MACT emission limits are undergoing regulatory review and will likely be lowered significantly for some of the regulated pollutants. The dynamic changes to the emission standards further support the request to allow the use of the PFS to meet the emission rates and standards.



4. The permitted DFS rocket feed rate of 40 rockets per hour has never been achieved and the demonstrated rocket processing rate is well below 30 rockets per hour.

Based on operational data from other chemical demilitarization facilities, the DFS is capable of safely sustaining a feed rate greater than 30 M55 rockets/hour for long periods of time. The maximum permitted feed rate of 40 M55 rockets/hour is necessary in order to demonstrate an average feed rate greater than 30 M55 rockets/hour during the Trial Burns. The following information is based on rates achieved during Trial Burns and do not reflect other periods when the facility achieved rates greater than 30 M55 rockets/hour.

a. TOCDF DFS GB ATB2

- 18 November 1998 - Run #1 average rocket throughput rate during test was 30.8 rockets/hour (waste feed occurred for 7.17 hours).
- 19 November 1998 - Run #2 average rocket throughput rate during test was 33.6 rockets/hour (waste feed occurred for 7.02 hours).
- 21 November 1998 - Run #3 average rocket throughput rate during test was 33.0 rocket/hour (waste feed occurred for 8.33 hours).

b. TOCDF TSCA Research & Development Burn

- 30 November 1995 - Run #1 average rocket throughput rate during test was 28.9 rocket/hour.
- 30 November 1995 - Run #2 average rocket throughput rate during test was 32.5 rockets/hour.
- 01 December 1995 - Run #3 average rocket throughput rate during test was 31.3 rockets/hour.

c. JACADS DFS VX Rocket Trial Burn

The stack sampling associated with the JACADS DFS VX Rocket Trial Burn during the Operation Verification Testing (OVT-2) was conducted during in March 1992. The following rocket rates were demonstrated during each test run.

- Run #1 average rocket throughput rate during test was 30.8 rockets/hour.
- Run #2 average rocket throughput rate during test was 33.1 rockets/hour.
- Run #3 average rocket throughput rate during test was 32.6 rockets/hour.
- Run #4 average rocket throughput rate during test was 30.0 rockets/hour.

The maximum single shift average throughput rate goal of 32 rockets per hour was met for a 10-hour period on 23 March 1992.

d. ANCDF 90% Runs Prior to DFS GB Rocket ATB

The required 90% runs were completed on 25 and 26 October 2003. Each run was 8 hours in duration. The average rocket feed rate on 25 October 2003 was 33.69 rockets/hour with a maximum hourly average of 36 rockets/hour. The average rocket feed rate on 26 October 2003 was 33.92 rockets/hour with a maximum hourly average feed rate of 35.5 rockets/hour.

e. ANCDF Toxic Control Substance Act (TSCA) Preliminary Runs

The ANCDF conducted preliminary runs prior to the Rocket Trial Burn to satisfy TSCA requirements.

- 27/28 October 2003 - Average rocket feed rate was 31.98 over a period of 4 hours in duration.



- 6 November 2003 - Average rocket feed rate was 31.6 rockets/hour over a period of 6 hours in duration.
- 8 November 2003 - Average rocket feed rate was 25.26 rockets/hour over a period of 6 hours in duration.
- 9 November 2003 - Average rocket feed rate was 30.95 rockets/hour over a period of 6 hours in duration.

f. ANCDF DFS GB Rocket Trial Burn

The ANCDF conducted a DFS GB Rocket Trial Burn/TSCA Demonstration Test on 18, 21, 22, and 23 November 2003.

- 18 November 2003 - Average rocket feed rate was 34.42 rockets/hour over a period of 6 hours in duration.
- 21 November 2003 - Average rocket feed rate was 34.22 rockets/hour over a period of 6 hours in duration.
- 22 November 2003 - Average rocket feed rate was 33.95 rockets/hour over a period of 6 hours in duration.
- 23 November 2003 - Average rocket feed rate was 34.29 rockets/hour over a period of 6 hours in duration.

5. **Schedule is being placed ahead of safety by taking credit for the PFS so that a higher feed rate can be performed.**

Schedule is not being placed ahead of safety. Safety is the foremost concern of the UMCDF and the Army. The operating goal is to destroy the M55 rockets in a safe, environmentally compliant, and timely manner. Processing the M55 rockets at the maximum feed rates supported during the trial burns with the PFS online will allow for the maximum feed rate while limiting emission rates to levels that are protective of human health and the environment.

The schedule and safety are inextricably linked. The UMCDF Phase 2 Quantitative Risk Assessment takes the PFS into account and assumes a 5.7-year schedule for processing, which is the current schedule. Additionally, it is worthwhile noting the UMCDF has undergone numerous design changes. These changes were made to improve the operability of the facility based primarily on lessons learned at other operating facilities. Completed in 2002, the UMCDF Phase 2 Quantitative Risk Assessment takes into account the changes made to the facility up until that time. Therefore, the assessment incorporates approximately five years of improvements to the facility since the permit was issued.

To maintain required emission standards/limits under permitted rates while meeting the current processing schedule of 5.7 years, it is necessary to take credit for the PFS. If credit is not taken for the PFS, a modification to the schedule would be necessary to reduce the throughput rates for rockets. This reduced throughput rate change would increase the UMCDF processing schedule significantly. Therefore, an analysis was conducted of the change in storage risk due to extending the schedule from 5.7 years to 10.4 years. The UMCDF Phase 2 Quantitative Risk Assessment identifies the greatest contributor to public risk is storage of the munitions, so the risk of storage is critical to understanding the difference in risk between the two schedules.

Altering the schedule will affect the overall time that items remain in storage. Because it is known from existing studies that the M55 rockets dominate storage risk, processing delays affecting these items will have the greatest impact on storage risk. The schedule risk analysis (Attachment 1) concluded that the alternative schedule resulted in a significant increase (733%) in public risk over the baseline schedule due to the increased duration of GB and VX rocket storage. After the M55

rockets have been destroyed, the remaining munitions have little effect on the overall storage risk. The noted increase to public risk and other impacts far outweigh any risk posed by moving the RCRA compliance point and taking credit for using the PFS.

### **CONCLUSION**

In conclusion, the Permittees want to re-emphasize the following points:

1. The PFS and carbon filtration is proven technology.
2. As stated in the PMR, there will be no detrimental human health or environmental impacts from implementing the modification.
3. The modification change will not result in any increase in risk.
4. The permitted DFS rocket feed rate of 40 rockets per hour is the maximum feed rate UMCDF will attempt to demonstrate during the Agent Trial Burn that will be conducted on drained M55 rockets. From rocket trial burns conducted at other chemical demilitarization sites, a feed rate substantially greater than 30 M55 rockets/hour is anticipated over the duration of the UMCDF DFS M55 GB and VX rocket trial burns.
5. Safety has been and continues to be an important element to the Army and it is tied to the schedule because the major hazard to the public is from the stored munitions containing chemical agent in the stockpile.



ENCLOSURE 1

SAIC MEMORANDUM

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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## MEMORANDUM

**TO:** Mike Strong  
**FROM:** QRA Team  
**DATE:** 21 November 2003  
**SUBJECT:** Public Risk Impact Due to Permit Modification

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The UMCDF has requested a Class 3 permit modification to change the emissions point of compliance for the UMCDF incinerator from upstream of the pollution abatements system (PAS) carbon filter system (PFS) to downstream of the PFS. The reasons for the change, as identified in the permit modification request (PMR), are as follows:

- 1) To provide for a consistent approach for complying with two sets of regulations (Resource Conservation and Recovery Act (RCRA) and Maximum Achievable Control Technology (MACT)) established by the United State Environmental Protection Agency (EPA) and incorporated in the Oregon regulations, and
- 2) Eliminate the need to test the incinerators during agent trial burns with the PFS units bypassed. Currently, the trial burn program is scheduled to conduct the agent trial burns with the PFS bypassed in order to demonstrate compliance with the performance standard before entering the PFS.

Approval of this PMR will allow the UMCDF to take credit for the additional removal efficiencies provided by the PFS.

The impact to the schedule if the PMR is denied is substantial. The current baseline schedule duration is 5.7 years. The baseline schedule GB rockets campaign duration is 597 days and the VX rockets campaign duration is 137 days. If the PMR is denied the rocket processing rate would need to be limited to two rockets per hour. At this feed rate, the revised facility schedule duration would grow to 10.4 years, the GB rockets campaign would grow to 2,537 days and the VX rockets would grow to 513 days.

This modified schedule would also rely more heavily on complementary processing to expedite their schedule. Currently, in the baseline schedule, complementary processing exists during the GB rockets campaign (with MC-1 and MK94 bombs) and VX rocket campaign (with spray tanks). If the PMR is denied, the schedule will likely be modified to include the complementary processing of GB rockets with 8-inch projectiles, 155mm projectiles, MC-1 bombs, and MK-94



bombs and the complementary processing of VX rockets with 8-inch projectiles, 155mm projectiles and spray tanks.

The schedule change would have an impact on public risk, emissions, and secondary waste. The impacts are discussed in the following paragraphs.

The greatest contributor to public risk is risk associated with storage of the munitions, so the risk of storage is critical to understanding the difference in risk between the current baseline and the modified schedule (assuming the PMR is denied). Altering the schedule will affect the length of time that items remain in storage. Because it is known from existing studies that the M55 GB rockets dominate storage risk, processing delays affecting these items will have the greatest impact on storage risk. Once the rockets have been destroyed, the remaining munitions present minimal risk. Any changes made to the schedule for processing munitions other than rockets would have little effect on the overall storage risk during the lifetime of the facility.

Since continued storage risk dominates overall risk, this effort only analyzed the change in continued storage risk and did not consider the introduction of new complementary processing campaigns in the adjusted schedule. Complementary processing increases the overall disposal risk predominantly due to greater agent inventory in the building, and probability of propagation. Even though disposal risk was not explicitly calculated for this effort, the schedule would introduce an increase in disposal risk.

The public fatality risk results are summarized below in Table 1. As shown, the adjusted schedule increases the storage risk by about 733%. This increase is due primarily to extending the storage time of GB rockets. In the baseline schedule, all GB rockets are destroyed within 597 days. In the adjusted schedule, the rockets are not completely destroyed for 7 years. Because the rockets dominate the storage risk, prolonging their storage will increase public acute storage risk by an amount proportional to their length of additional storage.

Table 1: Public Storage Risk Comparison (Baseline and Modified Schedules)

	Total Public Acute Fatality Risk of Storage from Start to Completion of Disposal Processing
Baseline Schedule	$1.2 \times 10^{-2}$
Modified Schedule	$1.0 \times 10^{-1}$



# **ATTACHMENT I**

**Historical Events and Regulatory Activities  
Related to the Pollution Abatement System Carbon Filter System  
at the  
Umatilla Chemical Agent Disposal Facility**

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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Historical Events and Regulatory Activities Related to the  
Pollution Abatement System Carbon Filter System  
at the  
Umatilla Chemical Agent Disposal Facility  
April, 2004  
Oregon Department of Environmental Quality

**Introduction**

This document summarizes historical events and state regulatory activities related to the Pollution Abatement System Carbon Filter Systems (PFS) installed at the Umatilla Chemical Agent Disposal Facility (UMCDF). The chronology presented here identifies significant programmatic and regulatory events occurring from 1991 to the present in terms of inclusion, design, installation, and operation of the PFS as additional pollution abatement equipment for incinerators at three U.S. Army chemical demilitarization facilities. The information presented below is based primarily on records that are on file with the Oregon Department of Environmental Quality's (DEQ or Department) Chemical Demilitarization Program located in Hermiston, Oregon. The chronology is not intended to be all-inclusive, and focuses on events affecting the PFS at the Umatilla facility.

**1982-1985**

In 1982 the U.S. Army requested the National Research Council (NRC) undertake a study of the current state of the nation's chemical weapon stockpiles and render an opinion on disposal options and the Army's decision to use incineration as the preferred technology for disposal. In 1984 the NRC published a report titled "Disposal of Chemical Munitions and Agents" <sup>Ref. 1</sup> that endorsed the Army's selection of incineration. The NRC committee concluded that "...thermal destruction is the preferred means of disposing of the current stockpile of chemical agent weapons and munitions. The Army has already selected thermal destruction as the most appropriate method. The committee supports this decision."

**1986-1990**

In 1986 the U.S. Army submitted its first RCRA ("Resource Conservation and Recovery Act") Part B Permit Application <sup>Note a</sup> to Oregon for a hazardous waste treatment and disposal facility to incinerate the chemical weapons stored at the Umatilla

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<sup>Note a</sup> RCRA is a federal program that specifies the standards that apply to all facilities that treat, store, or dispose of hazardous waste. The RCRA permit application for a hazardous waste facility consists of two parts, Part A and Part B. Part A provides general information including the location of the facility and the types and quantities of wastes that will be managed at the facility. Part B, which has no standard format, contains detailed technical information on the facility's equipment, operating procedures, training and inspection programs, emergency prevention and response procedures, environmental monitoring systems, and other physical characteristics.

Chemical Depot (then known as the Umatilla Army Depot). During the next five years the DEQ and the U.S. Environmental Protection Agency (EPA) issued two Notices of Deficiency on the Permit Application and the Army responded with Application revisions. The PFS was not included as part of the facility design described in any of the first three revisions of the Army's Application. Construction of the Johnston Atoll Chemical Agent Disposal Facility (JACADS), the prototype for the incineration facilities to be constructed in the continental United States, began in 1985. Construction of the first continental U.S. facility, the Tooele Chemical Agent Disposal Facility (TOCDF) in Utah, was started in 1989. JACADS commenced agent disposal operations 1990. Neither the JACADS nor the TOCDF facilities were designed or constructed with a PFS.

### 1991

In May 1991 the National Research Council Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program ("NRC Stockpile Committee") sponsored a "Workshop on the Pollution Abatement System of the Chemical Agent Demilitarization System." The participants included independent experts on incineration pollution control, Army representatives, and five members of the NRC Stockpile Committee. The Workshop Summary <sup>Ref. 2</sup> stated that "Increasingly strict regulations, advances in technology for gas cleaning systems, and the requirement for dealing more effectively with transient releases prompted the [Stockpile Committee] to reexamine the existing pollution abatement system." The Workshop members reviewed the "state of the art" for emission controls, especially those that might minimize stack emissions during incinerator upset conditions.

The 1991 Workshop included discussion of the European experience with the use of activated carbon filters to treat flue gases from incineration systems. One of the conclusions of the Workshop participants was that "Use of an activated carbon filter downstream of the scrubbers would remove pulses of agent and low-level organics. It would offer an available technology for dealing with these problems and the resulting alarms. The ability to reduce mercury vapor and dioxin emissions is an additional feature of carbon."

### 1992

By May 1992 the DEQ and EPA had issued a third Notice of Deficiency on Revision #3 of the Army's RCRA Part B Application for Umatilla. In June the NRC Stockpile Committee issued a "Letter Report" titled "Review of the Choice and Status of Incineration for Destruction of the Chemical Stockpile." <sup>Ref. 3</sup> The 1992 Letter Report was considered an update of the NRC's 1984 endorsement of incineration technology for destruction of the stockpiles. In the Letter Report the NRC Stockpile Committee concluded that "Incineration followed by appropriate gas cleanup is a safe and effective technology for the destruction of chemical agents and munitions..." However, the Committee acknowledged that incineration, flue gas cleaning technology, and



performance requirements continued to evolve. The Committee included as one of its recommendations that "The Army should consider incorporating passive controls, such as activated charcoal beds, to ensure the lowest emissions even under temporary upsets..."

In November 1992 the Army responded to the third Notice of Deficiency issued by DEQ and EPA, but there was still no mention of including activated carbon filters as part of the UMCDF pollution abatement system design.

### 1993

In April the DEQ and EPA issued a fourth Notice of Deficiency (NOD) on the Umatilla Part B Application, which the Army responded to in June. Because of growing concern about incineration, Congress directed the U.S. Army to study the availability of alternatives to incineration for disposal of the remaining stockpiles in the U.S. The Army turned again to the NRC, which formed the "Committee on Alternative Chemical Demilitarization Technologies ("Alternatives Committee").

In June 1993 the Alternatives Committee released a report titled "Alternative Technologies for the Destruction of Chemical Agents and Munitions." <sup>Ref. 4</sup> The report evaluated numerous possible alternative technologies, including neutralization, biodegradation, wet air oxidation, and plasma arc pyrolysis and concluded that although there were promising alternatives to incineration, significant research and development were still needed. However, the report concluded that "The risks of toxic air emissions can be virtually eliminated for all technologies through waste gas storage and certification or treatment by activated carbon adsorption."

The construction of TOCDF (the facility in Utah) was completed in July 1993 and the "systemization" process began in preparation for agent disposal operations. TOCDF was not constructed with a PFS as part of its pollution abatement system.

### 1994

In February 1994 the NRC Stockpile Committee published a report titled "Recommendations for the Disposal of Chemical Agents and Munitions." <sup>Ref. 5</sup> The 1994 NRC Report included a finding that:

"The Stockpile Committee finds the baseline system to be adequate for disposal of the stockpile. Addition of activated carbon filter beds to treat all exhaust gases would add further protection against agent and trace organic emissions, even in the unlikely event of a substantial system upset. If the beds are designed with sufficient capacity to absorb the largest amount of agent that might be released during processing, addition of these beds could provide further protection against inadvertent release of agent."

The finding was followed by a recommendation that "The application of activated charcoal filter beds to the discharge from baseline system incinerators should be

evaluated in detail, including estimations of the magnitude and consequences of upsets, and site-specific estimates of benefits and risks. If warranted, in terms of site-specific advantages, such equipment should be installed.”

In early 1994 the Army submitted a Class 2 Permit Modification Request <sup>Note b</sup> to the Utah DEQ to install a PFS on the TOCDF. The Utah DEQ reclassified the Permit Modification Request as a Class 3 Request. In April the Utah DEQ issued a “Temporary Authorization” to the Army to begin construction activities associated with the proposed addition of the PFS, and also issued the Army a Notice of Deficiency on the Permit Modification Request.

Also in April 1994 the Army submitted a “Report to Congress” <sup>Ref. 6</sup> in response to the NRC’s 1993 Alternative Technologies Report and the 1994 Recommendations Report. The Report to Congress stated that the Army concurred with the NRC’s recommendation to conduct site-specific evaluations of adding carbon filters to the pollution abatement systems and that “The Army’s preliminary assessment indicates that carbon filters integrated into the Baseline [incineration] pollution abatement system would provide an additional level of safety and environmental protection. The Army recommends an evaluation at Tooele and parallel implementation of a carbon filter modification to the baseline process.”

By June the Army had completed its evaluation of the NRC’s recommendations concerning the inclusion of carbon filters as part of the pollution abatement systems on chemical demilitarization incineration facilities. The Army started work on modifying the UMCDF RCRA Part B Application to include carbon filters in the pollution abatement system design. Similar modifications were made to the design of the chemical demilitarization facilities at Anniston, Alabama and Pine Bluff, Arkansas.

In August the Army requested that the National Chemical Agent Demilitarization Workgroup (a workgroup composed of state and federal environmental regulatory personnel) form a subcommittee to address issues related to PFS. The lead Umatilla Permit Writer for the Oregon DEQ was named as a member of the subcommittee. (However, no further mention of the subcommittee is found in the record, and no meetings apparently took place.)

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<sup>Note b</sup> There are three “classes” of RCRA Permit Modifications. Class 1 modifications are considered minor and usually involve administrative changes or minor corrections. Class 2 modifications are significant changes to the permit and are used primarily to address improvements in technology and management of the facility. Class 3 modifications are considered major changes. Class 2 and Class 3 modification requests require public comment opportunities.



## 1995

In February (in response to the fifth Notice of Deficiency on the Umatilla Part B Application issued in March, 1994) the Army submitted a completely revised UMCDF RCRA Part B Permit Application. This was the first revision of the UMCDF Part B Application that included even a preliminary design concept for the PFS.

In July the Army decided to withdraw its application to the Utah Department of Environmental Quality to construct and operate a PFS at the Tooele Chemical Agent Disposal Facility. In December the Army informed the National Chemical Agent Demilitarization Workgroup that the preliminary results from bench-scale testing of a conceptual design of the PFS were not promising and the Army intended to evaluate alternative designs. As a result, the original plan to construct a demonstration unit at the Tooele facility was put on hold.

## 1996

On January 11, 1996 the Environmental Quality Commission (EQC or Commission) held a half-day worksession to receive its first in-depth briefing on the proposed incineration facility at the Umatilla Depot. The records do not reflect any specific discussion about the PFS. In March the DEQ formally requested that the Army provide updated Permit Application change pages and drawings to resolve final issues related to the Application submitted in February, 1995. The Army responded late in the month with the requested change pages. None of the revisions were related to the PFS.

In April, after receipt of the final change pages, the DEQ issued a "completeness" letter for the RCRA Part B Permit Application. The UMCDF Draft Hazardous Waste Treatment and Storage Permit and Draft Air Contaminant Discharge Permit were then issued for public comment. Public comment was also requested on the Draft Screening Level Human Health and Ecological Risk Assessment prepared by Ecology and Environment (DEQ's Contractor) and on the Commission Findings required by Oregon Revised Statutes. The public comment period was initially set to end in mid-June. The Draft HW Permit issued for comment did not contain any permit conditions specifically related to the PFS.

On April 12 the Commission met in Portland and received a briefing from DEQ staff on the proposed Umatilla permits and the Commission findings. Representatives of the Oregon Environmental Council and Greenpeace provided testimony. There was no discussion specific to carbon filtration of stack gases. Activities continued in May as members of the Commission traveled to Utah to tour TOCDF and DEQ held public hearings in Pendleton and Portland, Oregon and in Kennewick, Washington to hear public comments on the proposed permits, the Commission findings, and the draft risk assessment.

In mid-May the Commission conducted a two-day work session in Portland for the proposed Umatilla facility. DEQ staff presented information about the air permit and the Pre-Trial Burn Risk Assessment. The Department of Justice reviewed the findings the Commission must make. There was a panel discussion about alternatives to incineration that included presenters from the NRC, U.S. Army, vendors of three alternative technologies, and a representative from Greenpeace.

On the second day of the work session the Commission received a briefing from Oregon Emergency Management and Morrow County Emergency Management concerning the Chemical Stockpile Emergency Preparedness Program (CSEPP). Members of Greenlaw and Greenpeace gave a presentation on risk assessment. Public testimony was received from nine different speakers, including representatives of local government, the Citizens Advisory Commission, Greenpeace, and the Confederated Tribes of the Umatilla Indian Reservation. Review of transcripts from the May 15-16, 1996 meeting of the Commission do not reflect any specific discussion of either carbon filtration of stack gases in general or the UMCDF PFS specifically.

In June DEQ held a fourth public hearing in Hermiston, Oregon. The public comment period that was due to close on June 17 was extended through November 15, 1996 due in part to the Commission's desire to hold the comment period open until the NRC published a new review of alternative technologies, which was due to be published in early fall.

In July the Commission received a presentation from DEQ staff and the DEQ risk assessment contractors responding to risk assessment issues brought up during the May work session. During a discussion of the conservative assumptions that were used in the health risk assessment, <sup>Ref. 7</sup> the DEQ permit writer pointed out that "carbon filters are not credited with any emission reduction at the common stack even though we predict further removal of emissions including dioxins and other organics from these exhaust data." This is the first specific mention of the PFS carbon filters that could be found in the record (although dioxin emissions were frequently discussed during the previous meetings).

At the same meeting U.S. Army representatives responded to questions concerning safety and alternative permitting scenarios. <sup>Note c</sup> During the Army's description of the facility there was a brief exchange about the carbon filter systems between then-Chairman Lorenzen of the Commission and Lt. Colonel Ontiveros of the Army. The exchange highlights that as late as July 1996 there was still uncertainty about whether the PFS was actually going to be installed:

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<sup>Note c</sup> At the time the EQC was considering the possibility of requiring neutralization for disposal of the mustard agent in the Umatilla stockpile.



Chairman Lorenzen: Will the Umatilla facility have the charcoal filters on it?

LTC Ontiveros: [The] Umatilla facility has the charcoal filters inside our permit.

However [the Army is] evaluating what exactly is the performance of that particular unit...

Chairman Lorenzen: I would like to have, ultimately, whether this be from staff or others, a little more discussion on the status of the requirement of carbon filters within the permit, whether that is something that is there [and] what are the considerations in keeping it in or keeping it out?"

On August 8, 1996 <sup>Ref. 8</sup> the DEQ enlisted the assistance of the Oregon State University (OSU) Chemical Engineering Department to provide additional engineering assistance to respond to questions about dioxin emissions that were raised during the July Commission meeting. (Ecology and Environment, the DEQ's risk assessment contractor, also responded to questions about how dioxin was modeled in the health risk assessment.) OSU was asked to answer questions about how dioxin is formed and how much dioxin might be formed under different combustion conditions and with different waste feeds. OSU was also asked what would be the "state of the art design technology" to prevent dioxin formation in a combustion process. OSU was also asked to provide the "essential design elements of a pollution abatement system for controlling dioxin emissions from a combustion process." The answers to these last two questions were an important basis by which the Commission made the decision to require the Army to install the PFS at UMCDF.

TOCDF, the disposal facility in Utah commenced chemical agent disposal operations on August 22, 1996 and continues to operate to this day (no PFS was ever installed). On the same day that TOCDF operations started, the Commission began a two-day work session in Hermiston that included a tour of the Umatilla Army Depot and a question and answer period on various Umatilla subjects including proposed federal legislation, alternative technologies, dioxin emissions, and stockpile storage risks. Dr. Kristina Iisa of the OSU Chemical Engineering Department attended a portion of the work session to briefly answer questions specifically related to dioxin emissions. <sup>Note d</sup>

During an evening session the Commission heard public testimony from 30 people. The following day the Commission received a presentation from DEQ staff concerning the issue of how the Commission would decide whether incineration

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<sup>Note d</sup> There is no transcript of the portion of this meeting when Dr. Iisa spoke with the Commission, and the audiotape was of poor quality. However, Dr. Iisa was only before the EQC for a short time and at that point had not prepared any written responses to the questions posed to OSU two weeks prior. Additional and more in-depth discussions regarding dioxin control occurred at the November 15, 1996 meeting.



represented "Best Available Technology." The presentation included videos provided by alternative technology vendors. The Commission agreed on a list of six evaluation criteria to be used as a basis for the finding of Best Available Technology.

On September 27 the Commission held another work session <sup>Ref. 9</sup> in Portland and heard public testimony from the Oregon Environmental Council, Greenpeace, the Oregon Center for Environmental Health and a member of a DEQ Air Quality Advisory Committee. DEQ staff presented a draft staff report concerning each of the Commission findings that had to be made before approving the UMCDF HW Permit. There was also a presentation of possible additional permit conditions to be incorporated into the HW Permit in response to public comments and Commission concerns. <sup>Ref. 10 Ref. 11</sup> One of the conditions that the Department proposed to add to the HW Permit required that the Permittees "build and operate" the PFS and that any proposal to remove the PFS would be a Class 3 permit modification request requiring Commission approval. However, this particular permit condition was not specifically discussed during the meeting.

In early September the NRC Panel on Review and Evaluation of Alternative Chemical Disposal Technologies published a report titled "Review and Evaluation of Alternative Chemical Disposal Technologies." <sup>Ref. 12</sup> The report evaluated alternative disposal technologies for only the two bulk storage sites <sup>Note e</sup> in Maryland and Indiana. The report recommended the use of neutralization followed by biodegradation for the mustard agent HD stored in Maryland and neutralization (followed by off-site treatment) of the nerve agent VX stored in Indiana. <sup>Note f</sup>

Also in September the "Umatilla Chemical Agent Disposal Facility Phase I Quantitative Risk Assessment" <sup>Ref. 13</sup> (Phase I QRA) was published by Science Applications International Corporation (SAIC), an Army contractor. The Phase I QRA assessed the catastrophic risks associated with storing, handling, and processing the chemical stockpile. The Phase I QRA did not assess the risks of the PFS because the PFS design was not yet complete. The Phase I QRA concluded that the risk of injury or death from an incident during storage far exceeded the potential risks associated with disposing of the stockpile.

In October, as part of a regular meeting in Astoria, the Commission heard a presentation on the status of emergency response issues. Presenters include Umatilla and Morrow County Commissioners, the U.S. Army, Oregon Emergency Management,

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<sup>Note e</sup> The stockpiles in Maryland and Indiana contain storage containers only and do not include any "assembled" chemical munitions such as rockets, artillery shells, or land mines.

<sup>Note f</sup> The EQC had been waiting for the publication of this report, and had extended the public comment period earlier in the summer so that the report could be considered. However, the EQC is somewhat disappointed that the analysis of alternatives focused only on disposal of bulk containers of chemical agent and provides no insight to alternatives to assembled chemical weapons.



Federal Emergency Management Agency, and the Project Manager for the Chemical Stockpile Emergency Preparedness Program. This meeting was focused on emergency management issues and no discussion of carbon filters was noted in the record.

As part of its regular meeting in Portland on November 15 the Commission had another work session and public forum. The Commission heard a presentation from the Confederated Tribes of the Umatilla Indian Reservation. The Tribes called for additional public involvement, further evaluation of alternatives, construction of a reconfiguration facility, and appointment of a Governor's task force. Several groups testified during the public forum in support of the Tribes' proposal urging a "moratorium" on issuing the permit. During the work session the Commission heard again from Dr. Iisa of OSU and again reviewed the DEQ's revised "Findings" staff report (originally presented at its September meeting) and the draft "Best Available Technology Report" from DEQ and its contractor.

During the meeting Dr. Iisa presented her answers to each of the questions posed by the DEQ regarding the formation and control of dioxin in combustion systems. Dr. Iisa's report <sup>Ref. 14</sup> concluded that:

1. Sulfur inhibits dioxin formation;
2. Other factors are more important in setting dioxin emissions than the chlorine content in the feed;
3. The dioxin emissions from UMCDF will not be significantly different than emissions from similar plants burning natural gas only (even without the carbon filters);
4. The design of the incinerator is not important as long as proper combustion conditions are maintained;
5. The most important features of a pollution abatement system for minimization of dioxin emissions are rapid cooling of the flue gases and removal of dioxin by carbon filters (UMCDF employs both methods); and
6. No other method offers better dioxin removal than activated carbon filters.

During her testimony before the Commission Dr. Iisa pointed out that there are benefits of the carbon filter system aside from additional dioxin control, such as buffering capacity for other emissions or for accidental releases of agent. Dr. Iisa pointed out that because of the excess adsorption capacity inherent in a fixed bed carbon filter that "even if you have a higher concentration in the inlet to the carbon filter, you will still have about the same concentration at the outlet..." <sup>Ref. 15</sup> The Commission also learned at this meeting that the carbon filter system is also capable of removing mercury from the system.

On November 22 the Commission met in Pendleton <sup>Ref. 16</sup> to hear final briefings from the U.S. Army and DEQ staff and to discuss again each of the findings and proposed hazardous waste permit conditions developed by the DEQ in response to Commission and public concerns. At this meeting each member of the Commission indicated that he or she would vote to find that incineration is the “best available technology.” Chairman Lorenzen was clear that his finding of best available technology was based in large part on the inclusion of the PFS in the design. After each of the other findings was discussed and approved, the Commission and the Department reviewed each of the new permit conditions that were being proposed for inclusion in the hazardous waste permit. <sup>Ref. 17</sup> The proposed permit condition presented at this meeting regarding the PFS stated that:

“Permittee shall build and operate the PAS Filter Systems in accordance with [the application]. Any future modification request that includes removal of the PAS Filter System shall be decided by the Commission. The Commission must make a finding of the two criteria at ORS 466.055(3) and 466.055(5), and then decide on the modification request as a class three modification.” <sup>Note g</sup>

The Department also pointed out to the Commission that there were additional conditions being added to the permit related to PFS operational parameters, such as inlet temperature and moisture limitations. No specific mention was made about the revision to the permit conditions related to each incinerator meeting performance standards and emission limits “before entering” the carbon filters.

After extensive discussion through the remainder of the day about proposed permit conditions the Commission instructed DEQ staff to prepare a final permit with the additional conditions as imposed by the Commission and other changes as approved and also to prepare a Commission Order with Findings and Conclusions for signature by the Chairman. It was agreed that the Department would prepare a draft Order for Commission review and the final Order of the Commission would be reviewed and approved by the Commission at a later meeting as soon as the document was prepared.

## 1997

Between November 22, 1996 and January 30, 1997 the Department worked with the Attorney General’s office and drafted the “Findings and Conclusions of the Commission and Order.” The Department also incorporated the additional conditions into the hazardous waste permit and prepared the final documents. The draft Order and

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<sup>Note g</sup> The statutory references are to requirements applicable to new hazardous waste treatment facilities, namely that the EQC must find that the “proposed facility uses the best available technology” and that the proposed facility will have no “major adverse effect” on public health and safety or the environment of adjacent lands.



the final hazardous waste permit were transmitted to the Commission members <sup>Note h</sup> on January 30, 1997. <sup>Ref. 18</sup>

On February 7, 1997 the Commission held a special teleconference meeting to approve the final revisions to the HW Permit and the "Findings and Conclusions of the Commission and Order" (included as Attachment J to this Staff Report). The final version of the permit condition specifically related to the PFS removed the requirement to revisit the "Best Available Technology" finding in the event of major modification to the PFS, although the requirement that any proposed change be a Class 3 modification requiring commission approval was retained. The final HW Permit condition (II.R.) related to the inclusion of the PFS stated that:

"Permittee shall build and operate the Pollution Abatement System (PAS)/PAS Filter Systems in accordance with [the application]. Removal of any component of the PAS filter Systems, including but not limited to, the quench tower, venturi scrubber, packed scrubber tower, demister, or carbon filter system shall be a Class 3 permit modification and shall require Commission approval."

In addition to the change above, additional wording was added to HW Permit Conditions VI.A.1. and VII.A.8. requiring that performance standards be met "before entering each incinerator's carbon filter system." <sup>Note i</sup> During the discussion after the Commission had moved to approve the documents before them, Chairman Lorenzen made the following statement: <sup>Ref. 19</sup>

"...for the record I want to stress two aspects in particular of what has been added to the permit conditions as a result of Commission action. First is the addition and strengthening of the language, although in the original permit the carbon filters were in fact part of the permit, but the Commission did strengthen the language relating to carbon filters. And I want to say that in my mind the conclusion of best available technology is specifically dependent upon the utilization of carbon filters on the exhaust of each of the incinerators. The permit has been written in such a manner that the discharge standards must be met before entering into the carbon filters, and the carbon filters will then provide an additional degree of environmental protection, and that degree is not slight.

"According to the testimony which we heard, in Europe the experience with carbon filters, activated carbon filters, has been that the further reduction of

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<sup>Note h</sup> The January 30, 1997 transmittal memo indicates that two attachments to the Order (one of which was the summary of public comments and Commission's responses, including the listing of specific conditions added to the permit) were not included in the transmittal, but the transcript of the February 7, 1997 indicates that the attachments were sent to the Commission prior to the meeting.

<sup>Note i</sup> The addition of the phrase "before entering" to these permit conditions was never specifically discussed or called out in the meeting, although Chairman Lorenzen did mention the requirement during the discussion.



dioxin has been in the order of magnitude of five-hundred to fifteen-hundred times. I don't mean to quibble with that or state that as a fact, but that is the testimony we heard, and my conclusion that this is best available technology is specifically dependent upon the additional protection that will be provided by these filters. I recognize they are expensive and they are difficult to operate but they are an integral part of this permit. And that if there is a substantial—a request for modification to these filter systems, in my mind it would then open the permit again for a thorough re-evaluation of best available technology.” *Note j*

At the conclusion of the discussion the Commission unanimously adopted the Order and approved the UMCDF HW Permit. The Order was signed on February 10, 1997. *Ref. 20* The Army awarded the Umatilla construction and operation contract to Raytheon Demilitarization Company and construction of the Umatilla Chemical Agent Disposal Facility was started in June, 1997. That same month the Commission denied a “Petition for Reconsideration” of its permit decision that was filed by GASP, the local opposition group based in Hermiston.

In August 1997, after the Commission denied the Petition for Reconsideration, GASP filed a “Petition for Review” *Ref. 21* with the Multnomah County Circuit Court in Portland, Oregon. This lawsuit has become known as “GASP I.” The Petition challenged the Umatilla Chemical Agent Disposal Facility permits issued in February 1997, stating that the findings and conclusions of the DEQ and the Commission were “not supported by substantial evidence,” and “failed to comply with state and federal requirements.” The design and safety of the PFS was one of many issues listed in the Petition.

In September the NRC Stockpile Committee published “Risk Assessment and Management at Deseret Chemical Depot and the Tooele Chemical Agent Disposal Facility.” *Ref. 22* The NRC recommended that “the Army should proceed with the application of its proposed [Quantitative Risk Assessment] methodology for evaluating the use of PAS carbon filters on a site specific basis. For consistency with the HRA [Health Risk Assessment] assumptions, the QRA should take into account the possible sudden release of agent that may have accumulated on the filter at a gas concentration equal to the lower detection limit.” The report also briefly discussed the state of the PFS design and offered suggestions concerning the type of risks that should be evaluated.

In November 1997 the UMCDF Permittees submitted a Class 2 Permit Modification Request with a Temporary Authorization Request titled “Carbon Filter

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*Note j* Although Chairman Lorenzen clearly indicated that in his mind the presence of the carbon filters was part of his finding of Best Available Technology, none of the other Commissioners ever explicitly stated that same opinion. In addition, the final version of the permit condition approved by the Commission had clearly been modified from the original proposal to remove any reference to re-visiting the statutory findings in the event of major modification to the PAS carbon filter systems.



Systems and Removal of the Acid Wash System.” *Ref. 23* This Class 2 Permit Modification was the first proposed design change to the PFS since the preliminary design was included in the Permit Application in 1995.

## 1998

In October 1998 the U.S. Army Program Manager for Chemical Demilitarization published a Letter Report titled “Umatilla Chemical Agent Disposal Facility Pollution Abatement Filter System Summary of Risk Assessment Results.” *Ref. 24* The document stated that “The results...indicate that the current plan to install and operate the PFS at UMCDF remains the best course of action for maximizing human health and environmental protection.” Also in October, there was a hearing for oral arguments in the GASP I case before Judge Michael Marcus of the Multnomah County Circuit Court.

In November 1998 the Department approved the Class 2 Permit Modification Request submitted the previous year. *Note k* However, the Department’s approval *Ref. 25* was conditional and required UMCDF to provide updates to certain specifications and add some additional permitted instruments. There are also several requirements listed in the conditional approval related to trial burn plans and trial burns.

In December 1998 Judge Marcus ruled in the GASP I case. *Ref. 26* He found that “apart from one critical ambiguity, the findings, conclusions, and procedures of the respondents [DEQ/EQC] were consistent with applicable law, supported by substantial evidence in the record as of the time that record closed, and within the discretion afforded to the respondents.”

The “critical ambiguity” identified by the Court related to how much the Commission relied on the PFS to make its finding that the Umatilla facility used the “Best Available Technology.” The Court remanded the February, 1997 Order (which granted the permits to the Umatilla facility) back to the Commission to “determine what role the PAS carbon filters play[ed] in their analysis.”

## 1999

During 1999 the UMCDF Permittees continued to study and revise the design and operation of the PFS. Two Class 2 Permit Modification Requests were submitted to update and/or upgrade the incinerator pollution abatement systems, including changes

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*Note k* The UMCDF Permittees submitted a significant amount of “supplemental” material after the close of the comment period on this permit modification request. The Department deemed the new material significant enough to require the opening of a second comment period.

related to the PFS. <sup>Note l</sup> In addition, a Class 1 Permit Modification Request was submitted to update one of the specifications in the Permit Application related to the PFS. <sup>Note m</sup>

In response to the Order from the Circuit Court the Commission took written comments during an open public comment period and on March 19, 1999 issued a "Clarifying Order" (Included as Attachment K to this Staff Report). The Clarifying Order stated that the Commission "did not rely on PAS carbon filters in finding that the baseline incineration technology is the best available technology for destruction of agent at Umatilla," and that the Commission required the inclusion of the PAS carbon filters for "an additional measure of safety." <sup>Ref. 27</sup> Adoption of the Clarifying Order on March 19 carried with four "yes" votes and one abstention. <sup>Ref. 28</sup> The abstaining Commissioner was appointed in 1997 to fill the position left vacant by the departure of Henry Lorenzen and so had not been on the Commission at the time of the 1997 Order.

After a hearing for oral arguments held on June 1, 1999 the Court ruled that the March 1999 Clarifying Order satisfactorily resolved the ambiguity identified by the Court in its December 6, 1998 Ruling. Consequently, Judge Marcus affirmed the February 1997 Order of the Commission granting the permits for the Umatilla facility. <sup>Ref. 29</sup> During the June hearing the DEQ and the Commission agreed to hold further proceedings to address the issues related to the carbon filter system that had been brought forth by GASP. (DEQ and EQC also agreed to treat a letter that the Petitioners sent to the Commission in December, 1998, as a request for revocation of the permits.) <sup>Note n</sup>

In accordance with the agreement with the Court in June, the Commission opened a 60-day public comment period on July 19, 1999 to invite comment on whether the pollution abatement system carbon filters should be retained at UMCDF. On August 19 the Commission held a special work session and heard presentations from the National Research Council, the U.S. Army, Raytheon Demilitarization Company, <sup>Note o</sup> and representatives from GASP. <sup>Ref. 30</sup> (Just a few days before this work session the NRC Stockpile Committee had released a report titled "Carbon Filtration for Reducing

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<sup>Note l</sup> "Deactivation Furnace System Pollution Abatement System Design Upgrade" [Tracking Number UMCDF-99-036-DFS(2)], approved by the Department on February 9, 2001; and "Metal Parts Furnace and Associated Pollution Abatement System Update" [UMCDF-99-044-MPF(2)], approved by the Department on December 18, 1999.

<sup>Note m</sup> Update to Specification 15987 for the Pollution Abatement System (PAS) Filter Units [UMCDF-99-042-CONS(1R)], approved by the Department on August 4, 2000.

<sup>Note n</sup> In July 1999 GASP appealed the Circuit Court's GASP I ruling with the Oregon Court of Appeals and in August 1999 GASP filed a new "Petition for Review" with the Circuit Court (GASP II) challenging the March 19, 1999 "Clarifying Order" issued by the EQC. The GASP I appeal is still pending.

<sup>Note o</sup> Raytheon Demilitarization Company is now known as Washington Demilitarization Company.



Emissions from Chemical Agent Incineration.” *Ref. 31*) On November 19, 1999 the Department presented a staff report *Ref. 32* to the Commission that recommended that the PFS be retained as part of the UMCDF design. The Commission concurred with the Department’s recommendation and declined to remove the requirement that the PFS be installed and operated at UMCDF (a partial copy of the 1999 staff report is included as Attachment L of this Staff Report).

After the August work session, but before the November 19, 1999 decision to retain the PFS in the UMCDF design, a separate public comment period was opened to consider the “Request for Revocation” filed by the GASP Petitioners in December, 1998. The comment period on the Revocation Request opened on October 17, 1999. The November 19 meeting of the Commission included an opportunity for GASP to present oral testimony to the Commission related to the Revocation Request. *Ref. 33* The comment period was held open through December 18, 1999 (four written comments were received).

## 2000-2002

During 2000 the Permittees submitted two more Class 1 Permit Modification Requests related to the PFS, both of which involved updates to PFS specification sections in the Permit Application. *Note p* On May 18, 2000 the Department presented a staff report to the Commission in the matter of the Request for Revocation of the UMCDF permits by GASP (the meetings and activities related to retaining the PFS were considered part of the Revocation Request proceedings). The Department recommended that the Request for Revocation be denied. Because of the absence of one of the Commissioners and the voluminous amount of written material and oral testimony received the Commission decided to delay a final decision until its next meeting. On July 14, 2000 the Commission voted unanimously to deny the Request for Revocation. *Ref. 34*

On June 19, 2000 Judge Marcus of the Circuit Court affirmed the March 1999 Commission “Clarifying Order” related to the role that the carbon filters had played in the finding that incineration was “Best Available Technology.” *Ref. 35* GASP filed an appeal on July 17, 2000 with the Oregon Court of Appeals (the case, known as “GASP II,” is still pending with the Court of Appeals).

In November 2000 the Johnston Atoll Chemical Agent Disposal System (JACADS) completed the destruction of the chemical agent stockpile on Johnston Atoll. Processing of secondary waste and other closure activities commenced. Spent carbon from building filters (no PFS was ever installed on the incinerator pollution abatement

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*Note p* “Update to Specification Section 15828 Pollution Abatement System (PAS) Filter System (PFS) Clean Liquor Air Cooler” [UMCDF-00-001-CONS(1R)] and “Design Modifications to Specification Section 15829, PFS Gas Reheater [UMCDF-00-014-CONS(1R)], both approved by the Department on August 4, 2000.



systems) was incinerated in the Deactivation Furnace System (the same system that the DEQ expects to be proposed for UMCDF).

In July 2001 the UMCDF Permittees submitted a Class 1 Permit Modification Request to update Specification 15987 (Specification for Pollution Abatement System (PAS) Filter Units). The Request was approved by the Department on October 26, 2001.

## 2002-2004

In January 2002 personnel from the Centers for Disease Control (CDC) visited UMCDF to assess the feasibility of the chemical agent monitoring scheme between the various banks of carbon filters within the PFS. The CDC concluded that the existing monitoring scheme was “infeasible and probably unnecessary” and recommended consideration of a new sampling scheme.<sup>Ref. 36</sup> The CDC concluded that “the possibility for breakthrough of agent [through the PFS] appears remote.” In response to the observations of the CDC the UMCDF submitted a Class 2 Permit Modification Request on March 25, 2003 titled “Carbon Filter System Agent Monitoring Changes.”<sup>Note q</sup> (The Request was approved by the Department on January 9, 2004.)

On July 7, 2002, after a public comment process, the Department granted approval to UMCDF to begin hazardous waste operations. The HW Permit requirement that an incinerator’s PFS be online at all times hazardous waste is being fed has remained unchanged since the UMCDF permit was issued in early 1997. In early 2003 UMCDF conducted its first “Surrogate Trial Burn” (STB) on Liquid Incinerator 1 (LIC 1). The STB include “spiking” of metals into the waste feed to simulate the metals content in the chemical agent and munitions. The LIC1 STB results indicated that the incinerator met all of the emission limits and performance standards, regardless of whether or not the PFS was online.<sup>Note r</sup> Shakedown and testing of the Deactivation Furnace System (DFS) was also being conducted in 2003. Results of preliminary testing conducted throughout 2003 indicated that, unlike LIC1, the DFS would have difficulty meeting some of the metal emission limits when the furnace was operated at the planned feed rates and with the PFS offline.

On September 16, 2003 the UMCDF Permittees submitted a Class 3 Permit Modification Request [UMCDF-03-041-PFS(3)] titled “Change in Incinerator Emissions Compliance Point.” The modification request proposed to eliminate the requirement that the incinerators meet emission limits before the PFS and instead UMCDF should be

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<sup>Note q</sup> Carbon Filter System Agent Monitoring Changes [UMCDF-03-014-PFS(2)], approved by the Department on January 9, 2004.

<sup>Note r</sup> To demonstrate that the incinerators can meet emission limits “before entering” the PFS, surrogate trial burn sampling was conducted with the PFS both “online” and “offline” because sampling in the ductwork before the PFS when it is online is not possible due to extreme negative pressure conditions.



allowed to measure emissions after stack gases pass through the PFS. Part of the stated justification for the permit modification was that on September 30, 2003 new metals emission standards were going into effect for UMCDF. The new standards are contained in 40 CFR 63 (Subpart EEE) and are referred to as the Maximum Achievable Control Technology (MACT) standards. MACT standards apply at the point emissions enter the atmosphere (which in UMCDF's case means a point after the PFS carbon filters). Consequently, without a change in the HW Permit UMCDF would be required to comply with one set of emission standards after the PFS and a different set of emission standards (the RCRA standards) before the PFS.

A 60-day public comment period on the "Change in Incinerator Emissions Compliance Point" was held open from September 17 through November 17, 2003 (a public information meeting was held on October 21, 2003). The DEQ issued a "Notice of Deficiency" (NOD) on November 5, 2003, which the Permittees responded to on December 1, 2003. On January 14, 2004 the Department made a tentative decision to recommend that the Commission approve the proposed modification. DEQ opened a 45-day public comment period on January 14, 2004. On February 5 the Commission heard oral testimony on the proposed modification and the DEQ also held a public hearing in Hermiston on February 18, 2004. The comment period closed on March 1, 2004.

The Surrogate Trial Burn on the Deactivation Furnace System (DFS) was completed in October, 2003. As expected, results indicated that the DFS was unable to meet emission limits (both RCRA and the new MACT standards) for some metals under some conditions when the PFS was offline. The STB on the Metal Parts Furnace was completed on February 1, 2004. Final results are not yet available, but preliminary test results indicate that the Metal Parts Furnace was able to meet its performance standards and emission limits, even with the PFS offline. The second liquid incinerator (LIC2) is scheduled to undergo a STB in late May or early June, 2004.

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<sup>17</sup> *Department Recommended Permit Conditions in Response to Public Comment and to Issues Raised at Commission Meetings*, Department of Environmental Quality, November 22, 1996 (DEQ Item No. 2046).

<sup>18</sup> Memorandum from Brett McKnight, DEQ Eastern Region Hazardous Waste Manager to Environmental Quality Commission, *Transmittal of Umatilla Chemical Depot Materials*, January 30, 1997 (DEQ Item No. 40).

<sup>19</sup> *Transcript of Proceedings of the Environmental Quality Commission Meeting held February 7, 1997*, AccuData Transcription Service, December 15, 1997 (DEQ Item No. 2888).

<sup>20</sup> *Findings and Conclusions of the Commission and Order In the Matter of the Application of the U.S. Army for a Permit to Construct and Operate a Chemical Weapons Demilitarization Facility at the Umatilla Chemical Depot*, February 10, 1997 (DEQ Item No. 98-1458).

<sup>21</sup> *Petition for Review*, filed with the Multnomah County Circuit Court by GASP, Oregon Wildlife Federation, Sierra Club, and 22 individual petitioners, assigned Case No. 9708-06159 (GASP I) (DEQ Item No. 98-1264).

<sup>22</sup> *Risk Assessment and Management at Deseret Chemical Depot and the Tooele Chemical Agent Disposal Facility*, National Research Council Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program, September, 1997 (DEQ Item No. 3165).

<sup>23</sup> *Carbon Filter Systems and Removal of the Acid Wash System*, Permit Modification Request UMCDF-97-005-PAS(2TA) (DEQ Item No. 2812).

<sup>24</sup> *Letter Report: Umatilla Chemical Agent Disposal Facility Pollution Abatement Filter System Summary of Risk Assessment Results*, U.S. Army Program Manager for Chemical Demilitarization, October, 1998 (DEQ Item No. 98-1416).

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<sup>26</sup> *Opinion and Order on Cross Motions for Summary Judgment*, Case No. 9708-06159 (GASP I), Judge Michael Marcus, Multnomah County Circuit Court, December 6, 1998 (DEQ Item No. 98-1277).

<sup>27</sup> *Order Clarifying Permit Decision*, In the Matter of the Application of the United States Army for a Permit to Construct and Operate a Chemical Weapons Demilitarization Facility at the Umatilla Chemical Depot, Environmental Quality Commission, March 19, 1999 (DEQ Item No. 99-0490).

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<sup>28</sup> *Minutes of the Two Hundred Seventy-Fifth Meeting of the Environmental Quality Commission* held on March 19, 1999 (DEQ Item No. 99-0732).

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<sup>31</sup> *Carbon Filtration for Reducing Emissions from Chemical Agent Incineration*, National Research Council Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program, August 12, 1999 (DEQ Item No. 99-1410).

<sup>32</sup> *Carbon Filter System Pollution Abatement System (PFS) at the Umatilla Chemical Agent Disposal Facility*, Agenda Item G, Meeting of the Environmental Quality Commission held on November 18-19, 1999 (DEQ staff report) (DEQ Item No. 99-1815).

<sup>33</sup> *Transcript of Proceedings*, Public comment on a request to revoke the Umatilla Chemical Weapons Depot permits, before the Environmental Quality Commission on November 19, 1999, Morgan Verbatim, Inc., January 20, 2000 (DEQ Item No. 00-0181).

<sup>34</sup> *Order Denying Request for Permit Revocation* in the Matter of Permit No. ORQ 000 009 431 Umatilla Chemical Agent Disposal Facility, Environmental Quality Commission, July 14, 2000 (DEQ Item No. 00-1068).

<sup>35</sup> *Final Judgment*, GASP, et al., vs. Environmental Quality Commission, et al., Case No. 9908-08606 (GASP II), Multnomah County Circuit Court, June 19, 2000 (DEQ Item No. 01-0077).

<sup>36</sup> Letter from Mr. John Decker, Centers for Disease Control to Mr. Wayne Thomas, Oregon Department of Environmental Quality, providing a summary of key issues identified during the CDC's visit to UMCDF, February 12, 2002 (DEQ Item No. 02-0268).



# **ATTACHMENT J**

**“Findings of the Commission and Order”  
Environmental Quality Commission  
February 1997**

**(Appendices 1 and 2 to the Order are omitted here)**

(DEQ Item No. 98-1458)

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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BEFORE THE ENVIRONMENTAL QUALITY COMMISSION  
OF THE STATE OF OREGON

In the Matter of the Application of )  
the United States Army for a Permit ) FINDINGS AND CONCLUSIONS  
to Construct and Operate a Chemical ) OF THE COMMISSION  
Weapons Demilitarization Facility at ) AND ORDER  
the Umatilla Chemical Depot. )

General Background Findings

1. This is a proceeding in which the United States Army (the Army) seeks a hazardous waste treatment permit for construction and operation of incinerator facilities to destroy chemical weapons stored at the Umatilla Chemical Depot. The Commission has jurisdiction pursuant to ORS 466.005 et seq.

2. The Umatilla Chemical Depot is a facility owned and operated by the Department of the Army. The identification number of this facility is OR6 213 820 917.

3. The Umatilla Chemical Depot encompasses approximately 20,000 acres in Morrow and Umatilla counties.

4. In September 1994, the Umatilla Chemical Depot finished destruction or removal of all conventional munitions from storage, leaving only chemical agent in storage.

5. The Umatilla Chemical Depot is currently listed for base realignment and closure following the completion of its current mission to destroy the chemical agent stockpile.

6. From 1962 to 1969 the Umatilla Chemical Depot received chemical warfare munitions for storage that included the nerve agents GB (also known as Sarin) and VX, and the blister agent HD (also known as mustard).

1 7. From 1969 to the present, the Umatilla Chemical Depot  
2 has continued to store chemical agent munitions termed  
3 "stockpile" munitions.

4 8. The Department of Defense Authorization Act of 1986  
5 (Public Law 99-145) directed the Secretary of Defense to develop  
6 a program for the disposal of all stockpile chemical agent  
7 munitions. The law required that the stockpile be destroyed by  
8 September 30, 1994. The Army subsequently proceeded with a pilot  
9 agent incineration program at the mid-Pacific Johnston Atoll.

10 9. In response to Public Law 99-145 the Army established  
11 the Office of the Program Manager for Chemical Demilitarization  
12 with the responsibility to destroy the stockpile.

13 10. Public Law 99-145 also required that the Secretary of  
14 the Army compare and contrast the advantages and disadvantages of  
15 disposing of the chemical agents and munitions at stockpile  
16 storage locations, regional disposal centers, or a national  
17 disposal center, either inside or outside the continental United  
18 States. The Chemical Stockpile Disposal Program (CSDP) is the  
19 name of the program to address stockpile destruction.

20 11. The CSDP program was subjected to review under the  
21 National Environmental Policy Act (NEPA) of 1969 (Public Law 91-  
22 190, as amended). The Army proceeded with the NEPA process by  
23 first addressing stockpile destruction on a national level (e.g.,  
24 whether to proceed with regional or onsite treatment) and then  
25 with site specific review. Analysis of risks of treatment  
26 ///



1 alternatives and risks of storage were included as part of the  
2 Army's programmatic NEPA review.

3 12. The Army issued a FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT  
4 STATEMENT in January 1988. In February 1988, the Army promulgated  
5 its Record of Decision (53 Fed Reg 5816-5817) identifying on-site  
6 incineration at the continental stockpile sites as the preferred  
7 alternative for disposal of the nation's chemical weapons  
8 stockpile.

9 13. In September 1988, Congress passed Public Law 100-456  
10 which ordered an evaluation period known as "Operation  
11 Verification Testing" (OVT) at the Johnston Atoll Chemical Agent  
12 Disposal System (JACADS) incineration facility to demonstrate  
13 safety and effectiveness before testing at continental stockpile  
14 sites. This law also extended the deadline for the elimination  
15 of the stockpile to April 30, 1997.

16 14. In February 1990, the Army completed the final PHASE 1  
17 ENVIRONMENTAL REPORT FOR DISPOSAL OF CHEMICAL AGENTS AND MUNITIONS STORED AT  
18 UMATILLA DEPOT ACTIVITY, HERMISTON, OREGON. This report was pursuant to  
19 NEPA and was for site specific review of onsite treatment at  
20 Umatilla. The PHASE I ENVIRONMENTAL REPORT concurred that onsite  
21 treatment was appropriate for the Umatilla Chemical Depot and  
22 recommended proceeding with an Environmental Impact Statement for  
23 onsite incineration. Since this report was issued, the Army has  
24 proceeded with onsite review and has issued additional  
25 Environmental Impact Analyses. A final Environmental Impact

26 ///

1 Statement was issued May 1996 and a "Revised Final Environmental  
2 Impact Statement" was issued November 1996.

3 15. In December 1991, Congress passed Public Law 102-190  
4 which extended the stockpile destruction date to July 31, 1999.

5 16. In October 1992, Congress passed Public Law 102-484  
6 which extended the stockpile destruction deadline to December 31,  
7 2004; directed the Army to submit a report to Congress on  
8 potential alternatives to incineration; established citizen  
9 advisory commissions in Kentucky, Indiana, and Maryland; and  
10 allowed for establishment of citizen commissions at other  
11 stockpile sites if requested by the Governor of that State. (The  
12 Governor of Oregon appointed a Citizens Demilitarization Advisory  
13 Committee for the Umatilla Chemical Depot on August 6, 1993.)

14 17. The Army, since 1966, has requested independent review  
15 from the National Academy of Sciences of various issues regarding  
16 chemical agent demilitarization. The National Academy of  
17 Sciences, acting on a request by the Army in 1987, formed a  
18 standing committee from its National Research Council (NRC) to  
19 review technical issues on chemical demilitarization. In March  
20 1991, the NRC committee recommended to the Army review of  
21 alternative technologies for the chemical stockpile disposal and  
22 formulation of recommendations. The Army concurred. This NRC  
23 review culminated in a 1994 NRC report, RECOMMENDATIONS FOR THE  
24 DISPOSAL OF CHEMICAL AGENTS AND MUNITIONS, that recommended the Army's  
25 baseline incineration program be continued without delay (but  
26 with neutralization study for the two low-volume bulk sites at

PAGE 4 - FINDINGS OF THE COMMISSION AND ORDER  
Umatilla Chemical Depot

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

Page J-4



1 Aberdeen, Maryland and Newport, Indiana). The report also  
2 recommended adding carbon filters to the proposed incinerators'  
3 pollution abatement systems. The Army concurred with the NRC's  
4 recommendation to add the carbon filters. In 1994 the Army  
5 submitted to Congress the agent destruction alternatives report,  
6 U.S. ARMY'S ALTERNATIVE DEMILITARIZATION TECHNOLOGY REPORT TO CONGRESS,  
7 required by Public Law 102-484 which included an analysis of  
8 information from the NRC report.

9 18. The 1994 NRC report also recommended that site-specific  
10 risk analyses of storage be conducted to confirm the conclusions  
11 of the "Final Programmatic Environmental Impact Statement" and  
12 confirm the wisdom in proceeding promptly with stockpile  
13 disposal. In response to this recommendation, the Army directed  
14 that a quantitative risk assessment be developed for the Umatilla  
15 Chemical Depot. The Army issued a report entitled, UMATILLA  
16 CHEMICAL AGENT DISPOSAL FACILITY PHASE 1 QUANTITATIVE RISK ASSESSMENT, in  
17 September 1996. The report concluded that the risk of disposal  
18 processing is significantly less than the risk of continued  
19 storage.

20 19. The Army has continued analysis of the issue of  
21 examining alternative technologies for the two low-level bulk  
22 agent sites. The Army solicited alternative technology proposals  
23 for the two low-volume bulk sites in August 1995, and requested  
24 the NRC to re-review and evaluate the status of a limited number  
25 of maturing alternative technologies. The NRC issued its report  
26 entitled REVIEW AND EVALUATION OF ALTERNATIVE CHEMICAL DISPOSAL TECHNOLOGIES

1 in October 1996. The NRC report recommended neutralization for  
2 the bulk sites located at Aberdeen, Maryland and Newport,  
3 Indiana. This report reviewed treatment for bulk liquid agents  
4 and metal containers and did not review possible alternative  
5 technologies for energetic (i.e., explosive) materials or  
6 munition casings such as those at Umatilla.

7 20. Congress passed Public Law 104-201 (Defense  
8 Authorization Act for Fiscal Year 1997) containing a requirement  
9 that a report be submitted by the Army to Congress that reviews  
10 alternative technologies for the disposal of assembled chemical  
11 munitions. This report must be submitted by December 31, 1997.  
12 The Army has informed the Governor of Oregon that because the  
13 risk of continued storage of agent at Umatilla is substantially  
14 greater than risks from incineration, and because incineration at  
15 this time is the only mature technology available, it desires to  
16 pursue the hazardous waste treatment permit for baseline  
17 incineration at Umatilla.

18 21. The U.S. and 130 other nations signed what is called  
19 the Chemical Weapons Convention in January 1993. The Senate,  
20 however, has not ratified this treaty. The treaty would mandate  
21 an international timetable to completely destroy chemical agent  
22 stockpiles, and would require irreversible destruction.

23 General Findings Pertaining to Permit Development

24 22. Anticipating the need to destroy the agent stockpile in  
25 accordance with Public Law 99-145, in September 1986 the Army  
26 submitted its first permit application to the Oregon Department



1 of Environmental Quality (Department) for a hazardous waste  
2 treatment permit for the construction and operation of a new  
3 hazardous waste incineration facility at the Umatilla Chemical  
4 Depot pursuant to 40 CFR § 270.10(a), adopted by OAR 340-100-002,  
5 and pursuant to ORS § 466.055, et seq.

6 23. In February 1987, the Department issued to the Army a  
7 first notice of deficiency (NOD) on the Umatilla hazardous waste  
8 treatment permit application. The NOD was issued pursuant to 40  
9 CFR § 124.3 which is adopted by Oregon rule OAR 340-100-002. The  
10 NOD listed 57 issues to be addressed before the application could  
11 be considered complete.

12 24. In March 1987, the Army submitted its first Air  
13 Contaminant Discharge Permit application to the Department in  
14 accordance with OAR 340-28-1720. Pursuant to OAR 340-28-1900 the  
15 Army may not build and operate the facility until an Air  
16 Contaminant Discharge Permit is issued by the Department.

17 25. The Army responded in June 1987 to the Department's  
18 first NOD by updating the permit application.

19 26. During 1987 and 1988, the Department issued to the Army  
20 a second NOD for the Umatilla hazardous waste treatment permit  
21 application. The NOD listed 96 issues to be addressed by the  
22 applicant in order for the application to be considered complete.

23 27. In October 1990, the Army responded to the Department's  
24 second NOD for the Umatilla hazardous waste treatment permit  
25 application.

26 ///

1           28. In May 1991, the Army re-submitted the application to  
2 the Department for an air contaminant discharge permit for the  
3 Umatilla Chemical Depot.

4           29. In January 1992, the Department issued to the Army a  
5 third NOD on the Umatilla hazardous waste treatment permit  
6 application. The third NOD listed 60 issues to be addressed.

7           30. In November 1992, the Army responded to the  
8 Department's third NOD on the hazardous waste treatment permit  
9 application.

10          31. In April 1993, the Department issued to the Army a  
11 fourth NOD on the hazardous waste treatment permit application.  
12 The fourth NOD listed 19 issues to be addressed.

13          32. In June 1993, the Army responded to the Department's  
14 fourth NOD.

15          33. In July 1993, the Department and the Army entered into  
16 an Intergovernmental Cooperative Agreement for the continued  
17 review and processing of the hazardous waste treatment permit  
18 application.

19          34. In March 1994, the Department issued to the Army a  
20 fifth NOD on the Umatilla hazardous waste treatment permit  
21 application. The fifth NOD listed 19 issues to be addressed.

22          35. In April 1994, the Department opened a regional field  
23 office in Hermiston, Oregon staffed by a DEQ employee designated  
24 as the Umatilla permits coordinator. This position has had the  
25 primary duty of providing the public with information regarding  
26 ///



1 the processing of the hazardous waste and air quality permit  
2 decisions.

3 36. On March 6, 1995, the Army responded to the  
4 Department's fifth NOD with an updated hazardous waste treatment  
5 permit application dated February 1995.

6 37. In August 1995, the Army submitted an updated  
7 application to the Department for an air contaminant discharge  
8 permit for the Umatilla Chemical Depot.

9 38. The Department requested from the Army further  
10 information in accordance with 40 CFR 124.3 (adopted by OAR  
11 § 340-100-002) on March 6, 1996. In accordance with 40 CFR  
12 § 124.3, the Army responded to the information request on  
13 March 21, 1996 with updated pages for the hazardous waste  
14 treatment permit application.

15

16 General Findings Pertaining to  
17 Risk Assessment Conducted by the Department

18 39. During the Department's technical review of the  
19 hazardous waste treatment permit application, the U.S.  
20 Environmental Protection Agency (EPA) issued the DRAFT NATIONAL  
21 HAZARDOUS WASTE COMBUSTION STRATEGY (COMBUSTION STRATEGY) in May 1993. The  
22 COMBUSTION STRATEGY adopted a national policy requiring a risk  
23 assessment on the potential emissions from a hazardous waste  
24 incinerator before issuance of a draft hazardous waste treatment  
25 permit for public comment. The COMBUSTION STRATEGY also stated a  
26 preference for the regulatory agency issuing the permit (i.e.,  
EPA or the State review agency) to conduct the risk assessment.

1 40. In March 1994, the Department stated in its fifth NOD  
2 that the Department would be conducting a risk assessment in  
3 accordance with the COMBUSTION STRATEGY.

4 41. In April 1994, EPA issued guidance on how to conduct a  
5 risk assessment for hazardous waste incinerators.

6 42. In October 1994, the Department began work with its  
7 contractor, Ecology and Environment, Inc., to conduct a risk  
8 assessment in accordance with the national combustion strategy  
9 following the guidance issued by EPA.

10 43. On April 5, 1996, the Department issued a draft  
11 hazardous waste treatment permit and a DRAFT PRE-TRIAL BURN RISK  
12 ASSESSMENT FOR THE PROPOSED UMATILLA CHEMICAL DEMILITARIZATION FACILITY. The  
13 risk assessment concluded that there would be no adverse effects  
14 on either public health or the environment from the operations of  
15 the Umatilla incinerator facility.

16

17 General Findings Pertaining to  
18 Draft Permit and Public Participation

19 44. Pursuant to 40 CFR 124.10 (adopted by OAR § 340-100-  
20 002), the Department issued for public comment a draft hazardous  
21 waste treatment permit for the Umatilla Chemical Depot on  
22 April 5, 1996. In accordance with 40 CFR 124.8 (adopted by OAR §  
23 340-100-002), the Department also issued a Fact Sheet which  
24 summarized the draft hazardous waste treatment permit. In  
25 accordance with 40 CFR 124.10 (adopted by OAR § 340-100-002), the  
26 Department sent out to the Umatilla Chemical Depot mailing list a  
///



1 Public Notice soliciting comments on the draft hazardous waste  
2 treatment permit.

3 45. In accordance with OAR 340-28-1900, the Department  
4 issued a draft air contaminant discharge permit for public  
5 comment on April 5, 1996. The Department also developed an AIR  
6 CONTAMINANT DISCHARGE PERMIT APPLICATION REVIEW REPORT, in accordance with  
7 Department policy, which summarizes the Department's review of  
8 the air application and rationale for setting draft air quality  
9 permit conditions. In accordance with OAR 340-28-1710, the  
10 Department issued a Public Notice to the Umatilla Chemical Depot  
11 mailing list soliciting comments on the draft air contaminant  
12 discharge permit.

13 46. In addition to soliciting comments for the draft  
14 hazardous waste treatment permit and air contaminant discharge  
15 permits, the Department issued for public notice on April 5,  
16 1996, an INVITATION TO COMMENT ON FINDINGS (ORS 466.055 & ORS 466.060) AND  
17 RISK ASSESSMENT and mailed the notice to the Umatilla Chemical  
18 Depot mailing list. The notice requested comments on the  
19 Department's Pre-Trial Burn Risk Assessment, and on the ORS §§  
20 466.055 and 466.060 criteria (ORS Criteria) under which the  
21 Commission must make findings before a hazardous waste treatment  
22 permit can be issued. The Department issued this INVITATION TO  
23 COMMENT to encourage public participation.

24 47. The initial comment period on the draft environmental  
25 permits, risk assessment and ORS 466 criteria was to end at  
26 5:00 p.m. on June 17, 1996 which allowed for a 73-day public

1 comment period. The 73-day comment period exceeds the minimum  
2 length of 45 days set forth in 40 CFR 124.10(b) (adopted by OAR  
3 § 340-100-002) for the draft hazardous waste treatment permit and  
4 the minimum length of 30 days set forth in OAR 340-28-1710 for  
5 the draft air contaminant discharge permit.

6 48. In accordance with 40 CFR 124.10 (adopted by OAR § 340-  
7 100-002) for the draft hazardous waste draft treatment permit,  
8 and OAR 340-28-1710 for the draft air contaminant discharge  
9 permit, four hearings were held to accept public comment. These  
10 four hearings were held as follows:

11 • On May 13, 1996 in Pendleton, Oregon at 7:00 p.m. at the  
12 Pendleton Convention Center.

13 • On May 14, 1996 in Kennewick, Washington at 7:00 p.m. at  
14 Kennewick High School.

15 • On May 29, 1996 in Portland, Oregon at 7:00 p.m. at the  
16 World Trade Center.

17 • On June 10, 1996 in Hermiston, Oregon at 7:00 p.m. at the  
18 Hermiston Community Center.

19 49. On June 17, 1996 the Department extended the comment  
20 period for the draft environmental permits, risk assessment and  
21 the ORS Criteria to November 15, 1996 at 5:00 p.m. This  
22 extension added an additional 151 days for a total public comment  
23 period of 224 days. Extension of the comment period for the  
24 draft hazardous waste treatment permit was in accordance with 40  
25 CFR 124.13 (adopted by OAR § 340-100-002) and a public notice of  
26 the comment period extension was mailed to the Umatilla mailing  
list in accordance with 40 CFR 124.13 (adopted by OAR § 340-100-  
002).



1 50. Based on a request from a member of the public at the  
2 November 15, 1996 Commission meeting, the public comment period  
3 was extended to 8:00 a.m. on November 16, 1996.

4 51. A number of submittals containing comments were  
5 received by the Department at the close of the comment period.  
6 The Commission was provided complete copies of all comments  
7 received including written transcripts of public testimony  
8 accepted during public hearings. A summary of the comments  
9 received was tabulated by the Department and provided to the  
10 Commission at its November 22, 1996 meeting. Public comment and  
11 submittals were placed in the administrative record.

12                                   General Findings Pertaining to  
13                                   Development of Criteria Findings Required  
14                                   by ORS 466.055, 466.060 and OAR 340, Division 120

15 52. Oregon law requires that the Commission make findings  
16 on specific criteria before a final hazardous waste treatment  
17 permit can be issued. ORS 466.055, 466.060 and OAR 340, Division  
18 120.

19 53. On January, 11, 1996, the Commission held a first work  
20 session on the proposed Umatilla permit in Portland, Oregon and  
21 was briefed on the proposed permit for incineration of chemical  
22 weapons at the Umatilla Chemical Depot. Presenters included DEQ  
23 staff and other interested parties.

24 54. On April 12, 1996, the Commission held a second work  
25 session and was briefed by DEQ staff on the proposed Umatilla  
26 permits and the Commission findings, and received limited public  
comment.

1           55. On May 10, 1996, the Commission and the Department  
2 Director traveled to Utah to tour the Tooele chemical  
3 demilitarization facility.

4           56. On May 16, 1996, the Commission conducted a third work  
5 session in Portland, Oregon. DEQ staff presented information  
6 about the air permit and the Pre-Trial Burn Risk Assessment, and  
7 counsel from the Oregon Department of Justice described the legal  
8 requirements and findings necessary to issue a hazardous waste  
9 treatment permit. A panel discussion was presented on  
10 alternatives to incineration. Presenters included the Army,  
11 vendors of three alternative technologies and Greenpeace.

12           57. On May 17, 1996, the Commission received a briefing  
13 from Oregon Emergency Management and Morrow County Emergency  
14 Management concerning the Chemical Stockpile Emergency  
15 Preparedness Program (CSEPP). Mick Harrison of Greenlaw and Dr.  
16 Mary O'Brien made presentations to the Commission on risk  
17 assessment. Public testimony was received, including testimony  
18 from representatives of local government, the Citizens Advisory  
19 Commission, Greenpeace and the Confederated Tribes of the  
20 Umatilla Indian Reservation.

21           58. On July 11, 1996, the Commission held a fourth work  
22 session in Portland, Oregon, and received a presentation from  
23 Department staff and the Department's risk assessment contractor,  
24 Ecology and Environment, Inc., responding to risk assessment  
25 issues. Army representatives responded to questions concerning  
26 safety and alternative permitting scenarios.



1           59. On August 22, 1996, the Commission conducted a fifth  
2 work session in Hermiston, Oregon. The session included a tour  
3 of the Umatilla Chemical Depot. A question-and-answer work  
4 session discussing various Umatilla subjects was held at the  
5 Hermiston Community Center. Discussion included proposed federal  
6 legislation, alternative technologies and stockpile storage  
7 risks. Professor Lisa of the Chemical Engineering Department of  
8 Oregon State University, under contract to the Department,  
9 provided verbal testimony on expected dioxin emissions from the  
10 proposed Umatilla incinerators. During an evening session the  
11 Commission heard oral public testimony on the proposed  
12 environmental permits.

13           60. On August 23, 1996, the Commission received a  
14 presentation from Department staff concerning the finding of  
15 "best available technology" that must be made before a new  
16 hazardous waste treatment permit can be issued by the Commission.  
17 The Commission adopted a list of evaluation criteria to be  
18 considered for evaluation of the best available technology.

19           61. On September 27, 1996, the Commission held a sixth work  
20 session in Portland, Oregon and heard public testimony from the  
21 Oregon Environmental Council, Greenpeace and the Oregon Center  
22 for Environmental Health. Department staff presented a draft  
23 staff report concerning Commission findings that must be made  
24 before issuance of a hazardous waste treatment permit for the  
25 incineration of nerve agents at Umatilla Chemical Depot. The  
26 Department also presented to the Commission a staff report

1 listing draft hazardous waste treatment permit conditions to  
2 address specific concerns raised by the Commission at previous  
3 work sessions.

4 62. On November 14, 1996, the Commission, during a regular  
5 meeting held in Portland, Oregon, heard a presentation from the  
6 Confederated Tribes of the Umatilla Indian Reservation which  
7 proposed a moratorium pending appointment of a Governor's task  
8 force to further evaluate alternatives to incineration of the  
9 Umatilla Chemical Depot stockpile, and construction of a munition  
10 reverse assembly facility.

11 63. On November 15, 1996, the Commission held a seventh  
12 work session in Portland, Oregon, reviewing the revised FINDINGS  
13 staff report and the draft BEST AVAILABLE TECHNOLOGY REPORT from the  
14 Department. Also at the meeting Professor Iisa of Oregon State  
15 University provided additional testimony to the Commission based  
16 on her October 29, 1996 written report concerning potential  
17 dioxin emissions from incineration.

18 64. The Commission, before its November 22, 1996 meeting,  
19 received and had the opportunity to review all public comment  
20 previously reviewed regarding the hazardous waste treatment  
21 permit including written transcripts of all scheduled public  
22 hearings.

23 65. On November 22, 1996, the Commission met in Pendleton,  
24 Oregon. The Commission heard final briefings from the Army and  
25 Department staff. At this meeting the Commission deliberated the  
26 issues, discussed public concerns as reflected in public



1 testimony and comment and came to a consensus that incineration,  
2 as proposed in the Army's hazardous waste treatment permit  
3 application, is the best available technology. The Commission  
4 determined that the remaining statutory findings could be made  
5 and directed Department staff to prepare a final hazardous waste  
6 treatment permit with additional and modified conditions and  
7 technical corrections.

8         66. An Administrative Record has been compiled and is  
9 maintained at the Department's Eastern Region office in Bend. An  
10 index to the Administrative Record is attached to this document  
11 as Appendix 1.

12 Findings and Conclusions Required by Statute and Regulation

13         67. ORS 466.055, ORS 466.060 and OAR 340, Division 120  
14 require that certain specific affirmative findings be made by the  
15 Commission before a hazardous waste treatment facility permit for  
16 a new hazardous waste treatment facility may be issued in Oregon.

17         68. The Army's proposed chemical weapons demilitarization  
18 incinerator is a proposal for a new treatment facility subject to  
19 certain of these findings.

20         69. Pursuant to ORS 466.020 the Commission has previously  
21 adopted rules at OAR 340, Division 120 which implement, in part,  
22 ORS 466.055 and ORS 466.060. These rules distinguish between new  
23 off-site disposal and treatment facilities and on-site  
24 facilities. New on-site facilities are exempted from certain of  
25 the statutory findings enumerated in ORS 466.055.

26         70. The proposed Umatilla incinerator is a proposal for a

1 new on-site treatment facility.

2 71. OAR 340-120-001(4) provides:

3 (4) New hazardous waste and PCB treatment and disposal  
4 facilities, other than land disposal facilities,  
5 located on the site of waste generation (on-site), are  
6 only subject to these parts of Division 120:

- 7 (a) 340-120-010(2)(c) - Technology and Design;
- 8 (b) 340-120-010(2)(e) - Property Line Setback;
- 9 (c) 340-120-010(2)(g) - Owner and Operator  
10 Capability;
- 11 (d) 340-120-010(2)(h) - Compliance History;
- 12 (e) 340-120-020 - Community Participation;
- 13 (f) 340-120-030 - Permit Application Fee.

14 72. OAR 340-120-010(2)(c) requires:

- 15 (c) *Technology and Design.* The facility shall  
16 use the best available technology as  
17 determined by the [Commission] for treatment  
18 and disposal of hazardous waste and PCB. The  
19 facility shall use the highest and best  
20 practicable treatment and/or control as  
21 determined by the [Commission] to protect  
22 public health and safety and the environment.

23 73. The Commission has broad discretion in determining the  
24 parameters for a BAT determination under OAR 340-120-010(2)(c).  
25 In the absence of statutory or regulatory criteria, it is  
26 appropriate for the Commission to select specific criteria for  
27 evaluating best available technology on a case-specific basis.

28 74. Appropriate criteria for evaluating best available  
29 technology in this matter include the following:

- 30 A. Types, quantities and toxicity of discharges to  
31 the environment by operation of the proposed  
32 facility compared to the alternative technologies.
- 33 B. Risks of discharge from a catastrophic event or  
34 mechanical breakdown in operation of the proposed  
35 facility compared to the alternative technologies.
- 36 C. Safety of the operations of the proposed facility  
37 compared to the alternative technologies.



1 ///

- 2 D. The rapidity with which each of the technologies  
3 can destroy the stockpile.
- 4 E. Impacts that each of the technologies have on  
5 consumption of natural resources.
- 6 F. Time required to test the technology and have it  
7 fully operational; impacts of time on overall risk  
8 of stockpile storage.

7 75. Applying the BAT criteria adopted by the Commission and  
8 based on the administrative record the Army's proposed  
9 incineration technology satisfies the requirements for use of  
10 best available technology for destruction of agent at Umatilla.  
11 With the inclusion of carbon filters the proposed incineration  
12 technology will also employ the highest and best practicable  
13 emission control technology. The Commission's rationale for this  
14 finding includes the following considerations which are supported  
15 in detail by the record:

16 A. The proposed incineration technology is designed to  
17 have only minimal emissions of pollutants to the environment and  
18 will achieve an extremely high agent destruction removal  
19 efficiency (so-called six "9s" efficiency). The incineration  
20 technology may result in extremely minute air emissions including  
21 agent, metals, dioxins or similar chlorinated compounds.  
22 However, in addition to being extremely small, these emissions  
23 will be temporary and well within allowable regulatory limits.

24 B. The proposed incineration technology is designed with a  
25 high level of redundancy to minimize risk of discharge from a  
26 catastrophic event or mechanical breakdown in operation. Each

1 alternative technology reviewed would involve at least similar  
2 and potentially greater operational risks, each alternative has  
3 significant technical uncertainties, and none has been subjected  
4 to the kind of actual testing and operation the baseline  
5 technology has undergone.

6 C. The proposed incineration technology has been designed  
7 and tested for safety in operations at other facilities. Actual  
8 experience with internal system release detection and containment  
9 exists. Alternative technologies reviewed pose technical safety  
10 issues and there is no experience with operations.

11 D. The proposed incineration technology is currently  
12 available and will result in the most rapid destruction of the  
13 agent stored at Umatilla, a factor that must be juxtaposed to the  
14 risk of continued storage.

15 E. Alternative technologies reviewed, with the exception  
16 of neutralization, are years away from actual operational  
17 availability.

18 F. Neutralization technology for HD, while currently  
19 undergoing laboratory bench-scale study, would entail lengthy  
20 delay at Umatilla due, among other constraints, to the need for  
21 staging of construction to allow energetics destruction by  
22 incineration prior to construction and operation of  
23 neutralization facilities.

24 G. With the exception of neutralization, technologies  
25 reviewed appear to involve little impact on natural resource  
26 consumption. Neutralization of HD could, however, have



1 ///  
2 significant implications for water consumption and disposal, and  
3 would need substantial ecological impact analyses.

4 H. Alternative technologies reviewed face testing and  
5 operational hurdles which would add years of delay to the agent  
6 destruction program at Umatilla.

7 I. Comparative costs of alternative technologies is  
8 considered a factor only with respect to neutralization of HD  
9 which would add significantly to costs of agent destruction at  
10 Umatilla by necessitating construction of a neutralization  
11 facility in addition to the proposed incinerators.

12 In making the above findings with respect to best available  
13 technology, the Commission is particularly persuaded by the  
14 analysis of alternative technologies in BEST AVAILABLE TECHNOLOGY  
15 FINDINGS REPORT UMATILLA CHEMICAL DEPOT, November 1996, prepared for the  
16 Department by Ecology and Environment, Inc.; the REPORT ON DIOXINS,  
17 by Kristina Iisa, Oregon State University, October 1996 and  
18 testimony of Dr. Iisa before the Commission; testimony of Army  
19 Assistant Secretary Decker and staff provided on November 22,  
20 1996 concerning extensive delays associated with alternative  
21 technologies and potential natural resource impacts of bulk agent  
22 neutralization technology.

23 76. OAR 340-120-010(2)(e) requires:

24 (e) *Property Line Setback:*  
25 (A) Hazardous waste and PCB treatment and  
26 disposal facilities, other than land disposal  
facilities, on the site of waste generation shall have  
at least a 250 foot separation between active waste  
management areas and facilities, and property.

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1 boundaries.

2 77. The proposed facility meets the requirement of a 250  
3 foot setback from the property line. The proposed facility would  
4 be significantly more than 250 feet (nearly one mile) from the  
5 nearest Umatilla Chemical Depot boundary.

6 78. OAR 340-120-010(2)(g) requires:

7 (g) *Owner and Operator Capability.* The owner,  
8 any parent company of the owner and the operator must  
9 demonstrate adequate financial and technical capability  
10 to properly construct and operate the facility. As  
11 evidence of financial capability, the following shall  
12 be submitted:

13 (A) Financial statements of the owner, any parent  
14 company of the owner, and the operator audited by an  
15 independent certified public accountant for three years  
16 immediately prior to the application;

17 (b) The estimated costs of construction and a  
18 plan detailing how the construction will be funded; and

19 (c) A three year projection, from the date the  
20 facility is scheduled to begin operating, of revenues  
21 and expenditures related to operating the facility.  
22 The projection should have sufficient detail to  
23 determine the financial capability of the owner, any  
24 parent company of the owner and the operator to  
25 properly operate the facility.

26 79. The Army will be the owner and principally responsible  
operator of the proposed facility. The Army has the legal  
responsibility to conduct the chemical weapons demilitarization  
program. The Army is currently managing operation of several  
agent incineration facilities. Although operations at the  
existing facilities have not been entirely without problems, the  
evidence is that the Army has adequately demonstrated the  
capability to properly construct and operate the facility.

The Army, as a department of the federal government, is  
exempt from hazardous waste law financial responsibility



1 requirements. However, private contractors, when selected, must  
2 demonstrate required financial responsibility as well as  
3 technical capability.

4 The Army has the capability to construct and operate the  
5 proposed facility. When a contractor is selected, a hazardous  
6 waste treatment permit modification will be required to make that  
7 contractor a co-permittee, and the contractor will then be  
8 required to demonstrate technical and financial capability as  
9 well.

10 80. OAR 340-120-010(2)(h) requires:

11 (h) *Compliance History.*

12 (a) The compliance history in owning and  
13 operating other similar facilities, if any, must  
14 indicate that the owner, any parent company of the  
15 owner and the operator have an ability and willingness  
16 to operate the proposed facility in compliance with the  
17 provisions of ORS 466 and any permit conditions that  
18 may be issued by the Department or Commission. As  
19 evidence of ability and willingness, the following  
20 shall be submitted:

21 (i) A listing of all responses to past actual  
22 violations identified by EPA or the appropriate state  
23 regulatory agency within the five years immediately  
24 preceding the filing of the requests for an  
25 Authorization to Proceed at any similar facility owned  
26 or operated by the applicant, owner, any parent company  
of the owner or operator during the period when the  
actions causing the violations occurred; and

(ii) Any written correspondence from EPA and the  
appropriate state regulatory agency which discusses the  
present compliance status of any similar facility owned  
or operated by the applicant, owner, any parent company  
of the owner or operator.

(B) Upon request of the Department, the applicant  
shall also provide responses to the past violations  
identified prior to the five years preceding the filing  
of an Authorization to Proceed and the specific  
compliance history for a particular facility owned or  
operated by the applicant, any parent company of the  
owner or operator.

1 ///

2 81. The Department staff report of November 1996 outlines  
3 in some detail the Army's compliance history at Johnston Atoll  
4 Chemical Agent Disposal (JACADs) facility and the Tooele Chemical  
5 Disposal facility, both considered relevant to the Commission's  
6 evaluation of the Army's compliance history for purposes of the  
7 pending permit application. While instances of non-compliance by  
8 the Army have been documented, most have been deemed relatively  
9 minor in nature and appropriate corrective actions have been  
10 taken by the Army to address the few more serious violations.  
11 The Department has had no unresolvable enforcement problems with  
12 respect to existing hazardous waste activities at the Umatilla  
13 Chemical Depot.

14 82. The regulations pertaining to the management of  
15 hazardous waste are voluminous and complex; nevertheless, strict  
16 enforcement is warranted. However, it is not unusual for a  
17 hazardous waste facility undergoing a compliance inspection to  
18 have violations, especially in the area of recordkeeping. The  
19 permit applicant has often self-reported permit violations at  
20 other facilities. The Army as owner and operator of the proposed  
21 Umatilla facility has demonstrated sufficient ability and  
22 willingness to operate the proposed facility in compliance with  
23 statutory and regulatory provisions.

24 ///

25 ///

26 ///



1 ///

2 83. OAR 340-120-020 requires:

3 Community Participation

4 340-120-020 (1) The Commission finds that local  
5 community participation is important in the siting and  
6 in reviewing the design, construction and operation of  
7 hazardous waste and PCB treatment and disposal  
8 facilities.

6

7 (3) The Director may appoint a committee [citizen  
8 committee] to review a proposed facility described in  
9 rule 340-120-001(4).

9 84. In view of the existing Governor's Advisory Committee,  
10 the Director has not appointed an additional citizens committee  
11 pursuant to OAR 340-120-020(3).

12 The Department and the Commission have engaged in an  
13 extensive effort to encourage both local and non-local citizen  
14 involvement in this permit application process. The extent of  
15 these efforts is reflected in the Commission's General Background  
16 Findings and in the administrative record. There has been  
17 opportunity for public input on all aspects of the permit  
18 application process including the health and ecological risk  
19 assessments and the legally required Commission findings. The  
20 public involvement has greatly assisted the Commission in its  
21 decisions.

22 85. ORS 466.055(5) requires a Commission finding that:

23 (5) The proposed hazardous waste or PCB treatment  
24 or disposal facility has no major adverse effect on  
25 either:

- 25 (a) Public health and safety; or
- 26 (b) Environment of adjacent lands.

26 The detailed human health and ecological risk assessments

1 conducted by the Army and by the Department did not show that the  
2 proposed facility will have major adverse effects on either human  
3 health and safety or the environment. The proposed facility uses  
4 engineering process controls and state of the art pollution  
5 abatement systems which will undergo extensive testing before  
6 operations commence. Revised permit conditions incorporate  
7 additional safeguards as specifically directed by the Commission  
8 at its meeting in Pendleton, Oregon on November 22, 1996. The  
9 proposed facility, if operated as designed and in accordance with  
10 the permit, will not have any major adverse effect on public  
11 health and safety, or to the environment of adjacent lands.

12 In making the above finding regarding no adverse effects,  
13 the Commission is particularly persuaded by the REPORT ON DIOXINS by  
14 Kristina Iisa, Oregon State University, October 1996, and Dr.  
15 Iisa's testimony before the Commission; the DRAFT PRE-TRIAL RISK  
16 ASSESSMENT PROPOSED UMATILLA CHEMICAL DEMILITARIZATION FACILITY, HERMISTON,  
17 OREGON, Vols. I and II prepared by Ecology and Environment, Inc.,  
18 April 1996; PERSPECTIVES ON THE UMATILLA QUANTITATIVE RISK ASSESSMENT  
19 RESULTS prepared by SAIC, September 1996 and testimony of Gary  
20 Boyd, SAIC, before the Commission November 22, 1996; and DEQ AND  
21 ECOLOGY & ENVIRONMENT RESPONSE TO RISK ASSESSMENT ISSUES, July 11, 1996

22 86. ORS 466.055(4) (a) requires a Commission finding that:

23 (4) The need for the facility is demonstrated by:

24 (a) Lack of adequate current treatment or  
25 disposal capacity in Oregon, Washington, Idaho, and  
26 Alaska to handle hazardous waste or PCB generated by  
Oregon Companies;

(b) A finding that operation of the proposed  
facility would result in a higher level of protection  
of the public health and safety or environment; or



1 (c) Significantly lower treatment or disposal  
2 costs to Oregon Companies.  
3 The proposed facility is a non-commercial, sole purpose on-  
4 site treatment facility. The requirements of ORS 466.055(4) are  
5 directed at commercial facilities. Nevertheless, the Commission  
6 finds that the operation of the proposed facility will reduce,  
7 and eventually eliminate, the risk to surrounding communities  
8 from continued storage of the chemical agents and munitions for  
9 which there is presently no disposal option. The need for the  
10 facility is demonstrated because operation of the proposed  
11 facility will result in a higher level of protection for public  
12 health and safety and for the environment.

13 Now, therefore, IT IS ORDERED that:

14 1. These findings, conclusions and order shall constitute  
15 the Commission's final permit decision and response to public  
16 input.

17 2. Nothing contained herein shall be deemed to waive or  
18 restrict any authority of the Commission or any other entity of  
19 the State of Oregon to take such action as may be deemed  
20 necessary within the scope of their respective authorities to  
21 prevent or abate an imminent hazard to public health or the  
22 environment.

23 3. These findings, conclusions and order are based upon  
24 representation of the permittee and evidence in the  
25 administrative record. Upon evidence of any material  
26 misrepresentation or material change in facts, the Commission  
reserves the right, in its discretion, to reopen these

1 proceedings.

2 4. The Commission shall issue the hazardous waste  
3 treatment permit to the United States Army containing the terms  
4 and conditions agreed upon by the Commission as of the date of  
5 this Order, including those additional permit conditions  
6 specifically ordered by the Commission as reflected in Attachment  
7 A to Appendix 3 which is incorporated herein.

8 5. This Order shall be an Order In Other Than A Contested  
9 Case, and no administrative appeal of the permit shall be  
10 provided to the applicant or third parties.

11 DATED this 10<sup>th</sup> day of February, 1997.

12

13 Henry Lorenzen  
Chair

14

15 Carol A. Whipple  
Vice-Chair

16 Linda A. McMahan  
Member

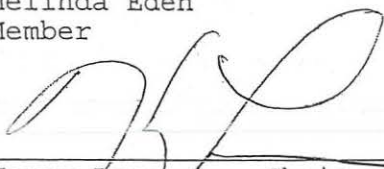
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18 Tony Van Vliet  
Member

19 Melinda Eden  
Member

20

21

22   
Henry Lorenzen, Chair  
For the Environmental Quality Commission

23

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## SUMMARY OF PUBLIC COMMENTS AND COMMISSION RESPONSES

Hazardous Waste Treatment and Storage Permit and  
ORS 466.055 and 466.060 Criteria

U.S. Army Umatilla Chemical Depot  
Umatilla Chemical Demilitarization Facility  
I.D. Number: OR6 213 820 917

February 7, 1997

This Response to Comments document has the following Sections:

- |                       |                                |
|-----------------------|--------------------------------|
| I. Introduction       | III. Direction From Commission |
| II. Comments Received | IV. Response to Comments       |

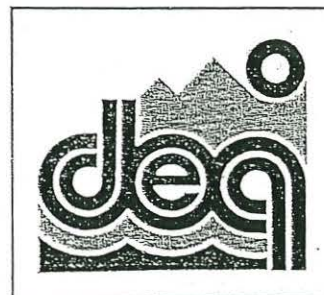
### I. INTRODUCTION

The U.S. Army has applied for a hazardous waste treatment and storage permit to incinerate chemical agent munitions. The incineration treatment of the chemical agents, along with the various munition components consisting of explosives, propellants, and metal casings, is sometimes referred to as "demilitarization."

The Department of Environmental Quality reviewed the hazardous waste permit application and determined that the application was complete in accordance with Title 40 Code of Federal Regulations [40 CFR] Section 124.3.<sup>1</sup> The Department then issued for public comment the draft hazardous waste permit and the air contaminant discharge permit. Also issued for public comment was the Pre-Trial Burn Risk Assessment [PreRA], and, an invitation to comment on the ORS 466.055 and 466.060 criteria pursuant to which the Environmental Quality Commission must make affirmative findings before it can issue the hazardous waste permit. The comment period ended November 15, 1996.<sup>2</sup> At a meeting held on November 22, 1996, the Department was directed by the Commission to finalize the hazardous waste permit decisions.

<sup>1</sup> Adopted as Oregon Rule at OAR 340-100-002.

<sup>2</sup> The original comment period was extended on June 15, 1996.



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## II. Comments Received

All comments received during the comment period were provided to the Commission for its review. The comments were also placed in the administrative record maintained at the Department office in Bend.

At the November 22, 1996 meeting the Department provided to the Commission a summary of the comments received during the comment period. In general, the following statements can be made about the comments received.

### Statistics

- 188 submittals (both verbal testimony and written comments) were received and entered into the administrative record. A submittal may have contained anywhere from one comment to tens of comments. Two submittals were noted but did not contain any testimony.
- Out of the 188 submittals, 67 were from the immediate region (e.g., Hermiston), 33 were from the region (e.g., Tri-Cities and Pendleton), and 88 were from Out-of-Region (e.g., Portland).
- Of the 67 submittals received from the immediate region, 48 (72%) were in favor of issuing the permit; 19 (28%) were not in favor of issuing the permit).
- Of the 33 submittals received from the region, 12 (36%) were in favor of issuing the permit; 21 (64%) were not in favor of issuing the permit.
- Of the 88 submittals from out-of-region, 6 (7%) were in favor of issuing the permit; 82 (93%) were not in favor of issuing the permit.

### General

- The vast majority of the comments were directed towards the Commission's findings of the ORS criteria. Very few submittals dealt directly with specific conditions of the hazardous waste permit or specific items with the PreRA.
- Based on testimony from the several Commission meetings, the Commission directed that several additional permit conditions be included in the hazardous waste permit.
- Submittals received from the U.S. Army and EPA Region 10 did contain many comments on specific conditions of the permit.



Issue: Incineration Is The Best Available Technology

120 submittals contained comments regarding whether incineration represents best available technology. The significant comments are listed below.

Agree

- Incineration has been found by independent experts to be an acceptable technology
- JACADS and Tooele are operating effectively and efficiently.
- Currently, incineration is best available technology.
- Alternative technologies are immature for chemical agent.
- There are no viable alternative technology for metal parts and energetics except incineration.
- EPA and Department of Health and Human Services contends that incineration is a safe and proven method.
- Continued storage is not a technology.
- Incineration has more control than similar industrial applications.
- Need more time to develop information on alternative technologies.

Does Not Agree

- Incineration is unsafe and costly.
- JACADS and Tooele have had experiences of upsets and operational problems.
- Incineration emits toxic chemicals and would/could effect human health, the ecology, and agricultural crops.
- "Closed-loop" technologies are better because they do not emit toxic chemicals.
- Reconfiguration and storage, or continued storage alone, and then wait for a better treatment technology is preferable.
- Other countries are using alternative technologies.
- Some alternative technologies have commercial scale applications.

Issue: The Facility Will Not Cause An Adverse Effect To Human Health Or The Environment

66 submittals contained comments regarding whether an incineration facility is needed. The significant comments are listed in the following column.

Agree

- The permit should be issued to get rid of the threat posed by chemical agent munitions
- Findings and recommendations from the NRC conclude that incineration is safe
- Delays will cause increased exposure from leaks
- Incineration is a safe technology
- Johnston Atoll ecological monitoring has shown no adverse effect

Does Not Agree

- A comparative assessment between incineration and alternative technologies is necessary to reach a decision.
- Incineration will emit dioxins and other toxins which at low dosages will create human health and environmental harm.
- The Pre-Trial Burn Risk Assessment is flawed because it omitted issues such as not evaluating certain pathways, not evaluating synergistic effects, not accounting for all the potential chemical emissions, etc.,
- The Chemical Stockpile Emergency Preparedness Program (CSEPP) is not prepared; the permit

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should not be issued until it is. Sirens are not working, schools are not pressurized, inadequate resources at local level, the Emergency Operations Center is not pressurized and must use gas masks in an emergency, inadequate notification to immediate community, etc.,.

Issue: Applicant Has Demonstrated Ability And Willingness To Operate The Facility In Compliance, And, Applicant Has Demonstrated Financial And Technical Capability.

24 submittals contained comments regarding whether the Applicant (U.S. Army) has demonstrated adequate capability. The significant comments are listed below:

Agree

- Tooele and JACADS are built and operated well
- There is trust in the government that they have the expertise and care to insure safe operation

Does Not Agree

- The Army has not been able to operate the JACADS and Tooele facilities adequately
- The Army has had a history of misrepresentation, misinformation, and deceit
- The Army has been fined at JACADS by EPA for non-compliance

Issue: The Facility Is Needed

41 submittals contained comments regarding whether an incineration facility is needed. The significant comments are listed below.

Agree

- The risk of storage, and storage operations are more than the risk of incineration

Does Not Agree

- Risk of storage is exaggerated and there is no need to rush to incinerate
- The risk of storage can be lessened by reconfiguration

Issue: Public Participation

27 submittals contained comments regarding public participation. The significant comments are listed below.

Agree

- Commenters appreciated the opportunity to address the Commission face-to-face
- Citizens have been active and informed on the project

Does Not Agree

- The State has not engaged in a government-to-government relationship with the Confederated Tribes of the Umatilla Indian Reservation [CTUIR]
- DEQ has acted as an advocate of incineration, or, not as an advocate for the environment



- Public comment period was extended
- DEQ has maintained an office in Hermiston
- Commission and Department decision-makers were not at some public forums
- There is too much information to review and not enough time for people to understand all the issues

#### Various Issues:

Several submittals contained comments regarding various issues. These issues mentioned are listed below.

##### Agree with Permitting

- The Chemical Stockpile Emergency Preparedness Program (CSEPP) is not prepared; the permit should be issued to get rid of the threat posed by chemical agent munitions.
- Objection to commenters from out-of-area trying to stop the project
- There is adequate oversight for the project
- Willing to accept processing risk over risk of continued storage
- There has been a multitude of research and studies on the project
- Munitions are deteriorating with age
- Transportation is not an option

##### Does Not Agree with Permitting

- Dissatisfaction with the Environmental Impact Statement
- Issues of Environmental Justice
- Oregon should follow lead of other states trying to halt incineration
- Issues of previous exposures from Hanford
- There should not be a delay in permitting the facility
- No import of other waste should be allowed Federal law prohibits transportation so the stockpile must stay and be destroyed
- The stockpile should be moved to Tooele, Utah or JACADS
- The need to limit operations during adverse weather conditions
- The Chemical Stockpile Emergency Preparedness Program is not adequately ready. Sirens are not working, schools are not pressurized, inadequate resources at local level, the Emergency Operations Center is not pressurized and must use gas masks in an emergency, inadequate notification to immediate community, etc.,

### III. Direction From The Commission

At the November 22, 1996 meeting, the Commission made a unanimous finding that the baseline incineration system as proposed by the U.S. Army is best available technology. After making this finding, the Commission then deliberated on the remaining ORS 466.055 and 466.060 criteria. The Commission stated that the remaining criteria could be found to be made in the affirmative, and directed that the Department and the Attorney General draft an Order for Commission issuance.

**Change in UMCDF Compliance Point  
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After deliberations on the remaining findings, the Commission reviewed potential permit conditions to be included. The administrative record of this meeting indicates what specific conditions are needed to be included in the hazardous waste permit. The permit conditions, as deliberated by the Commission, have been added to the final hazardous permit (see Attachment A for a listing of the permit conditions).

The Commission also directed the Department to review the Army's comments and make the appropriate technical corrections to the hazardous waste permit, as well as corrections from other comments. The Department has conducted this review and made the appropriate changes. A discussion of these changes, as required by 40 CFR 124.17(a),<sup>3</sup> follows in section IV.D of this document.

#### IV. RESPONSE TO COMMENTS

##### IV.A. Commission Findings

The Order that the Commission issued on February 7, 1997, serves as the formal decision and Response to Comments. The Order makes effective the affirmative findings for the ORS 466.055, 466.060, and OAR 340-120 criteria, and, summarizes some of the important issues, along with the documentation and testimony (from the Commission's administrative record) used in reaching the hazardous waste decisions.

##### IV.B Summary of Commission Findings

The Order issued by the Commission on February 7, 1997 stated the following about the findings pursuant to ORS 466.055, 466.060, and OAR 340-120:

*For the finding that the baseline incineration system is best available technology:* The Commission heard testimony from alternative technology vendors, representatives of the Army (both representing alternative technology and incineration), and other experts and stakeholders from the public, both from within the region and without. The Commission also toured the similar-site facility located near Tooele, Utah.

The Commission deliberated on the issues of operational history at Johnston Atoll and Utah, issues of dioxin emissions and combustion by-product formation, issues of possible neutralization of mustard agent and other possible technologies, and issues of availability and schedule. The Commission reviewed many written comments and heard testimony regarding alternatives. The Commission was particularly persuaded by the BEST AVAILABLE TECHNOLOGY REPORT prepared for the Department by Ecology and Environment, Inc., the REPORT ON DIOXINS by Dr. Kristiina Iisa, Oregon State University, October 1996, and testimony of Army Assistant

<sup>3</sup> Adopted as Oregon Rule by OAR 340-100-002.



Secretary Decker regarding potential neutralization of mustard agent. The Commission has responded in the affirmative by vote on November 22, 1996 and issued an Order dated February 7, 1997 that the baseline system is best available technology.

*For the finding of meeting the 250 foot setback:* The Commission reviewed the Department's staff report dated November 15, 1996 and responded in the affirmative that the facility meets this criteria.

*For the finding of owner and operator capability:* The Commission heard testimony from representatives of environmental organizations, the Army, and from the public regarding the operational histories at Johnston Atoll and Tooele Chemical Disposal Facility. From the testimony and comments, the Commission responded in the affirmative that the owner and operator has demonstrated adequate capability.

*For the finding of adequate compliance history:* As above, the Commission heard testimony of representatives from environmental organizations, the Army, and from the public regarding the operational histories at Johnston Atoll and Tooele Chemical Disposal Facility. The Commission also reviewed the Department's November 1996 staff report regarding in detail the Army's compliance history at Johnston Atoll. From the testimony and comments, the Commission responded in the affirmative that the owner and operator has demonstrated adequate capability.

*For the finding that there is a need for the facility:* The Commission reviewed written comments and heard testimony regarding the need. The Commission heard issues regarding the potential to disassemble and store munitions, or even continue storage until better technologies are developed, rather than continue with incineration. The Commission concluded that UMCDF will reduce, and eventually eliminate the risk to surrounding communities from continued storage of the chemical agents and munitions; therefore the need for UMCDF is demonstrated because operation of the proposed facility will result in a higher level of protection. From the testimony and comments, the Commission responded in the affirmative.

*For the finding that the facility will have no major adverse effect on public health and safety, or the environment:* The Commission reviewed written comments and heard testimony regarding the potential effects from the UMCDF. The Commission became aware of issues of dioxin and furan formation, known and unknown combustion by-products of incineration, and of design controls proposed for the UMCDF. The Commission was particularly persuaded by the DRAFT PRE-TRIAL BURN RISK ASSESSMENT prepared for the Department by Ecology and Environment, Inc., REPORT ON DIOXINS by Dr. Kristiina Iisa, Oregon State University, PERSPECTIVES ON THE UMATILLA QUANTITATIVE RISK ASSESSMENT RESULTS prepared by SAIC, September 1996, DEQ and Ecology and Environment RESPONSE TO RISK ASSESSMENT ISSUES, and testimony of Gary Boyd, SAIC, before the Commission on November 22, 1996. From the testimony and comments, the Commission responded in the affirmative.

#### IV.C Changed Permit Conditions Based on Commission Direction

As part of its deliberations to make findings on the ORS criteria, based on the testimony from the Applicant, the Department, and from interested parties, and based on the comments and concerns raised by interested parties on emergency response issues, the Commission decided that additional permit conditions should be made part of the hazardous waste permit. In accordance with 40 CFR 124.17(a)(1),<sup>4</sup> Attachment A lists the permit conditions that have been added or changed. Through its deliberations, these conditions were included in the hazardous waste permit by the Commission because they are deemed necessary to protect human health and the environment.

#### IV.D. Technical Changes to Hazardous Waste Permit

At the November 22, 1996 Commission meeting, the Department was directed to incorporate the appropriate technical changes to the permit that do not affect policy decisions. The Department reviewed comments made by the U.S. Army and EPA Region 10 and made some permit condition changes based on significant comments.

In accordance with 40 CFR 124.17<sup>4</sup> and at the direction of the Commission, the following significant changes have been made to the hazardous waste permit.

##### IV.D.1 Technical Significant Changes Based on U.S. Army Comments

The following comments were submitted by the Army November 12, 1996 and entered as comment no. 143. The following Army comment numbers are from that submittal.

- Based on Army comment no. 9, the Department has changed permit condition I.W to allow for ten days reporting, instead of three, in order to allow the Permittee to report timely, and to allow for a more thorough report.
- Based on Army comment no. 22, the Department has changed permit condition IV.H.4. to allow primary sumps to be changed out for only those primary sump systems that detect liquids in interstitial areas (between liners), instead of all sumps per campaign/annually as proposed. The Department determined that based on the small size, the potential for tank system compromised by too much "chipping out" of the surrounding concrete, and the design of the buildings themselves which minimize releases to the environment, it would be better just to remove, inspect, and repair those primary sump systems that detect leaks between the primary liner and the secondary containment.

<sup>4</sup> Adopted as Oregon Rule at OAR 340-100-002.



- Based on Army comments no. 25 and no. 26, the Department agrees to the requirement for Total Organic Carbon (TOC) to be measured during the trial burns and not as a continuous emissions monitor. There is not a continuous emission monitor for TOC. The Department has eliminated permit condition VI.A.3.iii., and has added permit condition VI.A.5.iii.c.
- Based on Army comment no. 45, the Department agrees that sulfur dioxide (SO<sub>2</sub>), hydrocarbon (HC), and hydrogen chloride (HCl) do not need to be measured in the Metal Parts Furnace discharge airlock. It is sufficient to measure the airlock for agent to protect human health. The Department has changed Attachment 4.

#### IV.D.2 Technical Significant Changes Based on U.S. EPA Region 10 Comments

The Department met with U.S. Environmental Protection Agency Region 10 on October 28-29, 1996 to discuss comments that Region 10 had. The Department developed a memorandum of these comments and placed it in the administrative record as comment no. 187 and as administrative record index no. 2252. The comment numbers referenced below are the EPA comment numbers found in the memorandum.

- Based on EPA comment no. 19, the Department agrees that an assessment and an appropriate permit modification must be submitted to address secondary containment for the MDB carbon filters units. This condition is considered necessary and consistent with the Army review of the Tooele Chemical Disposal Facility detection of agent leaks at the carbon filters units. The Department has added permit condition II.O.10 to require an assessment within 360 days of the effective date of the permit.
- Based on EPA comment no. 36, the Department agrees that the Brine Reduction Unit, which is a unit factored in the Pre-Trial Burn Risk Assessment, should have the same level of notification requirement for emission exceedances as for the incinerator units. Therefore, the Department has added permit condition V.A4.vii to include a notification requirement if emission rates are exceeded.
- Based on EPA comments no. 43 and no. 71, the Department agrees that additional chemical-specific feed rate limits should be added in addition to the munition feed rate limits. The additional feed rate limits will help insure that any potential variations in the chemical makeup of the waste will not exceed emission limits which have been determined to be protective in the Pre-Trial Burn Risk Assessment. The Department has revised Tables 6-1, 6-4, 6-8, and 6-12, and, permit condition VII.B.3.i.

#### IV.E. Other Changes to the Permit

At the November 22, 1996 Commission meeting, the Department was directed to also make minor (i.e., insignificant) changes. The U.S. Army and U.S. Environmental Protection Agency made many minor comments regarding the draft hazardous waste permit.

The Department reviewed the comment and made appropriate changes. The changes in nature were: Typographical errors, editorial changes, wording change for clarification, modifications to aid in enforcement but not changing the requirement, changes to make condition consistent with the Part B permit application, changes to add more specificity but not changing the requirement, and changes to add more stringency without altering operations as proposed by the Permittee.

#### IV.F. Changes That Were Not Made to the Permit

As stated before, many comments were received from the Army and EPA Region 10, and just a few from others. The Commission and Department reviewed these comments and decided that their inclusion in the hazardous waste permit is not warranted.



1) *STORAGE RISK - MODIFICATION TO THE OPENING STATEMENT OF THE PERMIT INTRODUCTION FOUND ON PAGE 3*

The Permittee shall proceed expeditiously in procuring a contractor, beginning construction and commencing operation of the Umatilla Chemical Disposal Facility (UMCDF) in order to eliminate the significant risk to human health and the environment posed by the continued storage of the chemical weapons and chemical agents at the Umatilla Chemical Storage Depot.

2) *CSEPP READINESS- PERMIT CONDITIONS*

II.H.4. The Permittee shall submit within 150 days of the effective date of the permit and every 180 days thereafter until all agent at the Depot has been destroyed; a written progress report to the Department on the status of the Chemical Stockpile Emergency Preparedness Program (CSEPP). The report shall evaluate CSEPP's readiness for responding to an incident at the Umatilla Chemical Depot and should address at a minimum, status of community emergency sirens and distribution of tone alert radios of the Alert Notification System (ANS); the ability to provide off-site chemical agent monitoring and decontamination during an incident, off-site triage and treatment of casualties; and, the state of enhanced sheltering and positive pressurization of buildings, such as schools and hospitals, where substantial numbers of persons can be expected to gather daily. [40 CFR 270.32(b)(2)]

II.H.4.i. The Permittee shall not commence any thermal shakedown, trial burn, or post-trial burn activity, as defined in Module VI, until the Department has notified the Permittee in writing that it has received written notification from the Governor of the State of Oregon, or his designee, that an adequate emergency response program is in place and fully operational for protecting the general population (Chemical Stockpile Emergency Preparedness Program [CSEPP]). The written determination of the Governor (or his designee) shall be placed in the administrative record.[40 CFR 270.32(b)(2)]

3) *REMOVAL OF THE UMCDF STRUCTURES AT CLOSURE - PERMIT CONDITIONS*

II.J.9 Following submittal of all successful closure decontamination certifications in accordance with permit condition II.J.6., the Permittee shall dismantle, remove, and properly manage the disposal of the Munition Demilitarization Building (MDB) to an approved disposal facility. All other structures (e.g., buildings, parking areas, underground structures, fences, etc.) within the boundary of the UMCDF shall also be properly managed and removed to a disposal facility. All areas where structures have been removed shall be reclaimed. If the Umatilla Chemical Depot - Local Reuse Authority (UCD-LRA) identifies a use for any of the structures, except the MDB, the Permittee may request a modification to this permit condition as a class 2 modification in accordance with 40 CFR §270.42(b) and 40 CFR §270.32(b)(2) to accommodate such use.

4) *PAS CARBON FILTER UNIT AND EMISSION TO THE CARBON FILTERS - PERMIT CONDITIONS*

II.R. The Permittee shall build and operate the Pollution Abatement System (PAS)/PAS Filter Systems for each incinerator in accordance with the appropriate drawings of Volume 5, Attachment D-3 and Volume VII of the application, Sections D-5B-02, D-5B-07, D-6B-02, D-6B-04, D-7B-02, D-7B-05, D-8B-02, D-8B-04, and D-8B-05. Removal of any component of the PAS Filter Systems, including but not limited to, the quench tower, venturi scrubber, packed scrubber tower, demister, or carbon filter system shall be a Class 3 permit modification and shall require Commission approval.

VI.A GENERAL CONDITIONS DURING SHAKEDOWN, TRIAL-BURN AND POST TRIAL-BURN FOR ALL THE INCINERATORS AT THE UMCDF SITE.

VI.A.1 CONSTRUCTION AND MAINTENANCE [40 CFR§264.31](trial burn stds.)

vi. The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this permit. Each incinerator shall meet the applicable performance standards specified in permit conditions VI.B.1., VI.C.1., VI.D.1., and VI.E.1. before entering each incinerator's carbon filter system.

VII.A.8 GENERAL OPERATION (normal operation standards)

The Permittee shall maintain and operate each incinerator during shakedown, trial burn and post-trial burn periods in accordance with the operating requirements specified in this permit. Each incinerator shall meet the applicable performance standards specified in permit conditions VII.B.2., VII.C.2., VII.D.2., and VII E.2. before entering each incinerator's carbon filter system.

5) *EOC POSITIVE PRESSURE - PERMIT CONDITIONS*

II.H.5. For the UCD Emergency Operations Center (EOC) that gathers or disseminates information used to respond to off-Depot releases, the Permittee shall have a positive-pressurized Emergency Operations Center (EOC) that is adequately staffed 24 hours a day, 7 days a week. For this permit condition, "positive-pressurized" shall mean that ambient non-air vapors can not enter during times of emergency training, in the event of an actual emergency, or when tested on request by a Department inspector. The EOC must be pressurized within 300 days of the effective date of this permit, and the EOC is to comply with the staffing requirement within 90 days of the effective date of this permit.

6) *ARMY ASSURANCE OF INDEPENDENT OVERSIGHT - PERMIT CONDITIONS*

II.E.5. The Permittee shall submit, within 180 calendar days of the effective date of this permit, a written program that describes the independent oversight process for the demilitarization construction activities, health and safety operations, and chemical agent process/handling operations at the UMCDF site. All reports generated by the oversight activities described in this report and reports of independent investigations shall be made available to the Department within 15 days of report finalization, in order for the Director of the Department to attest to the effectiveness of the independent oversight program. With written direction from the Department, the Permittee shall place such



inspection reports in a public repository in Hermiston, Oregon. In the case of special independent investigations caused by unique and non-routine incidents, the Permittee shall notify the Department of the initiation of the investigation within 24 hours of the time the Permittee becomes aware of the investigations. Upon request by the Department or Commission, the permittee shall provide an updated report describing the independent oversight program that incorporates all appropriate additions and changes in response to any deficiencies or requested changes. An independent oversight review shall be conducted on a periodic basis and when specifically requested by the Department or Commission. If the Commission is not satisfied with the independent oversight program or the results of the independent investigations, the Commission may issue an order to halt immediately all operations.

7) *SHUTDOWN CONDITIONS - PERMIT CONDITIONS*

I.C.2. In accordance with ORS 466.170, the Commission may revoke this permit after public hearing upon a finding that the Permittee has violated any provision of ORS 466.005 to 466.385 and 466.890 or rules adopted pursuant thereto or any material condition of the permit, subject to review under ORS 183.310 to 183.550.

I.C.3. In accordance with ORS 466.200, if the Department or Commission finds that there is reasonable cause to believe that a clear and immediate danger to the public health, welfare or safety or to the environment exists from the continued operation of the site, the Department may halt demilitarization operations at the UMCDF. Non-compliance with the Department's written notification shall be a violation of this permit condition. Resumption of operations shall be initiated only upon written approval of the Department.

I.L.2. In accordance with ORS 466.180(1), the Department or Commission may limit, prohibit, or otherwise restrict storage and treatment operations at the UMCDF upon receipt of information that indicates non-compliance with permit condition I.L.1. The Department shall invoke such restrictions by written notification that specifies actions that the Permittee must take to comply. Non-compliance with the Department's written notification shall be a violation of this permit condition.

8) *LIABILITY ISSUE - PERMIT CONDITIONS*

II.M. The Permittee must provide the liability coverage for sudden-and-accidental-occurrence requirements, as specified in 40 CFR §264.147, and provide liability insurance in accordance with ORS 466.105(5), and 40 CFR §264.147(a) unless exempted by state or federal law.

9) *BAD WEATHER CONDITIONS - PERMIT CONDITIONS*

II.A.3. The Permittee shall submit to the Department a request for a Class 2 permit modification, within 180 days of the effective date of this permit, identifying the standard operating procedures that will be followed by Umatilla Chemical Depot and UMCDF personnel for handling and transporting munitions from the storage igloos to the UMCDF site, and for hazardous waste treatment, during inclement weather or adverse wind conditions. The Standard Operating Procedures must include a description of the weather conditions, in addition to the procedures that are to be followed by UCD and UMCDF personnel.

10) *BASELINE MONITORING - PERMIT CONDITIONS*

II.A.4.i. Within 180 days of the effective date of the permit, the Permittee shall submit for Department review and approval a Comprehensive Monitoring Program (CMP) workplan to implement a program that will confirm results of the Pre-Trial-Burn and Post-Trial-Burn Risk Assessments for each of the areas described: Zone 1 - the Umatilla Chemical Demilitarization Facility to the Umatilla Chemical Depot fence line, Zone 2 - the Umatilla Chemical Depot fence line out to a fifty-kilometer radius from the UMCDF common stack, and Zone 3 - locations beyond the fifty-kilometer radius. Within the CMP, Zone 1 also is to include a monitoring system to detect permitted and unpermitted releases. The CMP for Zones 1, 2, and 3 shall, at a minimum, include the following elements:

1. Baseline Monitoring Program, to include;
  - a) A current assessment of contamination of environmental media (e.g., air, soil, surface water) and ecological endpoints that are potential receptors from pathways from the Umatilla Chemical Demilitarization Facility (UMCDF) for each of the three zones described above; and,
  - b) A sampling and analysis plan with appropriate Data Quality Objectives (DQO), for all three zones to assess potential impacts from the UMCDF site. The sampling and analysis plan must include the rationale for the size, number and location of sampling points, frequency of sampling, and the rationale for the parameters being monitored.
2. Perimeter Monitoring Program in Zone 1, to include;
  - a) A sampling and analysis plan with appropriate Data Quality Objectives (DQO) for monitoring within and at the perimeter of, Zone 1, that is capable, in a timely manner, of assessing emissions of unpermitted releases of chemical agent from the UMCDF site, and from storage igloos, and;
  - b) An update to the Contingency Plan to include appropriate reaction and notifications.
3. An Historical Record, to include a written reporting and file maintenance program to effectively maintain the results of the Comprehensive Monitoring Program on an annual basis.

II.A.4.ii. Within 60 days of the Department's written approval of the CMP workplan, or written approval of a Department-modified CMP workplan, the Permittee shall submit a permit modification in accordance with 40 CFR 270.42 to implement the CMP workplan. All information generated pursuant to the monitoring program shall be placed in a public repository in Hermiston following written direction from the Department.

11) *OFF-SITE WASTE PROHIBITION - PERMIT CONDITIONS*

II.B. Receipt of Off-site Waste, Processing and Shipment of Onsite Waste

1. The Permittee is not authorized to accept and therefore shall not receive hazardous waste, chemical agent, or munitions containing chemical agents from off-site.
2. The Permittee shall not send any material or waste off-site that has detectable amounts of GB, VX, or HD. Only material or wastes meeting the agent-free 3X or 5X criteria may be sent off-site.



3. The Permittee shall process, in accordance with this permit, all chemical agents, and chemical agent-contaminated materials currently stored or otherwise located at the Umatilla Chemical Depot.

12) *PERMIT OPENER - PERMIT CONDITIONS*

- I.C.4. If Congress or the President makes substantial changes in the Chemical Weapons Demilitarization program or in CSEPP, the Commission reserves the right to reopen the permit, after appropriate opportunity for the permittee and, at the discretion of the Commission, government officials and the public to be heard. If the Commission determines to reopen the permit, it may remove or modify conditions or impose additional conditions, relating to the reason for reopening the permit.

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# **ATTACHMENT K**

## **“Order Clarifying Permit Decision” Environmental Quality Commission**

**March, 1999**

(DEQ Item No. 99-1490)

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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BEFORE THE ENVIRONMENTAL QUALITY COMMISSION  
OFFICE OF THE DIRECTOR  
OF THE STATE OF OREGON

FILE

In the Matter of the Application of the )  
United States Army for a Permit to ) ORDER CLARIFYING  
Construct and Operate a Chemical Weapons ) PERMIT DECISION  
Demilitarization Facility at the Umatilla )  
Chemical Depot )

BACKGROUND

1. On February 10, 1997, the Environmental Quality Commission issued the FINDINGS AND CONCLUSIONS OF THE COMMISSION AND ORDER ("Commission Order") directing issuance of a Hazardous Waste Storage and Treatment Permit to the United States Army (Army) for construction and operation of incinerators to destroy chemical weapons stored at the Umatilla Chemical Depot (the facility is known as the Umatilla Chemical Agent Disposal Facility).

2. The Commission's February 10 order was based upon certain statutory findings the Commission was required to make before issuing such a permit. Commission Order, Findings 67-86.

3. G.A.S.P., Sierra Club, and other concerned organizations and individuals opposed to use of incineration for chemical weapons destruction filed a petition for review of the Commission's order in Multnomah County Circuit Court (PETITION FOR REVIEW, Case No. 9708-06159, *G.A.S.P. et al. v. Environmental Quality Commission et al.*).

4. On December 6, 1998, the Court issued an OPINION AND ORDER ON CROSS MOTIONS FOR SUMMARY JUDGMENT ("Court Opinion and Order").

STATE OF OREGON  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
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PAGE 1 ORDER CLARIFYING PERMIT DECISION  
UMATILLA-CHEMICAL AGENT DISPOSAL FACILITY

HERMISTON OFFICE

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

5. The Court's Opinion and Order upheld the Commission's findings with only one exception, that the Commission's findings are ambiguous regarding the extent to which the Commission relied on inclusion of pollution abatement system (PAS) carbon filters. Court Opinion and Order, p. 18.

6. The Court remanded the Commission's Order for the limited purpose of further proceedings to "determine what role the PAS carbon filters play [in its analysis]." Court Opinion and Order, p. 27.

#### Findings and Conclusions Of The Commission In Response to Remand

1. The Umatilla Chemical Agent Disposal Facility Hazardous Waste Treatment Permit issued to the Army by the Commission on February 12, 1997, regulates the five incinerators that will treat various components of the chemical weapons stockpile at the Umatilla Chemical Depot. Hazardous Waste Permit, AR 40 (CD 2, folder 10A).<sup>1</sup>

2. Each of the incineration systems is designed with a standard pollution abatement system (PAS) followed by an additional carbon filtration system (carbon filters) to further clean gases emitted from the incinerator. AR 40 (CD 2, folder 10A, at Module VII).

3. The PAS carbon filters were included in the Army's permit application as part of the system design for the incinerators. The PAS carbon filters were at a preliminary design stage at the time of issuance of the permit. AR 7 (CD 1B, folder 5A, at 234-256).

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<sup>1</sup> Citations to the Administrative Record (AR) are to the document number assigned by the Department of Environmental Quality in compiling the record, shown in the index provided to the court, with the CD and folder numbers provided in parentheses for ease of reference.



4. The incinerators are designed to meet all applicable regulatory criteria without the PAS carbon filters. AR 40 (CD 2, folder 10A, at Permit Condition VII.A.8).

5. The Commission's finding that the facility will not have any major adverse effects on public health and safety, or the environment of adjacent lands (Commission Order, Finding 85) did not assume additional protection based on inclusion of the PAS carbon filters. AR 2268 (CD 1, folder 7B at 156).

6. The Commission did not rely on PAS carbon filters in finding that the baseline incineration technology is the best available technology for destruction of agent at Umatilla. (Commission Order, Finding 75).

7. For the purpose of providing an additional measure of safety the Commission has authority to require, and, therefore, has required inclusion of the PAS carbon filters as an additional pollution control component of the baseline incineration technology.

DATED this 19 day of March, 1999.

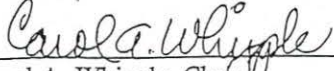
Carol A. Whipple  
Chair

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Vice Chair

Tony Van Vliet  
Member

Linda A. McMahon  
Member

Mark P. Reeve  
Member

  
\_\_\_\_\_  
Carol A. Whipple, Chair  
For the Environmental Quality Commission

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PAGE 3 ORDER CLARIFYING PERMIT DECISION  
UMATILLA CHEMICAL AGENT DISPOSAL FACILITY

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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# **ATTACHMENT L**

## **Partial Copy of Staff Report**

**EQC Meeting held on November 18-19, 1999  
“Carbon Filter System Pollution Abatement System (PFS) at the Umatilla  
Chemical Agent Disposal Facility (UMCDF)”**

**November 1, 1999**

(DEQ Item No. 99-1815)

Permit Modification Request UMCDF-03-041-PFS(3)  
“Change in Incinerator Emissions Compliance Point”  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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State of Oregon  
Department of Environmental Quality

## Memorandum

Date: November 1, 1999

To: Environmental Quality Commission

From: Langdon Marsh, Director *Langdon Marsh*

Subject: Agenda Item G, EQC Meeting, November 18-19, 1999  
Carbon Filter System Pollution Abatement System (PFS) at the Umatilla Chemical Agent Disposal Facility (UMCDF)

**Statement of Purpose**

The purpose of this staff report is to present to the Environmental Quality Commission (Commission) the results of the Department of Environmental Quality (Department) review of information and public comments, and the Department's recommendation, related to the inclusion of the Pollution Abatement System (PAS) Carbon Filter System (collectively referred to as the "PFS") at the Umatilla Chemical Agent Disposal Facility (UMCDF).

**Background**

The UMCDF permitted design is for five incinerators of four different types (housed in a single building) to treat the various components of the chemical weapons stockpile at the Umatilla Depot. Each of the furnace systems has its own standard Pollution Abatement System (PAS), although four of the five furnaces ultimately feed into a single common stack. The gases exiting the standard PAS from each furnace are further conditioned (to remove moisture) and then channeled through the PFS before being released from the main stack. The PFS consists of fixed beds of granular carbon to further clean the gases before they are released through the main stack.

In August 1997 a legal challenge to the UMCDF permits was filed in Multnomah County Circuit Court (Case No. 9708-06159) by G.A.S.P. (a local Hermiston organization), the Sierra Club of Oregon, Oregon Wildlife Federation, and 22 individuals (collectively referred to as the "Petitioners"). The Petitioners challenged the validity of the hazardous waste and air permits issued by the Environmental Quality Commission (EQC) and the Department of Environmental Quality (DEQ) ("Agencies") in February, 1997.

The Commission has stated that the PFS was required for "an additional measure of safety" (Reference 1), but the Petitioners believe that the PFS poses additional risks that were not thoroughly evaluated by the Commission. During the Court proceedings the Agencies agreed through Counsel that there would be further proceedings to address the issues related to the

Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting

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carbon filter system that had been brought forth by the Petitioners. A public comment period on carbon filter technology was opened and the Commission held a special worksession to collect additional information on the carbon filter system.

#### **Authority of the Commission with Respect to the Issue**

The criteria for unilateral modification of the UMCDF permit are set forth at 40 CFR 270.41 which is incorporated in pertinent part by reference at OAR 340-100-0002, 340-105-0041 and Division 106 (See Attachment A). Causes for unilateral modification of a hazardous waste treatment facility permit (as opposed to modifications requested by the Permittee) include:

1. Material and substantial alterations or additions to the permitted facility or activity occurring after permit issuance. *See* 40 CFR 270.41(a)(1);
2. New information which was not available at the time of permit issuance and would have justified different permit conditions. *See* 40 CFR 270.41(a)(2);
3. New statutory, regulatory, or judicially mandated standards. *See* 40 CFR 270.41(a)(3);
4. "Acts of God" or uncontrollable circumstances warranting revised compliance schedules. *See* 40 CFR 270.41(a)(4).

#### **Alternatives and Evaluation**

The Commission may decide that the information submitted by the Petitioners does not meet the criteria for unilateral modification of the UMCDF HW Permit. Alternatively, the Commission may instruct the Department to open the UMCDF Hazardous Waste Storage and Treatment Permit (HW Permit) for modification with respect to the inclusion (not configuration) of the PFS in the UMCDF pollution abatement system design. When a permit is modified under 40 CFR 270.41, only the conditions subject to modification are reopened. Changes to the design configuration of the PFS would be processed in accordance with the requirements of 40 CFR 270.42 (permit modification at the request of the permittee), as adopted by Oregon rule.

#### **Summary of Public Input Opportunities**

At the Commission's direction, a public comment period was opened on July 19, 1999, to solicit comments about carbon filter technology at UMCDF. The comment period was held open until September 20, 1999. A total of six written comments (from five Commenters) were received



during this comment period. (A copy of all written comments received by the Department was transmitted to the members of the Commission on September 24, 1999.) See Attachment B for a summary of public comments received.

On August 18, 1999, the Commission held a special worksession, which included a three-hour worksession on the UMCDF carbon filter system, and carbon filter technology in general. The Commission heard presentations from the National Research Council, the U.S. Army, Raytheon Demilitarization Company, and the Petitioners. A copy of the transcript of the EQC worksession on August 18, 1999 is included as Attachment C. (The August 18 worksession also included discussion of issues unrelated to the PFS. The carbon filter technology portion of the worksession begins on page 32 of the transcript in Attachment C.)

The Petitioners submitted information during the Court proceedings related to G.A.S.P., et al. v. Environmental Quality Commission, et al. (Case No. 9708-06159, Circuit Court of the State of Oregon). One of the exhibits from the Court proceedings was incorporated by reference by two of the Commenters (Condit, et al., and Brenner). The Department provided the Commission with a full copy of the exhibit [Attachment D] and a review of the exhibit prepared by Ecology and Environment, Inc., at the request of the Department [Attachment E].

The Petitioners also submitted a comment to the Commission related to the PFS during the public comment period that was opened from March 3-15, 1999 for the Commission's "Order Clarifying Permit Decision" [Reference 1]. In addition to providing comments on the draft Order, the Petitioners submitted an excerpt of a risk assessment of the UMCDF PFS that had been prepared by an Army contractor [Reference 2]. The Department provided the comment and a full copy of the excerpted risk assessment document to the Commission prior to their March 19, 1999 meeting.

Commenters also had opportunities to comment on the UMCDF PFS during two different public comment periods that were opened as part of a Class 2 Permit Modification Request (PMR) related to the configuration of the PFS. The Class 2 PMR was submitted to the Department on November 17, 1997 [PMR No. UMCDF-97-005-PAS(2TA)]. One comment (from G.A.S.P.) was received during the 60-day public comment period. After the close of the first public comment period the Permittees submitted "supplemental information packages" that the Department considered significant enough to require a new public comment period. One comment (again from G.A.S.P.) was received during this second 60-day public comment period. See Attachment F for documents related to the 1997 PFS Permit Modification Request.

[The Permittee submitted a new Class 2 Permit Modification Request (PMR) related to the PFS on October 19, 1999 (UMCDF-99-043-PAS(2), "Upgrade of the Exhaust Induced Draft Fans and Rectifying Permit Inconsistencies." The public comment period will be open from October 19 through December 20, with a public meeting scheduled for November 16, 1999 in Hermiston.]

Attachment B contains a summary of public comments received during the most recent comment period, to include comments presented during oral testimony on August 18, 1999. Attachment B also includes the "Chance to Comment" form, the agenda for the Commission worksession held in August, and the invitation to the Petitioners to address the Commission at the August worksession (sent through Counsels).

### Discussion

A total of six written comments (from five Commenters) were received during the most recent comment period. Three of the comments did not pertain directly to carbon filter technology, except in the sense that if an alternative treatment technology (in lieu of incineration) had been selected there would not be a need for carbon filtration of flue gases. One anonymous Commenter supported keeping the PFS in the UMCDF design because they "are needed for safety."

The Chair of the National Research Council's (NRC) "Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program" ("Stockpile Committee") gave a presentation to the Commission on an NRC report that had been released just a few days before the meeting titled "*Carbon Filtration for Reducing Emissions from Chemical Agent Incineration*" [Reference 3]. The Executive Summary of the NRC report, which includes the NRC's Findings and Recommendations) is included as Attachment G. (The NRC is the "working arm" of the National Academy of Sciences, providing scientific and technological services to governmental agencies and Congress. Attachment G includes the "Frequently Asked Questions" section from the NRC website.)

Many of the comments presented, both at the August worksession and in the written comments submitted to the Department, pertained to the NRC's "*Carbon Filtration*" report. The Department retained Ecology and Environment, Inc., (E&E) to review the NRC report in the context of its applicability specifically to the UMCDF design, potential ramifications to the UMCDF "Pre-Trial Burn Human Health and Ecological Risk Assessment" conducted in 1996, and the health and ecological risk assessments that will be conducted after the completion of UMCDF trial burns.

E&E concluded that the NRC carbon filter report "is generally well written and accurate," but noted that some of the "statements and conclusions about health risks" were based on "documents that were not evaluated by DEQ or the EQC." The E&E reviewer cautioned DEQ and EQC against using the NRC carbon filter report as the sole basis for making conclusions about the emissions reduction performance and/or the human health risks of the PFS at UMCDF. A copy of the E&E "Technical Memorandum: Review of *Carbon Filtration for Reducing Emissions from Chemical Agent Incineration*" is included as Attachment H.



The discussion presented below is limited to the two written comments that related directly to carbon filters, oral testimony from the August 18 worksession, and discussion of the exhibit that was submitted during the Court proceedings [Attachment D] that the Commenters incorporated by reference. The discussion below does not include Commenters' criticisms of the NRC *Carbon Filtration* report, except as they relate specifically to UMCDF carbon filters. The principal authors of the NRC *Carbon Filtration* report were present at the August worksession, and responded directly to the Commenters immediately after their oral testimony to the Commission. (See pages 52-70 of the transcript in Attachment C.)

The Department evaluated the public comments (and other information submitted by the Petitioners during the course of legal proceedings) on the basis of whether the information was new information which was not available at the time of permit issuance that would have justified different permit conditions. See 40 CFR 270.41(a)(2).

#### *Completeness of the PFS Design*

The Commenters believe that it is clear that the design of the PFS at UMCDF has not yet been finalized, and that DEQ and EQC could not have set permit conditions that are protective of public health and the environment without review of the final design. One Commenter argues that the permits issued for UMCDF should be revoked because if the PFS design was not finalized, then the Permittee's Application was incomplete, and the EQC had no authority to issue permits in the first place.

The Department is aware that the PFS design is still incomplete. The Permittee's Class 2 Permit Modification Request (PMR) submitted in November, 1997 was conditionally approved in November, 1998 (See discussion of the PMR in "Summary of Public Input Opportunities" above and related documents in Attachments F and I). The conditional approval letter (See DEQ Item No. 98-0938 in Attachment F) required the Permittee to submit additional information related to the PFS, which resulted in further Department inquiries. The Department and the Permittee exchanged correspondence during 1999 related to various documents concerning the PFS and on August 24, 1999 the Department sent the Permittee a letter requiring the submittal of another Permit Modification Request to reflect the final design of the PFS (See DEQ Item No. 99-1398 in Attachment F).

The Permittee submitted a new Class 2 Permit Modification Request (PMR) related to the PFS on October 19, 1999 (UMCDF-99-043-PAS(2), "Upgrade of the Exhaust Induced Draft Fans and Rectifying Permit Inconsistencies"). The public comment period will be open from October 19 through December 20, with a public meeting scheduled for November 16, 1999 in Hermiston. The Commenters, and the Department, will have additional opportunity to review the PFS design

configuration contained in this most recent PMR in light of the issues brought forth by the National Research Council and through the recent EQC-initiated public comment process on carbon filtration technology.

#### *Use of a "Fixed Bed" Design*

Commenters have expressed concern that the fixed-bed design of the carbon filtration technology being employed at UMCDF poses several process operation and safety risks, and that the design is "unproven." The National Research Council [Appendix C of Reference 3] was able to identify 22 commercial combustion facilities (most of which were located in Germany) that were utilizing fixed-bed carbon filters to "remove residual sulfur dioxide and hydrogen chloride, mercury, organic solvents, and semivolatile organics like dioxins and furans."

The Commenters point out the possibility of "channeling" that can occur in a fixed-bed filter, potentially allowing flue gases to pass almost directly through the carbon material. The UMCDF PFS carbon filters will be comprised of a set of carbon beds in series. The granular carbon media at UMCDF will be packed into the filter beds and subjected to physical vibration to ensure a tight enough pack to significantly reduce the possibility of loose-fill areas that could allow channeling. The Department believes that the packing method, combined with the multiple carbon beds and chemical agent monitoring between the beds, will be sufficient to minimize the possibility of channeling, or to detect chemical agent if channeling or "breakthrough" of the carbon beds occur.

#### *The Ability of Carbon to Adsorb Chemical Agent*

The Commenters have questioned the ability of the activated coconut shell carbon (the type of carbon proposed for use in the UMCDF PFS) to adsorb chemical warfare agents. The Department has reviewed numerous documents (see Attachment I) that provide data supporting the conclusion that carbon is effective in removing agent from the flue stream. The National Research Council also provides supporting data referring to the ability of activated carbon to adsorb chemical agent (see Reference 3). The Department believes the design of the UMCDF PFS allows sufficient carbon capacity not only to adsorb residual pollutants from the gas stream, but also provides sufficient capacity to capture and retain excess emissions (not only of agent, but also of constituents such as dioxins and furans) caused by transient upsets occurring in the UMCDF furnaces upstream of the PFS.

Commenters also expressed concern over the possibility of "off gassing" occurring if the carbon in the PFS is subjected to high temperatures. The Department agrees that excessive temperatures in the PFS could result in off-gassing of accumulated material. The Department has reviewed several reports by the Edgewood Research Development and Engineering Center (ERDEC) that discuss



the results of tests conducted to study the effects of temperature (see Attachment I). The Department believes that the risk of off-gassing due to high inlet temperatures to the PFS is mitigated by the automatic waste feed cut-off settings for the furnaces that will be activated at a temperature below the temperature that will produce off-gassing from the carbon. In addition, the PFS design incorporates an emergency bypass feature to reduce the risk of carbon bed ignition in the case of extremely high inlet temperatures.

### *PFS Safety Risks*

The Commenters expressed concern that the safety and health risks posed by the operation of the PFS have not been adequately characterized for either the on-site workers or the off-site population. The National Research Council agreed, and included in their report the statement (see Findings 4, and 5 and associated recommendations in Attachment G) that "the risk of acute hazards to workers...has not been adequately characterized" and that "if increased worker risks and hazards are identified, it is not clear what steps the army would take to mitigate them." The NRC goes on to recommend that the "Phase 2" Quantitative Risk Assessments should "include a complete evaluation of worker risk associated with the addition of the pollution abatement system filter system" and that the Army should clarify what mitigation measures will be taken to protect both the workers and the public. Nevertheless, the NRC concluded that the risks posed by the PFS to off-site populations was "negligible" and that the PFS as a whole was "risk-neutral."

The Department shares the concerns of the Commenters regarding the risks both to the workers and to the off-site population, and concurs with a statement made by one of the Commenters during the August 18 worksession that "the workers are members of the public." Although worker risk can often be mitigated through risk management actions (careful implementation of procedures, limited access, etc.), the Department believes that further study of both worker risk and potential health risks to off-site populations due to the operation of the PFS is warranted.

### *Operation of the PFS During "Upset" conditions*

The Commenters expressed grave concern that there are plans to bypass the carbon filter bed in case of accidents or upsets, and that "if you have to bypass them when you are in a critical event" then you are defeating the purpose of "giv[ing] us some additional security in the event of a...serious malfunction." The Department believes that there is a misunderstanding on the part of the Commenters concerning the conditions under which the PFS will be "bypassed." The PFS will not be bypassed during furnace upset conditions, unless the furnace upset conditions are having effects downstream that are resulting in PFS upset conditions. The bypass feature on the

PFS is provided for safe operation in the case of, for example, unacceptably high inlet temperatures to the PFS that could pose a risk of fire in the carbon beds. The PFS will not be bypassed solely because of upset conditions in furnace.

*The Use of a "Five-Stage" Pollutant Abatement System*

The Commenters recommend that the Commission require UMCDF to use a "five-stage pollution abatement system." The Commenters cite an article in the "Journal of Hazardous Materials" that recommends the use of a four- or five-stage pollution abatement system for dioxin and furan control, including 1) a quench tower; 2) acid gas wet scrubber (for hydrogen chloride and hydrogen fluoride); 3) a scrubber for sulfur dioxide; 4) an activated carbon filter; and/or 5) an "SCR" system for NOx (Nitrogen oxides) control. [The Department assumes that "SCR" system refers to a "Selective Catalytic Reduction" system.]

The Department notes that the design of the UMCDF incorporates just such a pollution abatement system, including the use of quench tower (for rapid cooling to prevent dioxin formation and wet scrubbing with caustic solution to neutralize acid gases), a venturi scrubber (for particulate and acid gas removal), a packed bed scrubber tower (for final treatment of acid gases), a demister tower (for removal of sub-micron particles and metal oxides), and the activated carbon filtration provided by the PFS.

The Department believes that the pollution abatement system employed at UMCDF will be more than adequate to insure that UMCDF can meet all of Oregon's emission standards, even without the addition of the PFS. Permit Conditions VI.A.1.vi and VII.A.8 of the UMCDF HW Permit require that "Each incinerator shall meet the applicable performance standards...**before** [*emphasis added*] entering each incinerator's carbon filter system." The PFS provides the "additional measure of safety" that the Commission desired when it granted the permits in 1997.

*"Exhibit 74"*

This document is an exhibit that was submitted related to Case No. 9708-06159 (Circuit Court of the State of Oregon), and was incorporated by reference in the comments of both Lisa Brenner and Richard Condit, et al.. "Exhibit 74" is titled "*An Analysis of Kriistina Iisa's Report Concerning the Emission of Dioxin and the Use of PAS Carbon Filters for the Oregon Environmental Quality Commission*" (Attachment D).

Exhibit 74 is a "critique" by Drs. Brenner and Stibolt of a report written in 1996 by Dr. Iisa of Oregon State University in response to questions posed by the EQC related to dioxin control from incinerators. The critique contains extensive and serious allegations about "whether the



report authored by Kristiina Iisa...is a deliberate attempt to mislead the reader." The Commenters allege that the Commission should not have relied on Dr. Iisa's information concerning the ability of carbon filtration to capture and retain emissions from UMCDF. The exhibit included numerous attachments and appendices to support the allegations, which have been provided to the Commission separately. (Attachment D contains only the main body of Exhibit 74.)

The Department retained E&E to review Exhibit 74 and provide a report on whether the allegations had a basis in fact. The E&E authors of the "Technical Memorandum" (Attachment E) concluded that "statements made by Professor Iisa in her report were correct given the information available at the time. Overall, Professor Iisa's report accurately summarizes the information presented in her references. The statements and claims made in the affidavit are largely without validity. Some statements accurately highlight the uncertainty related to dioxin emissions, but these uncertainties were acknowledged by Professor Iisa and would not change the conclusions of her report."

### Conclusions

The Department has concluded that there is no basis at this time for unilateral modification by the Commission of the UMCDF Hazardous Waste Treatment and Storage Permit as related to the PFS.

The Department believes that the fixed-bed design of the UMCDF carbon filtration system is not unique, and has been demonstrated as effective when applied to large combustion facilities, including hazardous and medical waste incineration facilities. Agent monitoring will be conducted between the carbon beds, and if agent is detected because of carbon channeling, carbon saturation, and/or off-gassing, there will be an automatic waste feed cut off of agent feed to the affected furnace. The UMCDF PFS has the capacity to capture and retain transient flue gas emissions caused by upset operating conditions upstream in a furnace.

### Intended Future Actions

The Department will review the Class 2 Permit Modification Request related to the PFS submitted by the Permittees in October, 1999, and will revise PFS-related permit conditions as necessary. The Department will review the Permit Modification Request in light of the issues identified by the National Research Council and the Commenters concerning operational risks and design completeness of the PFS.

Department Recommendation

The Department recommends that the PFS be retained as part of the UMCDF design, and that the Commission find that there is insufficient basis for unilateral modification of the UMCDF Hazardous Waste Storage and Treatment Permit related to the inclusion of the PFS.

The Department also recommends that the Commission send a letter to the Office of the Governor requesting that Oregon Occupational Safety and Health Administration (OR-OSHA) review the issues related to worker risk at UMCDF.

Attachments

- Attachment A: "*Authority to Modify Hazardous Waste Facility Permits*," Memorandum from Larry H. Edelman, Oregon Department of Justice, to Environmental Quality Commission, August 4, 1999. [DEQ Item No. 99-1344]
- Attachment B: Documents related to the Public Comment Period July 19-September 20, 1999 (Summary of Public Comments received, "Chance to Comment" Form, Agenda for the August 18, 1999 EQC Worksession, and invitation to present oral testimony). [DEQ Item Nos. 99-1816, 99-1200, 99-1245, and 99-1320]
- Attachment C: Worksession on the Umatilla Chemical Agent Disposal Facility, Partial Transcript of the August 18, 1999 Worksession, prepared by the Department of Environmental Quality. [DEQ Item No. 99-1509]
- Attachment D: "*An Analysis of Kristina Lisa's Report Concerning the Emission of Dioxin and the Use of PAS Carbon Filters for the Oregon Environmental Quality Commission*," an attachment to the Affidavit of Lisa P. Brenner, Ph.D. and Thomas B. Stibolt, M.D., Exhibit 74 to "*Petitioners' Opposition to Respondents' Supplemental Motion for Summary Judgment*," Case No. 9708-06159 (Circuit Court of the State of Oregon), April 12, 1999. [DEQ Item No. 99-0704]
- Attachment E: "*Review of Affidavit by Lisa P. Brenner, Ph.D. and Thomas B. Stibolt, M.D.*," Technical Memorandum prepared by Ecology and Environment, Inc., September 15, 1999. [DEQ Item No. 99-1528]
- Attachment F: Documents related to the Pollution Abatement System Carbon Filter System Class 2 Permit Modification Request [UMCDF-97-005-PAS(2TA)] {Conditional Approval Letter (November 1998), Request for Further Information (August 1999), Notice of Decision (November 1998), and Response to Comments (November 1998)}. [DEQ Item Nos. 98-0938, 99-1398, 98-0991, and 98-0989, respectively]



Attachment G: Executive Summary of "*Carbon Filtration for Reducing Emissions from Chemical Agent Incineration*," National Research Council, August 1999. [DEQ Item No. 99-1410]

Attachment H: "*Review of the NRC report, Carbon Filtration for Reducing Emissions from Chemical Agent Incineration*" Technical Memorandum, Ecology and Environment, Inc., October 7, 1999. [DEQ Item No. 99-1678]

Attachment I: Reference Documents Related to the Class 2 Permit Modification Request UMCDF-97-005-PAS(2TA) and other technical documents reviewed by the Department concerning the use of carbon filtration technology.

Reference Documents (available upon request)

1. "*Order Clarifying Permit Decision*," Environmental Quality Commission, March 19, 1999. [DEQ Item No. 99-0490]
2. "*Risk Assessment of the Pollution Abatement Filter System for the Umatilla Chemical Agent Disposal Facility*," Mitretek Technical Report MTR 1997-60, September 1998. [DEQ Item No. 99-0066]
3. "*Carbon Filtration for Reducing Emissions from Chemical Agent Incineration*," National Research Council, August 1999. [DEQ Item No. 99-1410]

Other Reference Documents

The Department has reviewed a significant number of technical documents, and exchanged correspondence with the Permittee, related to carbon filter technology. Some of the documents and correspondence has been listed separately in Attachment I.

Approved:

Section:

Sue Oliver (ACTING MGR.)

Division: \_\_\_\_\_

Report Prepared By: Sue Oliver

Phone: (541) 567-8297, Ext. 26

Date Prepared: October 26, 1999

**Change in UMCDF Compliance Point  
May 20-21, 2004 EQC Meeting**

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# CARBON FILTRATION FOR REDUCING EMISSIONS FROM CHEMICAL AGENT INCINERATION

Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program  
Board on Army Science and Technology  
Commission on Engineering and Technical Systems  
National Research Council

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NOTICE: The project that is the subject of this report was approved by the Governing Board of the National Research Council, whose members are drawn from the councils of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine. The members of the committee responsible for the report were chosen for their special competencies and with regard for appropriate balance.

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**COMMITTEE ON REVIEW AND EVALUATION OF THE  
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## Executive Summary

The Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program (Stockpile Committee) of the National Research Council has endorsed incineration (with comprehensive air pollution control systems) as a safe and effective procedure for destroying chemical agents and munitions. Recognizing, however, that some public opposition to incineration (based primarily on substances of potential concern [SOPCs] that could escape into the atmosphere with the combustion gas) has always existed, the committee also recommended that the Army study the addition of a carbon filtration system to improve the existing pollution abatement system. This recommendation reflected the committee's belief that (1) reductions in emissions resulting from carbon filtration systems, however small, could increase public confidence, and (2) a carbon filter would virtually eliminate the possibility of an accidental release of a chemical agent through the stack.

When the first recommendations were made in 1991 and 1992, carbon filters were being introduced in Europe. Since then, the Army has evaluated the European experience and decided to add carbon filters to the baseline incineration systems for the disposal of chemical weapons stockpiles at Anniston, Alabama; Umatilla, Oregon; and Pine Bluff, Arkansas. Carbon filters are called for in the Resource Conservation and Recovery Act (RCRA) permits for the Anniston, Umatilla, and Pine Bluff sites, where construction of the disposal facilities is already under way.

Since these decisions were made, data from trial burns conducted at the operating Tooele Chemical Agent Disposal Facility (TOCDF) near Tooele, Utah, have become available. Although this facility does not have a carbon filtration system, the data show very low

emitted concentrations of SOPCs, including dioxins and metals. The concentrations measured at the TOCDF were either the lowest or among the lowest emitted concentrations in the Environmental Protection Agency's (EPA's) Hazardous Waste Combustor Emissions Database. Chemical agent, if present at all, was below the detection limit, which is also below the levels generally believed to have deleterious environmental or health effects. Nevertheless, an Army study modeling the performance of carbon filters concluded that they would reduce many SOPCs to even lower levels. The committee concurs with this judgment.

The carbon filter system, including associated gas conditioning equipment designs, had not been finalized at the time this report was prepared. Suggested design alternatives were available, however, and the committee concluded that an effective pollution abatement system carbon filter system (PFS) design could be implemented.

The Utah Department of Environmental Quality's Division of Solid and Hazardous Waste, which conducted the health risk assessment (HRA) for the Tooele facility, determined that the health risk to the public posed by the incinerator stack gas emissions was below the level of regulatory concern. HRAs have also been conducted by Army contractors for the Anniston and Umatilla facilities in which the effects of adding carbon filters to the baseline incineration system pollution abatement systems were considered, but only in terms of changes in the exhaust gas flow rate and temperature, not reduction in emissions of SOPCs. These studies did not quantitatively evaluate the potential benefits of the PFS, but even without carbon filtration systems, emissions are expected to be below the levels of regulatory concern.

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Based on quantitative risk assessments (QRAs) (estimates of the probability and consequences of accident scenarios that could lead to a release of agent) completed at Tooele and under way at Anniston and Umatilla, the increased risk to the public from an accidental release of agent associated with carbon filters was found to be negligible (i.e., orders of magnitude below the risks people face every day). This was not so for worker risk. In the Anniston QRA analysis carried out using the Phase 2 QRA from the TOCDF, modified for the presence of a PFS, the only type of upset condition that would increase the risk of agent release was blockage of the exhaust gas flow by the PFS coupled with loss of the induced draft (which maintains the pressure drop for the exhaust gas flow). The risk of an explosion of agent vapor caused by blockage of the PFS represents 3 percent of the total worker risk. Individual worker fatality risk from agent over the facility life attributable to upsets in the pollution abatement system are estimated at  $3.3 \times 10^{-5}$  with the PFS and  $1.1 \times 10^{-5}$  without the PFS. This is in contrast to total worker risk from agent over the facility life of  $4.1 \times 10^{-4}$  as estimated for TOCDF. These findings also can be compared with the worker accidental death rates of  $3 \times 10^{-5}$  per year for manufacturing and  $1.5 \times 10^{-4}$  per year for construction industries during 1996. The increased risk at the TOCDF is within the range of the uncertainty of worker risk analysis at the facility but significant enough to warrant further evaluation.

The QRAs assess the risk of accidental releases of chemical agent, but they do not address "normal" industrial risk to workers. Hazards to workers from operating and maintaining an industrial facility (hazards not related to agent) will be evaluated during design and prior to commissioning, as part of the health, safety, and environmental evaluations for baseline facilities. If carbon filters are used, they will be included in these evaluations and the risk management and safety programs of each facility. Two risks that are frequently mentioned in this connection are risks associated with potential fires and risks during disposal of the carbon. PFS design and monitoring plans substantially mitigate the risk of potential carbon fires. The amount of potentially contaminated carbon from the PFS that will require disposal is small in comparison to the amount of agent-contaminated carbon that will require disposal from the treatment of the ventilation air for the facility.

The QRAs for three sites (Tooele, Anniston, and Umatilla) to date all confirm the committee's previous

observations: (1) the major hazard to the public is from the stored agent and munitions in the stockpile itself; and (2) the risk introduced by stockpile disposal processing is relatively small (less than 1 percent of the stockpile storage risk). Major changes in a RCRA permit may engender a considerable delay that would increase the overall risk to the public. However, the magnitude of the increased storage risk depends on the length of the delay (which is uncertain). The increased risk from prolonged stockpile storage has been estimated on a *per year of storage* basis. For the population 2 to 5 km from the Anniston Chemical Agent Disposal Facility, the individual public fatality risk is  $1.4 \times 10^{-5}$  per year, and the societal public fatality risk is  $2.6 \times 10^{-2}$  per year. This risk is in contrast to the disposal processing risks for the same population of  $3.8 \times 10^{-8}$  per year (individual public fatality risk) and  $1.8 \times 10^{-5}$  (societal public fatality risk). Thus, the *per year* risk from storage is at least three orders of magnitude higher than the risk from disposal processing. Hence, very short delays would increase public risks more than the total public risk from disposal. A delay of approximately one year would result in increased individual public risks of the same order of magnitude as the estimated increase attributable to the PFS in individual worker fatality risk over the *entire* period of disposal processing. Consequently, public risk will be minimized by the expeditious safe destruction of the stockpile.

Conceptually, the committee agrees with the Army's decision to proceed with the current designs at Anniston and Umatilla and not to alter the operating configurations of JACADS and the TOCDF. Removing or adding carbon filters at this point is likely to cause delays that will increase the risk to workers and the public. However, potential increases in worker risk from the carbon filters, which were initially estimated to be small, require further evaluation. To mitigate the potential adverse consequences of adding carbon filters at Anniston and Umatilla, worker risk should be evaluated quickly and managed effectively, including changing the PFS design, if necessary.

The Army's initial attempts at public outreach using its change management process (CMP) in PFS decision making did not elicit meaningful public involvement or comment during the decision process, and several shortcomings of the CMP have now become apparent. First, public involvement must be initiated much earlier in the process of evaluating change. For example, public involvement could have helped the



Army formulate the questions to be answered during the PFS risk evaluation. Second, public involvement should allow for public input prior to making decisions on major process changes, even if initial assessments indicate that no change is preferred. Third, for the CMP public involvement process to be credible and engender public trust, the Army must provide clear guidelines for initiating the CMP, which should not be circumvented by executive decision.

The Army's decisions not to change the configurations at Tooele, Anniston, and Umatilla were made in the context that the original intent of the PFS was to reduce risk and increase public confidence. These goals were to be achieved by adding another air pollution control system component to polish the effluent and curb whatever pollutants would have been emitted without the PFS. However, the results of the Army's analysis showed that changes to risk would be small, that these changes could be improvements or degradations depending on the population considered and the uncertainty analysis, and that the risks could be different for the public and workers. In addition, the Army's presentation of the risk evaluations was difficult to understand and was not issued in a self-contained document delineating (1) comparisons of each risk component with and without the PFS and (2) the Army's rationale for making no changes to the current site configurations. These crucial lapses all but precluded the public from following the process or influencing the results.

## FINDINGS AND RECOMMENDATIONS

The estimated concentrations and emission rates of SOPCs from chemical agent incinerator operations developed during the permitting processes for the Anniston Chemical Agent Disposal Facility and the Umatilla Chemical Agent Disposal Facility were below the thresholds of regulatory concern, whether or not a passive carbon filtration system (like the PFS) was included in the facility design. Therefore, the committee considers PFS to be risk neutral to off-site populations.

The addition of a PFS to the PAS would probably reduce the already low emissions of some SOPCs during normal, transient, and upset operating conditions. However, a PFS would also increase worker risk by making the facility more complex and by introducing new scenarios for potential facility upsets and failures. The extent of the increase in worker risk is not clear

because all of the applicable risk evaluations (e.g., Phase 2 QRAs and health, safety, and environmental evaluations) and resulting risk mitigation measures have not yet been completed. Preliminary assessments, however, indicate that the increase in worker risk would be small.

Significant changes in permitted facility designs require permit modifications, which could cause substantial delays. Because risk analyses consistently indicate that the storage risk to the public and workers is much greater than the processing risk, changing the permitted configuration at any stockpile site is likely to increase the overall risk by delaying destruction of the stockpile.

**Finding 1a.** The reported emitted concentrations of SOPCs measured during trial burns at the JACADS and TOCDF incinerators are among the lowest reported to the EPA. TOCDF emissions are the lowest, or at least one of the lowest, in dioxins, mercury, cadmium, lead, arsenic, beryllium, and chromium. The reported emissions of some SOPCs were based on the analytical detection limit for the constituent, which means the actual concentration could be much lower than the reported concentration. Maximum emitted concentrations from JACADS were used for the HRAs for other baseline facilities to ensure that estimates of risks would be conservative.

**Finding 1b.** In 1992 and 1994, the NRC recommended that the Army investigate using carbon filters for two purposes: (1) to contain transient stack emissions or accidental releases of agent and (2) to increase public confidence in incineration. Activated carbon filters in use at several large incinerators in Europe meet very stringent regulations on emissions of chlorinated dioxins/furans and are considered to be the state-of-the-art technology for this purpose. Based on preliminary design evaluations, activated carbon in the PFS of the Army's baseline incineration system is likely to have sufficient adsorption capacity to reduce emitted concentrations of dioxins, furans, HD, VX, and GB for more than a year of normal operations before the activated carbon would have to be replaced. The activated carbon would also have the capacity to adsorb a chemical agent in case of a major upset; however, a major upset would necessitate the immediate replacement of the activated carbon.

The addition of carbon filters to a baseline incineration PAS does not appear to reduce the health risk to



the surrounding population substantially because the health risk is already small (see Finding 1a). Nevertheless, reinforcing public and worker confidence is an important goal.

**Recommendation 1.** The Army should only consider removing the carbon filtration system from the permitted designs of the Anniston, Umatilla, or Pine Bluff facilities if, after a thorough implementation of the change management process to ensure meaningful public involvement, the public supports that decision.

**Finding 2.** Based on the evaluation of preliminary PFS design alternatives, an effective design for the PFS is feasible. Operating facilities in several countries now have significant experience in the design and operation of activated carbon filters.

**Recommendation 2.** The Army should take advantage of the experience of other users of carbon filters through appropriate consultation.

**Finding 3.** The Army has evaluated the implications of adding or removing passive carbon filter systems to the baseline incineration systems at the Tooele, Anniston, and Umatilla disposal facilities. Some of the impacts on risk to public health from stack emissions were evaluated by comparing the HRAs for the existing baseline facilities to estimates of the upper bound of public health risk posed by the addition of the PFS. However, the potential reductions in public health risk were not estimated, and the evaluations of impacts to off-site populations were incomplete.

An estimate of the impact on risk of accidents leading to agent-related public fatalities was made by expanding the Anniston and Umatilla Phase 1 QRAs to consider the addition of the PFS. The impact of the PFS on worker risk, which is not evaluated in the Anniston and Umatilla Phase 1 QRAs, was estimated by extrapolating the Tooele Phase 2 QRA results (which does include worker risk) to these other facilities. The Phase 1 QRAs for the Anniston and Umatilla facilities were also used to estimate increases in risk to the public from extended storage of the stockpile due to the PFS. Thus, the QRA evaluations completed to date are initial estimates of the magnitude of increased risk to the public from accidental releases of agent resulting from the addition of the PFS, but they are not complete evaluations of worker risk. Moreover, the range of potential delays to stockpile destruction

caused by permit modifications and physical changes to the current site-specific baseline incineration configurations has not been defined.

Based on these estimates, the Army concluded that "[the] current plan to install and operate the PFS at the ANCDF [Anniston] and the UMCDF [Umatilla] remains the best course of action for maximizing human health and environmental protection," and that the TOCDF should continue to operate without a PFS. The decision to continue with the current configurations at permitted facilities eliminates increases in risks to the public and workers from potential delays in stockpile destruction caused by facility modifications or permit changes. Although worker risk from current PFS configurations is uncertain, based on the available risk estimates and projected schedules, the committee concurs with the Army's conclusion.

**Recommendation 3.** To minimize increased risks to off-site populations and on-site workers from delays in stockpile destruction, the Army should proceed with the current configurations, which include carbon filtration systems at Anniston and Umatilla, and should continue operations at Tooele, which does not have a carbon filtration system.

**Finding 4.** Only the Phase 1 Anniston and Umatilla QRAs have been completed. The risk of acute hazards to workers, probably the receptors at greatest risk from a mishap involving the PFS, has not been adequately characterized. Early initiation of the Phase 2 QRAs could identify these risks while facility design and construction are in progress and give the Army greater flexibility to modify facility designs and operating procedures, if necessary.

**Recommendation 4a.** The site-specific Phase 2 QRAs for Anniston, Umatilla, and Pine Bluff, which would identify and analyze specific failure modes, should include a complete evaluation of worker risk associated with the addition of the pollution abatement system filter system. The Phase 2 QRAs for each site should be initiated as soon as possible and should be completed and reviewed by independent technical experts before systemization of the facilities at Anniston, Umatilla, and Pine Bluff is completed.

**Recommendation 4b.** A risk management plan should be developed to minimize worker risk during the operation and maintenance of the pollution abatement system



filter systems. The evaluation of operating and maintenance risks should include the operational experience of similar systems. If the increased risk to on-site workers is found to be substantial, the Army should consider making modifications, as long as they do not substantially increase overall worker or public risk from prolonged storage.

**Finding 5.** If increased worker risks and hazards are identified, it is not clear what steps the Army would take to mitigate them. Nor does the Army have a clear decision basis for balancing reductions in public risk and increases in worker risk.

**Recommendation 5.** The Army should clarify to the public and facility workers the risk management actions that would be taken if increased worker risks are identified. The Army should also clarify the decision basis for balancing reductions in public risk against increases in worker risk while fulfilling its mandate to protect both workers and the public.

**Finding 6.** The PFS was assumed to have no effect on concentrations of SOPCs in the HRA calculations for Anniston and Umatilla. The effects of SOPCs emitted from the stacks at these facilities have been estimated to be below the thresholds of regulatory concern without the benefit of the PFS. However, changes from installing a PFS have not been determined in a way that facilitates quantitative comparisons.

**Recommendation 6.** Future health risk assessments should include estimates of emitted and ambient concentrations of SOPCs, with and without the PFS, for all substances that contribute significantly to the overall risk. Because PFS performance cannot be based on actual measurements, the analysis should consider the implications of reducing emissions to both the method detection limit and the levels indicated by engineering

calculations, including quantitative evaluations of the uncertainties associated with each risk estimate. The results, including the acute and latent risks, should be reviewed by independent technical experts. The results should then be presented in a way that facilitates public input to decision making.

**Finding 7.** Because of the length of time required to complete the preliminary PFS risk assessment, the fact that this evaluation is still incomplete, and the status of construction activities at Anniston and Umatilla, meaningful public involvement in the decision to include the PFS at these sites is no longer possible. The CMP Plan and the CMP Public Involvement Outreach Plan were not effectively implemented during the Army's analysis of the PFS. The lack of public involvement in this process represents a lost opportunity for the Army to develop its CMP and to implement the CMP public outreach process.

**Recommendation 7a.** The health risk assessment and quantitative risk assessment for Pine Bluff should be completed as quickly as possible and communicated to the public in a timely manner so that there can be meaningful public involvement in the decision process to retain or remove the carbon filter system. The risk assessments should be subject to independent expert review and the findings incorporated into the decision-making process.

**Recommendation 7b.** The Army should continue to refine its change management process and the change management process public involvement plan. Public involvement should be an integral part of future evaluations of the pollution abatement system filter system, especially at Pine Bluff. The committee repeats its recommendation that the Army involve the public meaningfully in the Chemical Stockpile Disposal Program as a whole.





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General Questions



## The National Research Council

### Q. What is the National Research Council?

The National Research Council is the working arm of the National Academy of Sciences and the National Academy of Engineering, carrying out most of the studies done in their names. The Research Council is not a membership organization. It was organized in 1916 in response to the increased need for scientific and technical services caused by World War I. The Research Council is administered jointly by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine, and its work is overseen by a Governing Board and an Executive Committee. The president of the National Academy of Sciences is the chair of both the Governing Board and Executive Committee; the president of the National Academy of Engineering is vice chair.

As indicated on the [Program Organizational Diagram](#), the National Research Council consists of the following units, which direct most of its programs:

- Commission on Behavioral and Social Sciences and Education
- Commission on Engineering and Technical Systems
- Commission on Geosciences, Environment, and Resources
- Commission on Life Sciences
- Commission on Physical Sciences, Mathematics, and Applications
- Office of International Affairs
- Office of Scientific and Engineering Personnel
- Board on Agriculture and Natural Resources
- Center for Science, Mathematics and Engineering Education
- Policy Division
- Transportation Research Board

### Q. What is the basic mission of the National Research Council?

The basic mission of the National Research Council is to provide most of the services to governmental agencies and the Congress that are undertaken by the National Academy of Sciences and the National Academy of Engineering in their role as advisers to the federal government. The Research Council does this primarily through its committee structure, calling upon a wide cross section of the nation's leading scientists, engineers, and other professionals, who serve on its committees without pay.

the National Research Council

**Q. Who requests and supports the work of the National Research Council?**

Most of the requests for Research Council studies come from governmental agencies or from the Congress; some are initiated internally; and a few are proposed by other external sources. About 85 percent of the funding comes from the federal government through contracts and grants from agencies and 15 percent from state governments, private foundations, industrial organizations, and funds provided by the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine for internally generated projects of a critical nature.

**Q. Does the Research Council originate and fund any of its work on its own?**

Yes, although only limited resources are available for self-initiated work. The Academics and the Institute of Medicine have devoted much effort in recent years to building up their endowments in order to be able to expand the capacity to pursue self-initiated activities. However, such undertakings always will remain a small part of the institution's overall operations.

**Q. Does the Research Council solicit funds or accept donations?**

Yes, it does solicit funds and accept donations from non-governmental sources. However, all funds, regardless of their source, are accepted by the Research Council with very stringent conditions in order to ensure that the acceptance of any funds does not influence the objectivity, scope, method of study, or membership of a study group.

**Q. What is the Research Council's tax status?**

The National Research Council functions under the National Academy of Sciences, which is a nonprofit organization. The National Academy of Sciences is exempt from federal income taxes under section 501(c)(3) of the Internal Revenue Code.

**Q. How many active Research Council and Institute of Medicine committees are there?**

In a typical year, there are a total of more than 1,000 committees with approximately 10,000 professionals volunteering their time to serve on them.

**Q. Does the Research Council do research? Fund research?**

The Research Council has no research laboratories. Rather than conducting its own research, it generally evaluates and compiles research done by others. However, in a few cases and increasingly so in recent years, the institution has been funding research in areas such as transportation, medical care, highways, and international scientific and technical programs in developing countries.

**Q. What kind of projects do the Research Council and the Institute of Medicine undertake?**

For the federal government, the Research Council examines scientific and technological questions in any of the scientific and engineering



the National Research Council

disciplines referred to it by government agencies. However, discussions with an agency are sometimes necessary in order to ensure that questions are formulated in such a way that they can be answered as clearly and unequivocally as possible.

The Institute of Medicine, operating through procedures of the National Research Council, responds to questions relating to public health policy, care, research, and education.

Proposals received from non-federal sources to investigate scientific and technological questions are considered on their merits and in light of their application to national concerns. All new projects from all sources are considered first by the Research Council commission, office, or board, or Institute of Medicine unit under whose aegis they would be undertaken before they are referred either to the Research Council's Executive Committee or Governing Board for review and approval.

**Q. Who selects topics for Research Council and Institute of Medicine projects?**

Suggestions of topics are received from many different sources: Congress, governmental agencies, state agencies, foundations, universities, industry, Academy and Institute members, and units in the National Academies.

As noted above, topics are evaluated initially by the Research Council commission, office, or board, or Institute of Medicine unit that would be responsible for them. If found acceptable, proposals for these projects are presented to the Research Council's Executive Committee or Governing Board for review and approval.

**Q. Can private organizations, including foundations and corporations, sponsor Research Council studies?**

Yes, they can, but as noted previously, industry sponsors cannot provide more than 50 percent of the support for a project. As with all studies, the subject first must be evaluated by the major unit of the Research Council that would undertake it and then be approved by the Research Council's Executive Committee or Governing Board. Funding contributed for such a study is accepted with the same stringent conditions placed on the acceptance of all funds, namely, that acceptance does not influence the study in any way.

**Q. Does the institution confine its activities to domestic issues or does it undertake international assignments?**

Although most of its activities have been related to domestic issues, the institution's interests now encompass a broad range of international concerns such as scientific cooperation and exchanges, the impact of international competition on U.S. industries, the reduction of friction among industrialized nations, and scientific and technical programs in developing countries.

**Q. What proportion of committee members are members of the National Academy of Sciences, the National Academy of Engineering, or the Institute of Medicine?**

The percentages vary from year to year. In fiscal year 1990, the number of National Academy of Sciences members serving on Research Council and Institute of Medicine committees was approximately 24 percent of the

the National Research Council

membership of the Academy, which amounted to 6 percent of the total number of professionals serving on Research Council committees. For the National Academy of Engineering, the figures were 24 percent and 6 percent. For the Institute of Medicine, they were 39 percent and 6 percent.

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# **ATTACHMENT M**

## **Summary Report Umatilla Chemical Agent Disposal Facility Quantitative Risk Assessment**

**September 2003**

(DEQ Item No. 04-0409)

Permit Modification Request UMCDF-03-041-PFS(3)  
"Change in Incinerator Emissions Compliance Point"  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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Report No. SAIC-00/2641

# Umatilla Chemical Agent Disposal Facility Quantitative Risk Assessment

Prepared by:

Science Applications International Corporation  
Abingdon, MD 21009  
Under Contract DAAM01-96-D-0009

Prepared for:

U.S. Army Program Manager for Elimination of Chemical Weapons  
Chemical Materials Agency (Provisional)  
Aberdeen Proving Ground, MD 21010

September 2003

Summary Report

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VIA E-MAIL  
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## Introduction

A quantitative risk assessment (QRA) of the Umatilla Chemical Agent Disposal Facility (UMCDF) has been completed. To accomplish this, the frequencies and public health consequences of potential accidental releases of chemical agent associated with facility operations have been estimated. Worker risk due to agent operations has been evaluated for the UMCDF disposal operations. In addition, the public risk associated with storage of the chemical munitions at the Umatilla Chemical Depot (UMCD) has been assessed.

The U.S. Army Chemical Materials Agency (Provisional), Program Manager for Elimination of Chemical Weapons (PM ECW) has directed that a comprehensive QRA be completed for each chemical agent disposal facility prior to operation. The QRA will support a risk management program designed to help achieve the Army's prime objective of safe disposal of the chemical weapons stockpile.

### Background

The Chemical Stockpile Disposal Project (CSDP) was initiated in response to Congressional direction in 1985 to eliminate the nation's stockpile of unitary chemical agents and munitions. In 1997 the U.S. ratified the Chemical Weapons Convention, further committing to the safe disposal of chemical weapons. The CSDP's mission is being accomplished through the disposal of agent and munitions at all stockpile storage sites. It is a key objective of the CSDP to accomplish its disposal mission with maximum protection of the health and safety of the public, facility staff and the environment. To this end, the CSDP has implemented a safety and risk management program for the entire program life cycle.

Ongoing review of the CSDP by a standing committee of the National Research Council of the National Academy of Sciences helps ensure that the program is technically sound and uses the best available technology. One recommendation was that a comprehensive plan be

developed to manage the risk associated with the disposal process. The recommendation specifically called for site-specific QRAs to be performed prior to development of a site risk management program.

To make maximum use of available risk technology, PM ECW directed that a QRA and a risk management plan be developed for each of eight planned disposal facilities, starting with the Tooele Chemical Agent Disposal Facility (TOCDF) in Utah. The TOCDF QRA was issued in 1996 (SAIC, 1996a). For Umatilla, a Phase 1 QRA based on facility plans was issued in 1996 (SAIC, 1996b).

The UMCDF Phase 2 QRA was developed using current risk assessment technology, including a number of improvements since the 1996 TOCDF QRA. The QRA is based on the as-built UMCDF and reflects the most recent operational plans. Insights concerning possible upsets, equipment reliability and operational performance from years of experience at TOCDF and the Johnston Atoll Chemical Agent Disposal System (JACADS) are included in this QRA.

In order to confirm that the QRA is performed using appropriate methods and models, PM ECW assembled an independent expert panel to review the QRA. The panel has met with the QRA staff on a periodic basis to review modeling methods and results, and has also reviewed the documentation of the analysis.

### Objectives

The primary objective of the QRA is to quantitatively study the potential public and worker health effects associated with accidental releases of chemical agent. This study has produced an understanding of the various ways in which a release of agent could occur. The risk was quantified through estimation of the probabilities of agent release and the number of people who might be affected. Through this quantification, it was possible to rank by importance the plant and operational features that govern risk. The insights derived from the QRA are being used to help manage the facility risks by providing inputs for risk management,



as documented in the risk management program requirements document (PMCD, 1996). The risk assessment has been designed to assist in the understanding and communication of risk information to the facility staff, the public, and other interested parties.

The QRA, based on operational experience from existing facilities and improvements in methods, replaces previous risk assessments that are now out of date.

An additional objective of the QRA is to develop a risk management workstation that will be useful for updating the risk understanding as changes are made to the facility or as additional insights into accident behavior become available. The workstation will be one of the analysis tools supporting decision-making within the UMCD risk management program.

#### Scope

The scope of the UMCD QRA includes analyzing the public and worker risk from accidental releases of chemical agent during disposal activities at UMCD, as well as public risk from accidental releases during chemical agent storage at UMCD. The risks of the explosives associated with chemical munitions are also included. The QRA includes an estimation of the risk associated with all steps in the disposal process:

- ▶ Stockpile munition handling associated with moving munitions in preparation for transport to the facility
- ▶ Transportation of munitions from the stockpile storage area to UMCD
- ▶ Disposal processes within UMCD.

In addition, an estimate of the public risk associated with the storage of munitions in the stockpile storage area is also included.

Public and worker risks were calculated in terms of acute fatality risk, which is the number of expected fatalities over a unit time (e.g., per year or per campaign) due to a one-time exposure associated with postulated releases of chemical agent. The public risk of exposure-induced

cancers is also considered for potential releases of mustard agent (nerve agents have not shown any carcinogenic effects). Risk was not assessed for accidents involving workers where there is no potential for agent release (i.e., typical industrial accidents). These risks are managed through other activities, as described in the risk management program. Uncertainties in the parameters and models used in the analysis were quantified in order to display the confidence in the results. In addition to the uncertainty analysis, sensitivity analyses were conducted to determine how the risk results vary based on changes to key assumptions in the risk model.

The scope of the study includes all potential causes of release except for intentional acts such as sabotage. Sabotage and terrorism are assessed and guarded against in existing Army programs. Publication of those assessments would compromise security, so sabotage is excluded from the QRA but not from serious (and now increasing) evaluation within Army programs.

The QRA studies the complete disposal process, as well as munition storage, and considers:

- ▶ Human errors, such as an accident driving a forklift
- ▶ Equipment failures, such as a drain line pipe or valve failure
- ▶ Explosion or combustion of munition energetics
- ▶ Fires affecting the facility or process equipment
- ▶ Loss of support utilities, such as electric power
- ▶ External influences, such as accidental aircraft crashes
- ▶ Acts of nature, such as storms and earthquakes.

Specific calculations of environmental effects of accidental agent releases were not performed; however, minimization of public risk would generally minimize environmental risk by making releases less likely or less severe.



### Other Risk Evaluations

Several risk management activities help the Army achieve its goal of minimizing the risk of facility operation. Requirements for the activities to be included in the UMCDF risk management program have been issued by PM ECW. The risk management program includes qualitative and quantitative evaluations of equipment and operations as part of PM ECW's system safety management program. The QRA is, therefore, only one of several activities involving risk assessment. The QRA scope is limited to accidental releases of chemical agent associated with storage or any part of the disposal processes. Aspects of normal plant operation, such as normally allowed non-agent stack emissions, were excluded from this assessment but are being addressed in the Health Risk Assessment for the Resource Conservation and Recovery Act (RCRA) Part B permit application. That analysis addresses normal and minor offnormal incinerator emissions including non-agent by-products of incineration.

### Quality Assurance and Review

The methods of analysis in the UMCDF QRA build on those that were successfully applied in the TOCDF QRA. The TOCDF QRA was reviewed by an independent expert panel, and the National Research Council also provided oversight. The methods applied in the TOCDF QRA were refined and further applied in the Anniston Chemical Agent Disposal Facility (ANCDF) QRA (SAIC, 2002c), as well as this UMCDF QRA. An independent expert panel also provided oversight to the development of the ANCDF and UMCDF QRAs. The reports of those groups stated that the methods were appropriate and applied well (Apostolakis et al., 1996; NRC, 1997; Budnitz et al., 2002a,b). For UMCDF, improvements have been implemented and the entire UMCDF QRA has been subjected to substantial additional review.

Management controls were established to ensure that the analysis was accomplished in accordance with the Science Applications International Corporation (SAIC) Integrated Program Services Quality Manual and attendant procedures and policies. The analyses and

documentation have been subjected to three principal review activities: 1) intra-project review, 2) PM ECW and UMCDF staff review, and 3) expert review panel. The SAIC intra-project reviews are the technical reviews that are part of the analysis itself. PM ECW and UMCDF reviews started during the development of the models and continued up to the development of results and the publication of draft reports.

Another review activity to confirm that the QRA is performed using appropriate methods and models is the independent expert review panel. This panel is composed of specialists in the QRA field, as well as professionals from the chemical industry and academia. The panel met on a periodic basis with the QRA staff to review modeling methods and results, and to confirm the validity of the approach. The panel is made up of nationally known experts in risk assessment and management, including a representative appointed by the State of Oregon. The expert review panel has produced an independent report under separate cover. All of the review comments and SAIC's resolution of the comments are provided in appendix S of the QRA report.

### Reporting

Descriptions of results and analyses are presented in varying levels of detail for different audiences. Most reports have been produced for technically oriented readers. This report is only a brief summary of a much more detailed report of the QRA, which is presented in 11 volumes. The first volume is the main report, which includes a summary of the methods and analyses and the results of the calculations. The final section of the main report, section 16, summarizes the overall findings.

In keeping with an objective of providing enough documentation for a complete review of the entire analysis, the models and analyses are presented in 19 detailed appendices in the remaining 10 volumes. A map of the report arrangement is provided at the end of this summary report.

## Methods of Analysis

The methods used in this analysis were based on QRA approaches that have been demonstrated via application to other facilities and technologies. The methods have been customized for the chemical demilitarization processes to reflect the specific nature of the activities and ensure maximum benefit in terms of insights and feedback that could be used to understand risks and improve the processes.

The QRA process is summarized in the following paragraphs and illustrated in figure S-1:

- *Identify Initiators.* Deviations from normal process operations are systematically identified and organized in logic models. The initiators may result from equipment failures, human failures, or external events such as earthquakes, tornadoes, or accidental aircraft crashes.

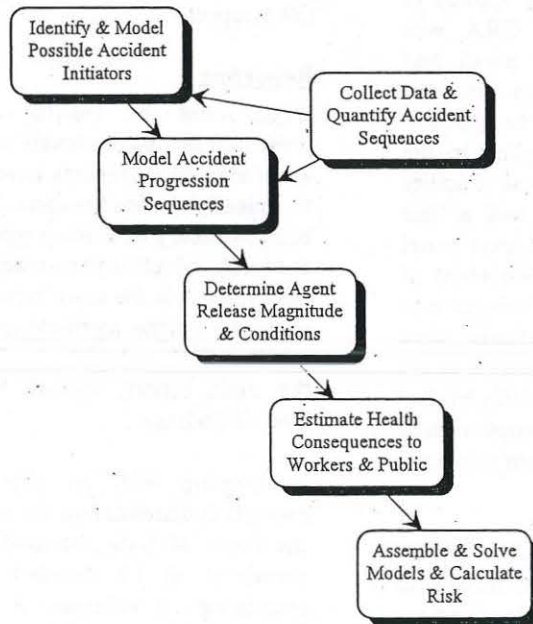


Figure S-1. Overview of QRA Process

- *Model Sequences.* The sequences of events stemming from each initiator and leading to agent release are identified and modeled.
- *Collect Data and Quantify.* Data is collected to evaluate the likelihood of each initiator and the subsequent events leading to accident sequences. After assigning values to all the events in an accident sequence model, the frequencies of accident sequences resulting in releases are calculated.
- *Determine Agent Release.* The amount of agent released and the conditions associated with the release are modeled for each accident sequence.
- *Estimate Health Consequences.* Computer models are used to calculate the dispersion of any agent released through the air and evaluate the exposure and resultant consequences to the workers and surrounding public community.
- *Calculate Risk.* The frequency of each accident sequence is combined with the consequences of that sequence (fatalities or cancers) to produce the risk for each release. The combination of risk for all sequences produces the risk of the facility. The risk results of the QRA may be displayed in many ways. A single number may be derived to represent average risk, or a set of curves may be shown to represent uncertainty. Risk to different population groups, as well as risks of different types of health effects, may be illustrated. This QRA uses many of these different risk displays.

Thus the QRA is based on the development of logic models of the way that accidents can occur and quantification of those models to estimate the likelihood and severity of the accidents.

### Models

A collection of logic and mechanistic models is used to determine both facility risk and stockpile storage risk. These models identify the specific ways that a sequence of events could evolve into a release. Table S-1 lists some of the models most important to the evaluation of risk. The risk models have been assembled into a risk



management workstation called Quantus that was developed specifically for QRAs of the chemical agent disposal facilities.

The activities involved in processing chemical munitions are first delineated in a systematic fashion. Process operations diagrams (PODs) were developed for this purpose. By examining each step in the disposal process, the possibilities for deviations from normal processing were postulated. The ways that these deviations, or initiators, could occur were modeled in another type of logic model, the fault tree. Fault trees were used to identify the specific combinations of equipment failures or human actions that could lead to the initiator.

Given an initiator, all the different paths that lead to either a return to a stable condition or the potential for a release were modeled. Another type of logic model, the accident progression event tree (APET), was used to specify the accident sequences resulting from an initiator.

Following the identification in the APET of the various accident sequences that could lead to a release, it was necessary to estimate the size of the release (known as the "source term") based on the conditions (such as presence of a fire) associated with the release. Computer algorithms were developed for this purpose. Once potential releases were identified, the dispersion and transport of agent in the atmosphere and the potential for exposure of the population were assessed. The health effects as a result of this exposure were used to estimate the overall consequences. The CHEMMACCS computer code, which was adapted from the nuclear industry, was used to estimate dispersion and health effects for the chemical agents. The code has simple models for community protective actions, which were considered in this assessment. CHEMMACCS, which is computationally efficient for use in a QRA, uses the same dispersion model as the Army's long-established code for chemical agent dispersion calculations, D2PC. An additional model was developed to estimate health effects for workers close to the initial accident, because they could be affected by splashing, blast pressures and

Table S-1. Principal Models Used in the QRA

Analysis Objective	Model
Systematically delineate steps in the entire disposal process and identify deviations from normal processing that could initiate a sequence of events leading to an accident	Process Operations Diagrams (Quantus POD Editor)
Model the specific failures and combinations of events leading to an initiator	Fault Tree (CAFTA Computer Code)
Determine the possible accident sequence outcomes that could stem from an initiator	Accident Progression Event Tree (Quantus Sequence Editor)
Determine the specific quantity of agent released based on the conditions associated with the release	Source Term Algorithm (Quantus Sequence Editor)
Model the atmospheric transport, determine exposure to individuals, and estimate health consequences	CHEMMACCS Dispersion Model (Quantus Dispersion Editor)
Model the possible impact of accidents to workers close-in to the release, considering the effects of agents or energetics explosions	Worker Risk Algorithm (Quantus Sequence Editor)
Assemble the accident sequence and consequence models, and estimate risk	Quantus Result Viewer

other phenomena not covered in the air dispersion code.

The models listed in table S-1 are those used in the primary steps in the QRA process. There are actually many more models used to support the development of the primary models. For example, the QRA developed a model of the UMCDF cascading ventilation and filtration system to better understand the potential release paths for agent. A model of response to drop or impact was also developed for each munition type. The QRA documentation describes all of the models and their use in the overall QRA process.

The risk assembly process is carried out using Quantus on a personal computer. Quantus includes the data and models and enables assembly and solution of those models to



calculate risk. The Quantus user interface is organized by a series of editors that allow users access to the various parts of the model and data.

One editor is the Quantus result viewer. This provides the user access to all of the risk results. The result viewer permits the user to parse the results in many different ways, enabling the user to focus in on risk results of specific interest. The QRA report includes summaries of frequently used results, but the result viewer allows the user to customize the risk results to meet individual needs in a myriad of ways.

Quantus is the mechanism through which the analyses described in this report are assembled, controlled, solved, and examined for insights. The UMCDF Phase 2 QRA report describes the technology, models and results of the risk assessment. Quantus is described in the *Quantus User's Manual* (SAIC, 2002a) and use of the workstation for specific problems is described in separate documents such as the *Quantus Quick Start Guide* (SAIC, 2002b).

#### Data and Quantification

In order to estimate frequencies and consequences, data must be collected to quantify the events in the logic models. A number of different types of data were collected and analyzed for use in the study. This effort included characterization of the uncertainty or variability in the data to support evaluation of uncertainty in the risk results.

The frequencies of accidents are estimated through quantification of the initiators, as modeled with fault trees. The events in the fault trees include equipment and human failure events. For equipment, data was mostly drawn from detailed evaluation of equipment reliability at TOCDF and some data from JACADS. The remaining data was collected from industrial data sources. Human failure events were quantified using methods of human reliability analysis that have been developed to support risk assessments. There is little specific data for human performance so quantification relies on analytical techniques that adapt basic human error probabilities to reflect the specific conditions for each event at the facility.

External initiators require special data collection. For example, the evaluation of earthquakes required the collection of data for the frequency and magnitude of seismic activity in the immediate area of UMCDF. Similarly, it was necessary to estimate the frequency and magnitude of tornadoes. Each postulated external initiating event was the subject of specialized data collection and analysis.

Data on the likelihood of occurrence of various phenomena is required to determine potential accident release mechanisms in the APET. The most pervasive need in the APET was the probability of leakage or explosion of a munition subjected to drop or impact. Analytical models supplemented with applicable data and engineering judgment were used to quantify these events. Many other events in the APET were quantified with a similar approach. Explosion probabilities for combustible gas mixtures are one example. The structural response of a process building room to potential explosions is another.

The estimation of source terms (i.e., the amount of agent released in various accident scenarios) requires data on agent properties and the release of agent under various conditions. Much of this data was available from other Army analyses, although in most cases the information had to be extrapolated to cover all of the conditions of interest in the QRA. For example, the amount of uncombusted agent for various postulated fires was an important consideration, and available information from related studies was adapted for use in the QRA.

The estimation of consequences involved a number of data collection activities. The population as a function of distance from the site was collected from the U.S. Census. Onsite worker populations and locations were collected from facility and depot personnel. Site-specific weather data was collected for the air dispersion consequence calculation. (The consequence analysis considered the variability in weather because potential accidents could happen any time of day or year.) The final information collected for the consequence analysis is the health effects data. The QRA uses health effects



information that has been used in other Army assessments, and also examines the sensitivity of the results to the health effects models.

#### Model Integration and Solution

The models described previously are combined and quantified to generate the accident sequence frequencies and the number of fatalities (or incidences of cancer) associated with each accident sequence. The combination of these two results is the risk for each accident sequence, and the combination of all sequence risks is the risk of the disposal process (or of continued storage). Two health consequences were included: immediate (acute) fatalities, representing death soon after exposure and, for mustard agent only, the probability of induced cancer. The nerve agents have not shown carcinogenic effects.

The risk results are presented in a variety of formats to allow different perspectives on the results of the process. Discussion of the interpretation of those results is provided as each new type of display is introduced. The primary risk display illustrates the frequency of exceeding given levels of consequences. Expected fatalities, the value most often quoted as the risk, is also presented. The results include presentation of the uncertainty. In addition, the risk results have been analyzed to generate insights concerning the contributors to risk. It is the study of the contributors that enables use of the QRA for continuing efforts to minimize the risks associated with the operations. The QRA provides PM ECW and the systems contractors with a tool for evaluating the relative importance of equipment and operations, as measured by the risk to the public and workers.

## Public Risk Results & Insights

The results presented in this summary report are summaries of detailed calculations. The QRA documentation describes these results in more detail, and discusses the more subtle points regarding interpretation of the results. Each of the risk answers and results is discussed in more detail in sections 13, 15 and 16 of the QRA main report.

As noted previously, sabotage and terrorism are not included in the QRA. There are two conclusions that can be drawn concerning terrorism and sabotage. The first is that the risk models very likely include the levels of agent release that could be associated with such events if they occurred in storage or processing areas. The QRA includes earthquakes and accidental airplane crashes and other very catastrophic events that include the potential for very large releases. The second conclusion is that the chemical agents and munitions only pose a threat as long as they exist. Therefore, whatever threat exists is a direct function of how long the stockpile continues to be stored.

The mean, or average, risk results are presented here. A discussion of the uncertainty in the results follows. The QRA main report has substantially more information on the uncertainty in the risk results.

Figure S-2 concisely summarizes the findings of the study. It illustrates the risk of disposal processing at UMCDF, the risk of munition storage at UMCD during the 6-year disposal period, and the risk of continued storage for 20 years (if no processing were undertaken). The storage risk during the disposal period accounts for the reduction in the inventory of munitions as they are processed at the facility. The vertical scale displays the probability of exceeding the number of fatalities shown on the horizontal scale. For example, the probability of incurring one or more public fatalities is approximately:

- ▶ 1 in 2,100 for 6 years of disposal processing at UMCDF



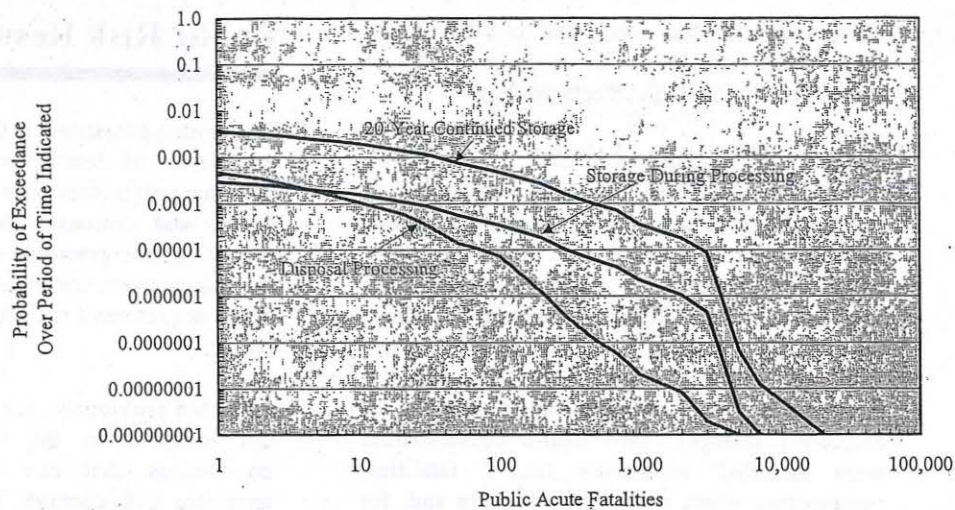


Figure S-2. Summary of Risk Results

- ▶ 1 in 3,300 for 6 years of stockpile storage at UMCD during processing
- ▶ 1 in 280 for continued stockpile storage at UMCD for 20 years with no processing.

The area under each of the curves in figure S-2 is one measure of risk, and is the value most typically referred to as the risk, also termed expected fatalities. It represents the average risk over all accidents and potential consequences in the community (known as societal risk). The results of the UMCDF QRA indicate that the societal expected fatality risk is approximately:

- ▶ 0.005 for 6 years of disposal processing at UMCDF
- ▶ 0.02 for 6 years of stockpile storage at UMCD during processing
- ▶ 0.3 for continued stockpile storage at UMCD for 20 years with no processing.

Another way of considering the expected fatalities is by the number of years (of processing or storage) that would be required, on the average, to result in one public fatality:

- ▶ 1,100 years of disposal processing at UMCDF
- ▶ 70 years for continued stockpile storage at UMCD.

It should be noted that the risk is a summation of the products of accident sequence frequencies and their associated consequences. The risk of an infrequent accident with large consequences can therefore contribute equally with a more frequent accident with smaller consequences. For example, the seismic contribution to storage risk is due to earthquakes less frequent than every 70 years, but such an accident might involve more than one fatality if it occurred.

Another way of viewing the risk is by calculating the potential impact on individuals, or per-person risk. This risk has been calculated for people residing various distances from the site, as the risk is a strong function of distance. It is most useful to consider people residing closest to the facility because they would have the greatest individual risk. For example, the greatest risk for the people living closest to the site (about 1 to 3 miles), is a per-person fatality risk per year of approximately:

- ▶ 1 in 530,000 per year during the 6 years of disposal processing
- ▶ 1 in 1,000,000 per year during the 6 years of stockpile storage during processing
- ▶ 1 in 270,000 per year of continued storage with no processing.



The values listed are for the greatest per-person risk. The risk is variable with both direction and distance. Unlike individual risk of continued storage, the individual risk of disposal processing drops quickly with distance. People residing 5 to 9 miles away have a per-person risk that is a factor of 100 lower than the people nearest the facility.

Individuals living nearest the site have higher individual risk from disposal operations than from the remaining stockpile. This is because the processing risk contributors are more frequent than the storage risk contributors resulting in similar close-in consequences. Per-person risk to individuals farther away from the site is dominated by storage accidents because these scenarios typically generate larger agent releases.

Figure S-3 displays the risk results as the average expected fatality societal risk per year during processing. In this figure the processing risk is illustrated as a function of time, as different munitions are disposed of. The change-over periods between munition campaigns are also illustrated. In figure S-3 it is possible to see that risk varies among campaigns because munitions have different agents and agent inventories. The storage risks during processing are shown to decline as munitions are removed from the stockpile and disposed of in the processing campaigns. The risks of continued storage assuming no processing takes place are indicated by a dashed line. Figure S-3 is not scaled adequately for detailing the small percentages of risk remaining after M55 rockets have been destroyed. To better display these campaigns, the same information is repeated in figure S-4 with a different scale. The logarithmic scale is subdivided by factors of 10, and a percent reduction scale is provided on the right side of the figure.

Figures S-3 and S-4 show that the greatest risks of storage are associated with M55 rockets. The M55 rockets account for about 99 percent of the existing storage risk. The processing risks vary as a function of campaign. The agent inventory in the facility and the toxicity of the agents affect the risk as the disposal process is carried

out. The largest risk is fire, but the building inventory changes with different munition campaigns. In addition, munitions have different susceptibilities to being involved in a fire, and the agent on the ventilation system carbon filter units is a function of campaign.

The total average public risk during the 6 years of disposal operations is the sum of the processing risk and the storage risk during processing.

As indicated in the figures, after the rockets are disposed of, the risk (per year) of processing is sometimes greater than the risk of storage during processing for the same items. But the total risk is the risk per year times the number of years, or the areas under the curves in figures S-3 and S-4. Therefore, although the processing risk on a per-year basis goes above the storage risk, any delay and extended period of storage would quickly result in the risk of storage being greater than the risk of processing.

All of the risks described previously are acute fatality risks, meaning that they reflect immediate effects of a one-time accidental exposure to agent. The risk of latent cancer, induced by a one-time exposure to mustard agent, was also estimated. Cancer risk is typically presented on a per-person basis. The individual cancer risk calculations include the following results for those living closest to the site (about 1 to 3 miles):

- ▶ 1 in 2 billion per year during the 6 years of disposal processing
- ▶ 1 in 300 billion per year of continued storage with no processing.

The latent cancer risk results indicate that this risk is small compared to the risk of immediate effects from nerve agent exposure.



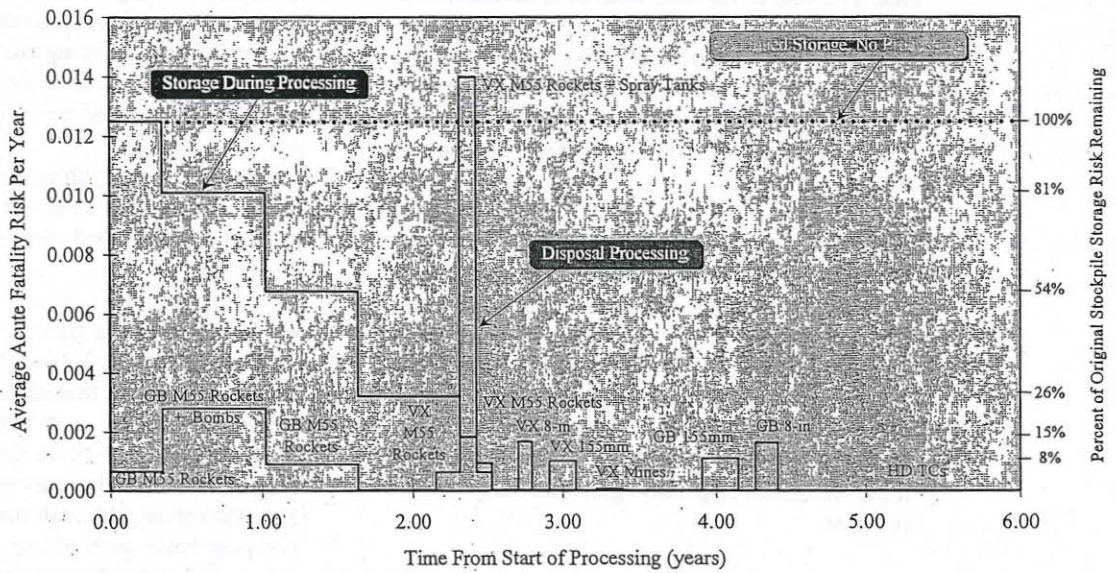


Figure S-3. Comparison of Annual Risk as a Function of Time

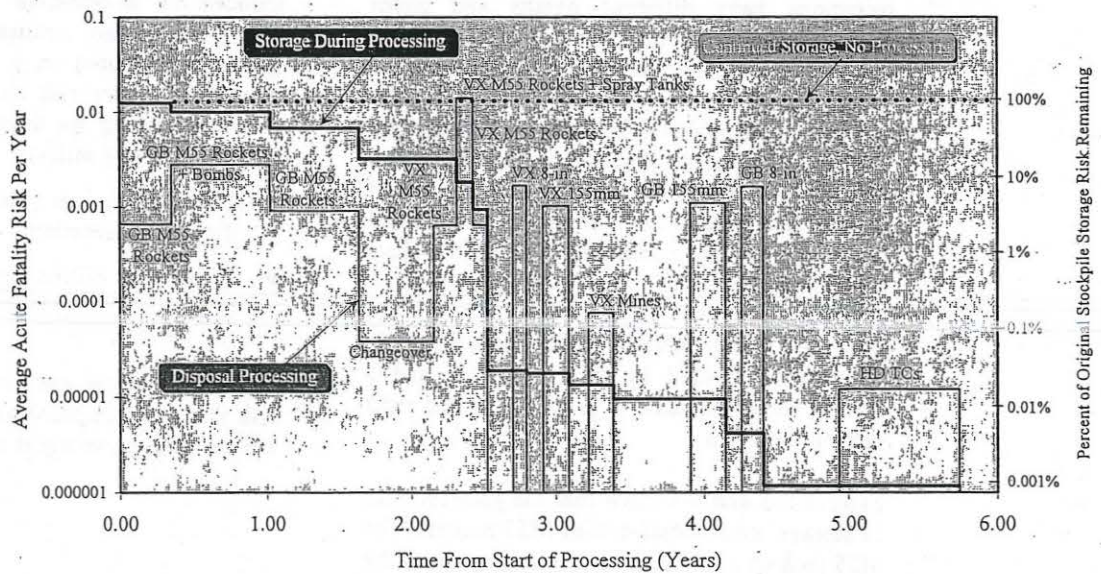


Figure S-4. Comparison of Annual Risk as a Function of Time (Logarithmic Scale)



### Contributors to Processing Risks

The contributors to the average public fatality risk of disposal processing are illustrated in figure S-5. For disposal processing at UMCDF, the following insights were developed concerning contributors to public risk:

- ▶ Public disposal risk is dominated by the potential for a facility fire that affects much of the agent within the facility and also can lead to release of agent from the heating, ventilation, and air conditioning (HVAC) filter units. This type of fire originates within individual rooms of the facility and spreads to other portions. Any industrial process has a potential risk of fire, and fire is important to risk here because it is one of the few processing accidents that can affect multiple agent sources within the facility.
- ▶ Seismic-induced fires contribute about 6 percent to total public disposal risk. These fires result from earthquakes and can affect large portions of the facility.
- ▶ About 5 percent of the public fatality risk is due to handling accidents at M55 rocket igloos when rockets are being removed for the disposal process. These scenarios are risk-significant because of the potential for an igloo fire involving the entire igloo inventory.
- ▶ Approximately 2 percent of the risk is associated with the potential for a structural failure of the container handling building (CHB)/unpack area (UPA). While the facility is built to appropriate earthquake building codes, the second floor area has been determined to be vulnerable to large and infrequent earthquakes (larger than those for which the facility was designed).
- ▶ Other events associated with processing activities account for much less than 1 percent of the UMCDF risk. Very few of the processing-related activities contribute to risk. In general, the equipment fails in safe status and the amount of agent involved in any step is quite limited.

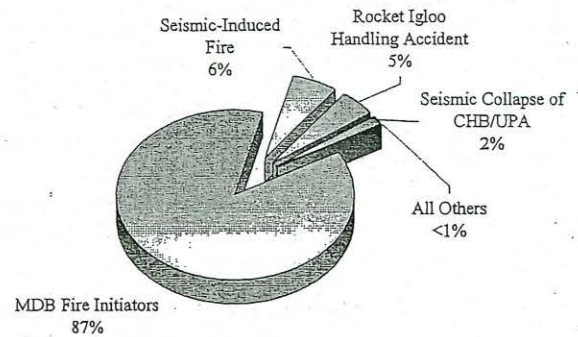


Figure S-5. Contributors to the Average Processing Public Fatality Risk

The fire risk includes many scenarios and fires originating from electrical equipment, fuels and any other combustibles in the facility. Only fires that propagate outside their room of origin contribute to risk. Some of the fire risk is associated with the ventilation system carbon filters. These filters collect agent vapors from the process facility and as a result can have a significant agent inventory. Carbon filters can desorb collected agent if heated by hot gases from a facility fire. Carbon filters can also ignite, in which case much of the agent would be destroyed in the fire but some could escape.

The public risk at this site is largely (over 60 percent) associated with GB agent. Accident sequences involving VX agent contribute at a lower level (over 39 percent). The mustard risk is generally very small in comparison to the nerve agents.

### Contributors to Storage Risks

Figure S-6 illustrates the contributors to the public fatality storage risk. The following insights have been derived from the risk assessment:

- ▶ The largest contributor to storage risk (97 percent) is earthquakes. The most risk-significant seismic effect is the potential for ignition or explosion of M55 rockets if the pallet stacks fall.
- ▶ Lightning contributes about 3 percent to the risk of continued storage. Lightning has the potential to cause a fire in an M55 rocket

igloo if the lightning produces an arc that ignites a rocket.

- ▶ Autoignition of M55 rockets accounts for much less than 1 percent of storage risk. This was a previous concern because of propellant stabilizer depletion, but detailed analyses have not shown autoignition to be risk-significant.
- ▶ Normal storage maintenance activities such as leaker isolation account for much less than 1 percent of storage risk.
- ▶ Accidental aircraft crashes contribute much less than 1 percent of the risk. Even though the accidents are very unlikely, they could involve very large quantities of agent.

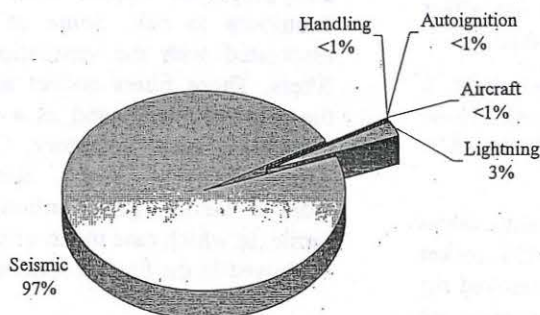


Figure S-6. Contributors to the Average Continued Storage Public Fatality Risk

M55 rockets are most important to storage risk. The M55 rockets are stored with propellant and there is some chance that events affecting one munition could propagate to others and possibly to an entire igloo.

There are many more insights that have been developed from a detailed evaluation of the results. Sections 13, 15, and 16 of the QRA main report include detailed listings of the potential accidents and the reasons for their importance to the risk profile.

#### Comparison to the Phase 1 QRA

The UMCDF Phase 1 QRA of disposal processing and of continued storage was completed in September 1996 (SAIC, 1996).

The results of the UMCDF Phase 2 QRA replace the previously published Phase 1 results. The Phase 1 QRA was similar in scope to this assessment; however, the UMCDF disposal process is now fully specified, more years of operational experience at other facilities have been considered in the models and there have been refinements in several key areas of the risk assessment.

The results of the Phase 2 QRA for disposal risk indicate higher risk estimates than the Phase 1 QRA. This is primarily due to the contribution of facility fires. The fire methodology was changed to account for industrial data concerning fires, and as a result the risk estimate for this contributor increased significantly.

The risk of storage has decreased by 50 percent since the publication of the Phase 1 QRA. The primary reason that the total risk is now lower than previously assessed is because the seismic analysis has been refined.



## Worker Risk Results

Worker risk associated with UMCDF processing, like public risk, has also been assessed quantitatively. The worker risk evaluation is limited to agent operations, and is therefore not a comprehensive representation of all activities or hazards that could pose a health threat to the workers. In spite of this limitation, the analysis has led to insights regarding potential worker risk. Worker risk has been evaluated for two populations:

- ▶ *Disposal-Related Workers.* All workers at UMCDF, including all support and administrative staff located at the facility or in nearby buildings, and including munition handlers responsible for removal of the munitions from the stockpile and transportation to the chemical agent disposal facility
- ▶ *Other Site Workers.* All other personnel working at UMCDF.

The Other Site Worker risk is evaluated in the same manner as the public risk, and in essence such workers are a population group out to about 3 miles from UMCDF. Similar to public risk, the Other Site Worker risk can be considered in terms of some common measures of average risk:

- ▶ 0.00002 fatality risk (expected fatalities) for 6 years of disposal processing
- ▶ 1 fatality every 290,000 years of disposal processing.

### Contributors to Worker Risk

The risk for Other Site Workers is governed by the same accidents as the offsite public risk. The details are provided in section 13 of the main QRA report.

The risk for Disposal-Related Workers is substantially different from the risk for Other Site Workers. The processing and handling workers can be affected by the agent dispersion from an accident, but they can also be affected directly. For example, a munition handler could

potentially be splashed with liquid agent in a handling accident, or workers in the vicinity of an explosion could be affected directly by the blast. The current results indicate a 50 percent probability of an agent-related worker fatality in 6 years of disposal processing.

Quantitative worker risk assessment is still a relatively new endeavor. The methods include uncertainties and limitations that should be considered when reviewing the results. The main purpose is to help further the understanding of the relative importance of different types of accident scenarios to risk. This understanding can be used in conjunction with all the other worker risk management activities to make continued improvements in safety. It is judged that some of the numerical results of the worker risk assessment are conservative, in that they possibly overstate the risk.

The results can be compared to industrial statistics, although the industrial values are actuarial data while the QRA values are estimates generated from models. The mean worker risk fatality rate is 0.09 fatalities per year of operation, or 0.09 deaths per approximately 500 workers. This can be compared to the average industrial fatality rate from actual statistics of roughly 4 deaths per 100,000 workers per year, or 0.02 per year for a facility like UMCDF with approximately 500 workers (National Safety Council, 1995). Thus the QRA estimate of agent-related fatalities appears to be high when compared to industrial statistics for all causes. However, the chemical agents were produced, uploaded into munitions, and shipped without a high incidence of agent-related fatalities, and there have been over 20 years of various demilitarization activities without an agent-related fatality. Probabilistic evaluation of worker risk should not be considered a precise predictive tool.

The Disposal-Related Worker risk results are different from the public and Other Site Worker risk results in that different types of accidents are most important. More frequent events associated with the disposal process that could result in worker fatalities are important.



One event dominates worker risk, accounting for 61 percent of the total fatality risk. Deactivation Furnace System (DFS) feed chute jams can result in workers being required to physically assist in clearing the blockage. This has been a major topic of investigation since the publication of the ANCDF preliminary draft QRA in September 2000. Through assembly of a chute and a study to determine chute jam causes and possible changes to reduce the likelihood, some design changes to the chutes have been identified and are being incorporated into the UMCDF design. Because this is a complex problem, the impact of these changes in the field is not yet known, and details associated with the operating system could be important. Therefore, the frequency of this event is not based solely on JACADS and TOCDF experience. In this final report, credit has been given to the changes being implemented, although the effect is somewhat limited because no data with the new system is available yet.

Worker risk is dominated by rocket chute jam scenarios. Although jams also can occur with projectiles, the probabilities of the jam and of energetic events are much lower, and they do not contribute significantly. This jam clearing operation creates an opportunity for exposure to both agent and energetics hazards. The dominant risk considered here is associated with an explosion or a flash fire during clearance of a chute jam. Determining the exact likelihood of an explosion is difficult for a number of reasons. The most important is the randomness associated with the nature of the jam and the nature of the response. The QRA suggests that there is considerable risk associated with any manual clearing method because it is impossible to ensure that no pockets of explosives remain, especially given the fact that each blockage can have different characteristics.

The remainder of the Disposal-Related Worker risk is made up of many different contributors. A summary of the types of contributors is provided in figure S-7. The following insights regarding worker risk have been developed:

- ▶ About 13 percent of the Disposal-Related Worker risk is associated with building fires. These are the same fires that dominate public and Other Site Worker risk. This risk is associated with the agent release during the fire, not a function of any efforts to fight the fire.
- ▶ Handling activities in the facility leading to spills or explosions account for about 12 percent of the Disposal-Related Worker risk.
- ▶ Maintenance activities account for about 5 percent of the agent-related worker risk. This accounts for all activities involving maintenance that could potentially involve agent contact if protective systems failed. Standard maintenance activities were not studied in detail. The risk estimate is based on the number of possible exposures and data concerning the program's long-term experience with this type of activity.
- ▶ About 4 percent of the Disposal-Related Worker risk is attributed to handling accidents in the storage yard. These include forklift impacts or drops, as well as enhanced onsite container transport truck collisions with pre-staged munitions.
- ▶ Another important contributor to Disposal-Related Worker risk is liquid incinerator natural gas explosions (2 percent).
- ▶ Dozens of other individual scenarios involving a variety of accidents in the facility account for about 3 percent of the risk.

The Disposal-Related Worker risk should be updated as the operations are refined or specific risk management changes are made. It is judged that the QRA results can be combined with the primary systems safety analysis methods to ensure that job hazards are fully considered.



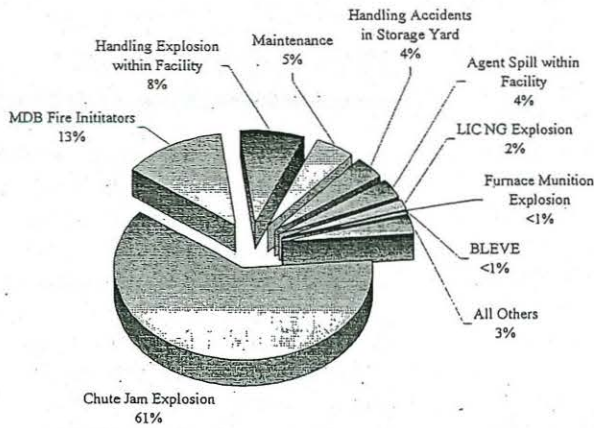


Figure S-7. Contributors to the Average Disposal-Related Worker Risk of Fatality

## Uncertainties & Limitations

The QRA analysis methods were developed and implemented so that the calculations include the uncertainties in the quantification of accident sequences and releases, and the variation in the weather conditions. The QRA main report includes presentation and discussion of the uncertainty in the inputs and risk results. Section 16.5 of the main report is a summary of the overall uncertainties and limitations. The risk results presented thus far in this summary are based on the mean, or average, results.

In general, the uncertainty calculations show that there is over a factor of 100 between the 5th and 95th percentile confidence limits. Worker risk has similar trends, in that there is greater than an order of magnitude uncertainty in the risk results.

Some sensitivity analyses have been performed to better understand the importance of various facility parameters. A sensitivity of the public risk results to the impact of emergency protective actions was also performed, indicating that evacuation decreases public risk by a factor of 16 or 10 for disposal processing or storage during disposal, respectively.

There is substantial uncertainty in the models of human health effects for these agents. The likelihood of lethality given exposure has been assessed using current Army-accepted values. A sensitivity study described in the main report concludes that the numeric risk results are very sensitive to the toxicology assumptions, and that the public risk estimates could be greater than the mean estimates. This could be balanced somewhat by known conservatisms in the atmospheric dispersion model, but the overall uncertainty is not fully known.

The results, including uncertainties, have been carefully considered. The same conclusions and insights provided here for the average risk hold when uncertainties are considered. Use of the information in this summary report should include consideration of the uncertainty analysis presented in the main UMCDF QRA report.

Use of the results of these analyses must be tempered by an understanding of the limitations of the analysis. First, the scope of the analysis must be carefully considered when drawing conclusions so that the proper perspective is maintained. For example, the QRA is limited to accidental releases of chemical agents. Limitations other than in scope are described in section 16.5 of the main report. A few of the more important limitations are noted here.

The results are based on current operational plans. Because risk management is still ongoing, it is likely that the results presented here will change over time to reflect further refinements in the facility and its operations. A living model in the form of the risk management workstation should be maintained to ensure that the models and results are updated to reflect these changes, or to incorporate new data collected as the operation proceeds.

The analysis of continued storage does not include future changes such as population changes. The estimates of risk over 20 years are based on a straight-line extrapolation of current risk and do not include further age-related deterioration of the munitions. The analysis of continued storage also does not include the risk of whatever disposal process would be implemented after 20 years.

When assessing risk, completeness is always a concern. It is impossible to attain completeness, but QRA methods have evolved to help ensure systematic approaches that provide some confidence that the evaluation has captured the significant risks. Review of the models and results by PM ECW, the UMCDF staff, and the independent expert panel also helped in ensuring the highest possible level of completeness. The development of a risk management program helps ensure that facility operations remain safe. Review of facility experience further enhances the information base for the QRA and overall risk management. Update of the QRA models to reflect continued collection of operational experiences at all sites is the best assurance that the QRA results are as complete as possible.

## Uses of the Models

The results of this study can be used in conjunction with other PM ECW initiatives to help ensure the processes are safe. More importantly, the models allow a continuing use of QRA in overall risk management.

PM ECW has recognized the need for effective risk management and has implemented system safety and management programs. The guidance for site implementation is described in the *Guide to Risk Management Policy and Activities* (PMCD, 1997) and *Chemical Agent Disposal Facility Risk Management Program Requirements* (PMCD, 1996). These require management controls on elements of plant design, operation, and performance that influence risk. The facilities also ensure compliance with other safety regulations and initiatives, including those of the Occupational Safety and Health Administration, U.S. Environmental Protection Agency, and Army. The risk management program builds on existing Army risk management activities by creating provisions for using the models, results, and insights of the QRA.

The ultimate objective of the QRA is to provide PM ECW and UMCDF with risk results in a perspective that can be used to further enhance the safety of facility operations. This risk management process does not start when the QRA is complete; it has already been an ongoing process as the QRA analysis identified possible risk contributors. Some risk-significant issues have been identified and are currently being studied. For example, DFS chute jam occurrence and clearing are being investigated. Systems to reduce agent loading on the carbon filters are also being examined.

The development of a risk management workstation was a goal coupled to the completion of the QRA reported here. To meet that goal, SAIC has developed the Quantus risk management software. Quantus is an easy-to-use, integrated suite of risk assessment and management tools. Quantus was developed for



two audiences: 1) risk engineers, for accurate development and solution of probabilistic models and 2) decision-makers, who need access to the results in usable and understandable formats. Decision-makers also have the power to do "what if" analyses to investigate changes.

The QRA has been used to examine design and operations. For example, the TOCDF QRA resulted in a redesign of a portion of the UMCDF and ANCDF structures to reduce possible earthquake damage. Another frequent use of the QRA has been to assess the scheduling of disposal operations. Along with efficient plant operations, PM ECW has a goal of eliminating the storage risk as quickly as possible. Therefore, a strategy is needed to limit storage risk while optimizing facility operations.

The QRAs also have played a role in other management activities. The QRAs provide information in support of regulatory activities. The QRA results also are used in emergency planning to develop a planning base that considers the full range of possible releases identified in the QRA. Other related issues have been addressed. For example, on-base land reuse proposals at Pine Bluff, Arkansas, and Pueblo, Colorado, have been studied to determine if the land reuse would subject any occupants to increased risks. In summary, the QRA has found many useful applications in responding to day-to-day management needs, both internally and in response to Pentagon and other inquiries.

## Perspective on Risk

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The QRA is only an assessment of risks and does not include conclusions regarding acceptability of risk. Acceptability is determined by society, often through elected or appointed officials. Many readers of PM ECW risk-related materials have expressed a desire to have additional explanation of the numerical risk values by comparison to other risks that society and individuals face in everyday life. Comparisons need to be carefully selected by decision-makers. Society, individuals, and decision-makers have different perceptions of risk that are the controlling factor in risk decision-making. Without claim that these are the only ways to view the risks, some risk perspectives are provided here.

The first risk results are societal, the impact on the entire community. Societal risk comparisons are problematic when considering one activity such as UMCDF disposal processing, where possible effects are limited to a specific population when most societal risks are compiled across larger populations. The individual risks, discussed later, better capture the impact on the people closest to UMCDF. Table S-2 lists some societal risks in Oregon in terms of expected deaths per year. The entries in the table are actuarial in that they are based on data from past years. The QRA numbers are estimates using the QRA methodology.

When considering risk, it is also important that the scope of the risk evaluations be considered. The QRA estimates risk of fatality as a result of accidental releases of agent. That is why the other statistics listed for perspective are accidental deaths. PM ECW and the State of Oregon consider other risks such as exposure to normal emissions through a health risk assessment required for an operations permit. It has thresholds set to ensure that the disposal activity does not account for a significant percent of the populations' chronic exposure risk.

Table S-2. Some Societal Risks in Oregon  
(Expected Deaths per Year)

Deaths in Oregon per Year <sup>a</sup>	Cause
1,130	All Accidental Deaths
479	Motor Vehicle
58	Drowning
43	Fires
22	Machinery (Including Farm)
7	Railway Accidents
2	Electric Current
0.2 <sup>b</sup>	Dog Attacks
0.01 <sup>c</sup>	Stockpile Storage at UMCD
0.0009 <sup>d</sup>	Disposal Processing at UMCDF

<sup>a</sup>Based on one year; most years are similar. From National Safety Council, 1995.

<sup>b</sup>On average, one death every 5 years.

<sup>c</sup>QRA estimate, one death every 100 years.

<sup>d</sup>QRA estimate, one death every 1,100 years.

The accidental death rate in table S-2 is composed of a large variety of risks—some voluntary and some involuntary. The QRA estimates for the possibility of fatalities associated with processing and storage are much less than 1 percent of the total accidental death rate. The risks associated with UMCDF and UMCD are somewhat different than many other societal risks in that they are of limited duration. The disposal process lasts approximately 6 years and the storage risk will exist until the stockpile is eliminated.

QRA risks also have been reported on a per-person basis. This is typically referred to as individual risk, although it is calculated for groups of people living in various geographic sectors, not for specific individuals. Table S-3 illustrates at a high level the QRA risk results compared to Oregon accidental death statistics. (Sections 13 and 15 of the main report include results at different distances from the site, which show that the individual risk drops substantially as distance from the site increases.) The storage and disposal individual risks are on the same order of magnitude close to the site.

Table S-3. Estimated QRA Risk Compared to Individual Accidental Death Risk in Oregon

Likelihood per Person per Year <sup>a</sup>	Description
380 in a million	All Accidental Deaths in Oregon
4 in a million	Continued Storage, Average for People Within 3 Miles
2 in a million	Disposal Processing, Average for People Within 3 Miles
0.4 in a million	Continued Storage, Average for People 7 Miles Away
0.02 in a million	Disposal Processing, Average for People 7 Miles Away

<sup>a</sup>From National Safety Council, 1995.

At 7 miles, the disposal risk is very small because most facility accidents involve limited quantities of agent. Storage risk is higher because of the larger agent quantities that could travel farther from the site.

Table S-4 provides some additional perspectives on individual risks of accidental death, including very rare events. (Oregon statistics were not available at this level of detail, so national averages are used.) This type of information is useful because it can be used to compare to other risks that society perceives to be important or unimportant. Included in the table are other risks that are a small percent of the total accidental death rate and some risks that are substantially smaller than the chemical weapons risks.



Table S-4. Some Individual Risk Rates in the United States

Risk of Death in U.S. per Person per Year <sup>a</sup>	Percent of Total	Cause of Accidental Death
340 in a million	100%	All Accidental Deaths
160 in a million	47%	Motor Vehicle
28 in a million	8%	All Accidental Poisoning
22 in a million	7%	Pedestrian Struck by Vehicle
6 in a million	2%	Accidental Firearms
5 in a million	1%	Choking on Food
4 in a million	1%	Chemical Weapons Storage for People Within 3 Miles of UMCD (per year until disposal starts)
2 in a million	0.6%	Disposal Operations for People Within 3 Miles of UMCD (per year for about 6 years)
0.4 in a million	0.1%	Chemical Weapons Storage for People 7 Miles from UMCD (per year until disposal starts)
0.2 in a million	0.06%	Lightning
0.03 in a million	0.008%	Venomous Snake/Spiders
0.02 in a million	0.006%	Disposal Operations for People 7 Miles from UMCD (per year for about 6 years)
0.01 in a million	0.002%	Fireworks Accidents

<sup>a</sup>From National Safety Council, 1995.

## Conclusions

A quantitative risk assessment of disposal processing at UMCDF and chemical munition stockpile storage at UMCD has been completed. The agent-related public and worker risks have been estimated using up-to-date methods and the latest plant design and operational information, and including operational insights from operating facilities. The QRA results have been used in an ongoing risk management program.

The overall conclusions of this study regarding public fatality risk are most effectively displayed in figures S-2 and S-3. From these figures, it is clear that the public fatality risk of disposal processing is significantly less than the risk of continued storage for any significant time.

The factors determining the risk of processing and disposal have been identified and are provided in detail in the QRA documentation. Overall, it has been concluded that the storage risk is primarily dominated by earthquakes while processing risk is dominated by facility fires.

The public risk results have also been calculated for latent cancer due to a one-time accidental exposure. This is the risk of exposure-induced cancer long after the accident, as opposed to the immediate fatality risk. Mustard is the only agent with a carcinogenic effect. The findings indicate that the latent cancer risk is very low, much less than the fatality risk.

Worker risks associated with agent exposure have been evaluated analytically. Although the Disposal-Related Worker risk estimates are uncertain, the evaluation process is useful for identifying risk-significant operations. Risk management improvements are already underway for the dominant risk associated with clearing of DFS chute jams. Further use of the QRA is likely to lead to additional reduction of agent-related worker risk.

## References

Apostolakis, G. E., R. J. Budnitz, P. O. Hedman, G. W. Parry, R. W. Prugh, *Report of the Risk Assessment Expert Panel on the Tooele Chemical Agent Disposal Facility Quantitative Risk Assessment*, December 1996.

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SAIC, *Quantus User's Manual*, Version 2.1, Abingdon, Maryland, June 2002a.

SAIC, *Quantus Quick Start Guide*, Abingdon, Maryland, June 2002b.

SAIC, *Anniston Chemical Agent Disposal Facility Quantitative Risk Assessment*, SAIC-00/2640, Abingdon, Maryland, June 2002c.

SAIC, *Umatilla Chemical Agent Disposal Facility Quantitative Risk Assessment*, SAIC-00/2641, Abingdon, Maryland, December 2002d.



## Where to Find Out More

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### About the QRA

The QRA summarized in this report has been documented in a main report describing the entire QRA process and the risk results and findings. Detailed presentations of the models and data are provided in a series of appendices. The report arrangement is summarized in figure S-8. With regard to the main report:

- ▶ Section 2 provides an overview of the methods
- ▶ Section 13 discusses the results for disposal processing risk
- ▶ Section 15 discusses the results for storage risk
- ▶ Section 16 summarizes the risk results.

### About the Program

Information concerning the program tasked with eliminating the stockpile of chemical weapons is available from a number of sources.

Public Outreach and Information Office  
U.S. Army Chemical Materials Agency  
(Provisional)  
Program Manager for Elimination of Chemical  
Weapons  
Attn: SFAE-CD-P  
Building E4585  
Aberdeen Proving Ground, MD 21010-4005  
(800) 488-0648

Umatilla Chemical Disposal Outreach Office  
190 East Main Street  
Hermiston, OR 97838  
(541) 564-9339

Information and contacts can also be obtained from the program's Web site.

<http://www-pmcd.apgea.army.mil>

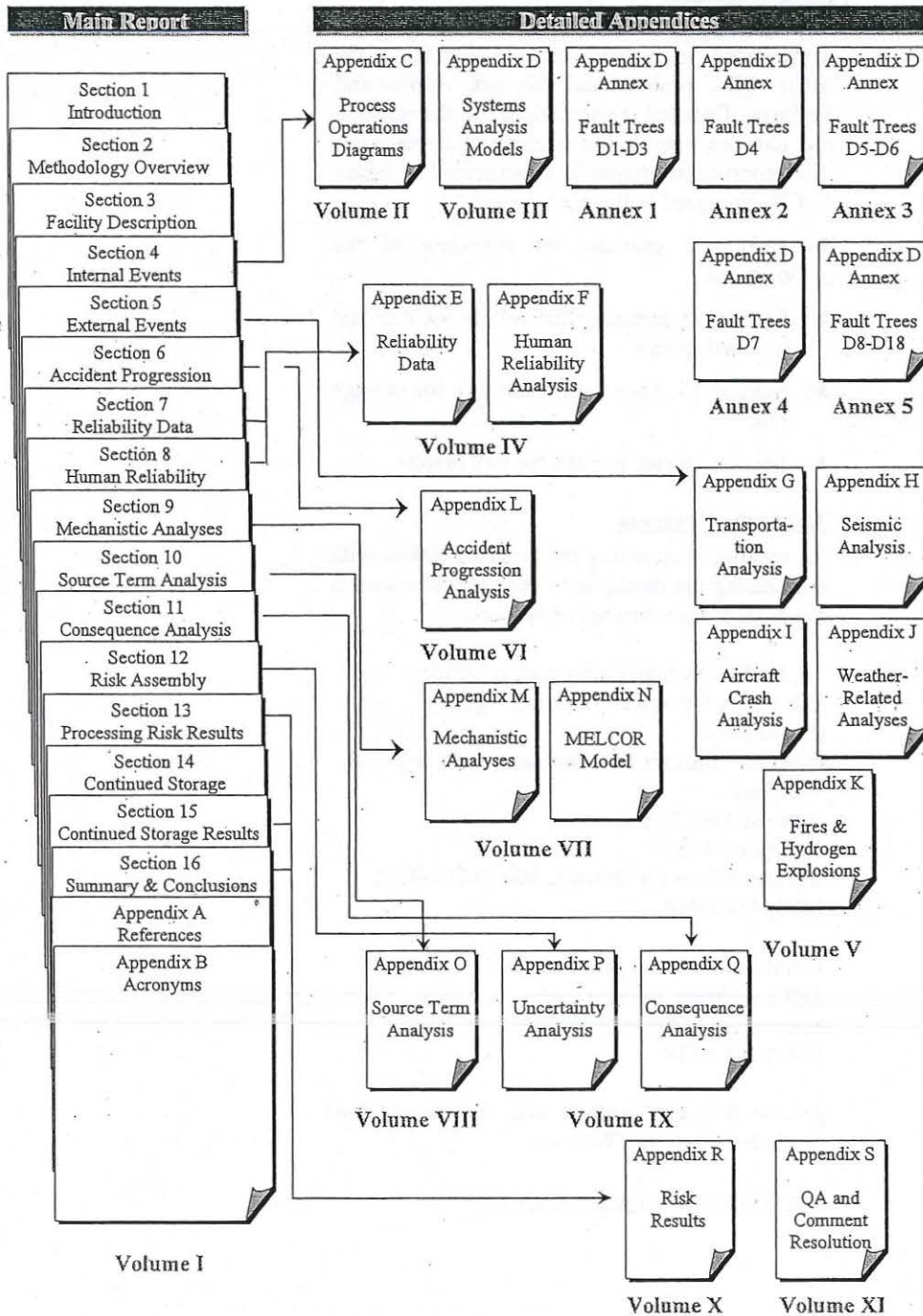


Figure S-8. Organization of the QRA Report



# **ATTACHMENT N**

## **Selected Surrogate Trial Burn Results Umatilla Chemical Agent Disposal Facility And Anniston Chemical Agent Disposal Facility**

Permit Modification Request UMCDF-03-041-PFS(3)  
"Change in Incinerator Emissions Compliance Point"  
Umatilla Chemical Agent Disposal Facility  
May 20-21, 2004 Meeting of the Environmental Quality Commission

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**Selected Surrogate Trial Burn Results  
Umatilla Chemical Agent Disposal Facility  
And  
Anniston Chemical Agent Disposal Facility**

Surrogate Trial Burns

Surrogate trial burns (STBs) are designed to simulate a range of conditions (including type of waste feed and feed rates) that are expected during actual chemical agent operations. Testing is conducted to determine whether the furnace and pollution abatement systems can operate at permitted feed rates and expected operating setpoints and still stay within the permitted emission limits. Operating the furnaces at the extreme range of the conditions expected during agent operations gives results under “worst case” scenarios.

The STBs measure such things as the Destruction Removal Efficiency (DRE) for organic compounds and Metals Removal Efficiency (MRE) for inorganic compounds. DRE is a measure of how well the incinerator destroys “organic” compounds, in this case the surrogate material used to simulate chemical agent (the type of surrogate mixture used is dependent on which furnace is being tested). Metals such as lead, cadmium, and mercury are inorganic and cannot be destroyed like organic compounds. MRE is a measure of how well the incinerators’ pollution abatement systems remove metals from the gas stream so that they are not released into the environment. For the purposes of the STBs, certain metals are “spiked” into the surrogate feed to simulate the metals that are contained in the chemical agent munitions.

STBs also test the incinerators’ ability to meet emission standards. In some cases emissions are stated as a concentration (how much of a compound is contained in a volume of air, such as “pounds per cubic foot”) and in other cases they are stated as a rate (how much of a given compound is being released during a given time period, such as “grams per second” or “pounds per hour”). Both types of emission standards exist for the Umatilla Chemical Agent Disposal Facility (UMCDF).

UMCDF Surrogate Trial Burns

Three Surrogate Trial Burns (STB) have been conducted at UMCDF as of April, 2004. The STB on Liquid Incinerator 1 (LIC1) was conducted from January 27 through February 8, 2003. The STB on the Deactivation Furnace System (DFS) was conducted from September 26 through October 13, 2003. The STB on the Metal Parts Furnace (MPF) was conducted from January 15 through February 1, 2004. Liquid Incinerator 2 (LIC2) is scheduled to undergo a STB in June, 2004. Preliminary results from the MPF STB indicate that the MPF was able to meet its performance standard and all of its emission limits with the PFS both online and offline. However, the MPF STB report has not yet been submitted to the Department. Although the LIC1 and the DFS STBs included a “Low Temperature Test” condition, only the results of the LIC1 and DFS “High Temperature Tests” are presented here because that was the test condition that included spiking of metals into the feed and tests with the PFS both online and offline.



The first set of STB tests on LIC1 and the DFS were conducted under Low Temperature Test (LTT) conditions. Because LTT conditions simulate the worst case operating scenario for destruction of organic compounds (such as chemical agent), measurements of the organic DRE are conducted during these tests. Metals are spiked into the feed only during the High Temperature Test (HTT) condition because high temperatures represent the "worst case" for metal emissions from the furnaces. Both the LIC1 and the DFS were able to achieve the required DRE and meet all emission limits during the LTT condition.

In the case of the LIC1 the HTT test runs were conducted at the same feed rate, but one set of tests was conducted with the PFS online (operational) and the other set of tests was conducted with the PFS offline. The results of the HTT test runs on LIC1 with the PFS online and offline are shown in Table N-1. The last column of Table N-1 shows the percent reduction in emissions of various compounds that was due to the operation of the PFS. Table N-2 uses the emission data shown in Table N-1 to indicate what percentage of the maximum permitted limit each emission constituent averaged during the test runs with the PFS both offline and online. Because the LIC1 HTT test runs were conducted at essentially the same rate, the PFS offline and PFS online data are directly comparable. The results from the STB on Liquid Incinerator 1 (LIC1) showed that the incinerator was able to meet all performance standards and all emission limits even when those emissions were measured before the PFS. For example, emissions of dioxins during tests both "before" and "after" the PFS were not only below the maximum permitted limit, but also below the analytical detection limit (The detection limit is 100 times lower than the permitted limit.). Table N-2 shows the emission results presented in Table N-1 as a percentage of the permitted limit.

Tables N-3 and N-4 present the same type of results from the STB on DFS, although the PFS online and offline results are not directly comparable because of the differences in the feed rates between the two operating conditions. The results presented in Table N-3 are based on the average of three test runs simulating a feed rate of about 7.5 rockets per hour in the PFS offline condition and about 40 rockets per hour in the online condition. As shown in Table N-3, the emissions of antimony, cadmium, lead, and thallium all exceeded permitted emission limits when the PFS was offline.

#### ANCDF Surrogate Trial Burns

The Anniston Chemical Agent Disposal Facility (ANCDF), a demilitarization facility virtually identical to UMCDF, also conducted surrogate trial burns on its Liquid Incinerator (LIC) and Deactivation Furnace System. As indicated by Tables N-5 and N-6, ANCDF's results were very similar to UMCDF's. The LIC was able to meet almost all of its emission standards, regardless of whether the PFS was online. The exception was lead, which slightly exceeded its permitted limit during the PFS offline condition. Tables N-7 and N-8 show that the ANCDF DFS, like UMCDF, was unable to meet the permitted emission limit for cadmium and lead when the PFS was offline. ANCDF also exceeded its mercury limit when the PFS was offline, but did not exceed its antimony or thallium emission limits.



**TABLE N-1**  
 UMCDF Surrogate Trial Burn--Liquid Incinerator #1 (LIC1)  
 High Temperature Test Condition  
 Selected Results: PFS Offline and PFS Online

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Offline Average of three test runs <sup>3</sup>	PFS-Online Average of three test runs <sup>3</sup>	% Reduction w/PFS On
<b>Metals:</b>					
Antimony	lbs/hour	5.11E-04	1.77E-05	1.12E-06	94%
Arsenic	lbs/hour	8.72E-04	2.76E-05	1.44E-06	95%
Cadmium	lbs/hour	2.31E-04	5.09E-06	4.99E-07	90%
Chromium	lbs/hour	2.31E-04	1.82E-05	8.93E-06	51%
Lead	lbs/hour	1.21E-03	5.94E-05	4.03E-06	93%
Manganese	lbs/hour	3.75E-02	1.03E-04	3.46E-05	66%
Mercury	lbs/hour	2.46E-04	5.44E-06	4.96E-06	9%
Nickel	lbs/hour	1.51E-03	4.49E-05	2.78E-05	38%
Selenium	lbs/hour	3.51E-04	7.15E-06	5.75E-06	20%
Thallium	lbs/hour	2.31E-03	2.51E-05	8.99E-07	96%
Lead+Cadmium	µg/dscm	120 (MACT) <sup>4</sup>	2.09	0.150	93%
<b>Other Emission Constituents:</b>					
Dioxins/Furans	ng/dscm (total)	0.20 (MACT) <sup>4</sup>	<0.012	<0.012	0%
Particulate	gr/dscf	0.015	.0015	.0013	13%

Source: Umatilla Chemical Agent Disposal Facility, Liquid Incinerator 1 Surrogate Trial Burn Report, May 2003, tests conducted January 27-February 8, 2003 (DEQ Item No. 03-0839).

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)  
 [A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> A "<" symbol in this column indicates that the result was below the analytical detection limit.

<sup>4</sup> Maximum Achievable Control Technology (MACT) limit.

**TABLE N-2**  
 UMCDF Surrogate Trial Burn--Liquid Incinerator #1 (LIC1)  
 High Temperature Test Condition  
 Selected Results as a Percentage of Permitted Limits

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Offline Percent of Permitted Limit <sup>3</sup>	PFS-Online Percent of Permitted Limit <sup>3</sup>
<b>Metals:</b>				
Antimony	lbs/hour	5.11E-04	3.46%	0.22%
Arsenic	lbs/hour	8.72E-04	3.17%	0.17%
Cadmium	lbs/hour	2.31E-04	2.20%	0.22%
Chromium	lbs/hour	2.31E-04	7.88%	3.87%
Lead	lbs/hour	1.21E-03	4.91%	0.33%
Manganese	lbs/hour	3.75E-02	0.27%	0.09%
Mercury	lbs/hour	2.46E-04	2.21%	2.02%
Nickel	lbs/hour	1.51E-03	2.97%	1.84%
Selenium	lbs/hour	3.51E-04	2.04%	1.64%
Thallium	lbs/hour	2.31E-03	1.09%	0.04%
Lead+Cadmium	µg/dscm	120 (MACT) <sup>4</sup>	1.74%	0.13%
<b>Other Emission Constituents:</b>				
Dioxins/Furans	ng/dscm (total)	0.20 (MACT)	<6.00%	<6.00%
Particulate	gr/dscf	0.015	10.00%	8.67%

Source: See Table N-1.

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)  
 [A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> See Table N-1.

<sup>4</sup> Maximum Achievable Control Technology (MACT) limit.



**TABLE N-3**  
 UMCDF Surrogate Trial Burn—Deactivation Furnace System (DFS)  
 High Temperature Test Condition  
 Selected Results: PFS Offline and PFS Online  
 (Metal feed rates between Mode 2 and Mode 3 were not equivalent)

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Off Average of three test runs Mode 2 <sup>3</sup>	PFS-On Average of three test runs Mode 3 <sup>4</sup>	% Reduction w/PFS on
<b>Metals:</b>					
Antimony	lbs/hour	3.33E-04	<b>1.99E-03</b>	4.49E-05	98%
Arsenic	lbs/hour	3.33E-04	8.40E-05	<3.84E-06	95%
Cadmium	lbs/hour	1.48E-04	<b>7.47E-04</b>	<1.99E-05	97%
Chromium	lbs/hour	3.21E-04	1.77E-04	<1.68E-05	91%
Lead	lbs/hour	3.51E-03	<b>4.68E-03</b>	1.20E-04	97%
Manganese	lbs/hour	3.33E-02	8.07E-04	3.87E-05	95%
Mercury	lbs/hour	4.16E-05	<2.08E-05	<2.05E-05	1%
Nickel	lbs/hour	2.42E-04	2.16E-04	5.08E-05	76%
Selenium	lbs/hour	3.33E-04	<4.26E-05	<1.68E-05	61%
Thallium	lbs/hour	6.68E-05	<b>&lt;7.45E-05</b>	<2.56E-06	97%
Lead + Cadmium	µg/dscm	120 (MACT) <sup>5</sup>	<b>129.3</b>	<3.21	98%
<b>Other Emission Constituents:</b>					
Dioxins/Furans	ng/dscm (TEQ)	0.20 (MACT) <sup>5</sup>	<0.014	<0.011	21%
Particulate	gr/dscf	0.015	.00073	.00020	73%

Source: Umatilla Chemical Agent Disposal Facility, Deactivation Furnace System Surrogate Trial Burn Report, November, 2003, tests conducted September 26-October 13, 2003 (DEQ Item No. 03-2435).

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)

[A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> Mode 2 was approximately equivalent to 7.5 rockets/hour feed rate with a total metals feed of 12.05 lbs/hour. A "<" symbol in this column indicates that the constituent was below the analytical detection limit. Shaded cells with **bolded** numbers indicate a metal emission rate that exceeded permitted limits.

<sup>4</sup> Mode 3 was approximately equivalent to 40 rockets/hour feed rate, with a total metals feed of 18.7 lbs/hour. A "<" symbol in this column indicates that the constituent was below the detection limit of the analytical method.

<sup>5</sup> Maximum Achievable Control Technology (MACT) limit.

**TABLE N-4**  
 UMCDF Surrogate Trial Burn—Deactivation Furnace System (DFS)  
 High Temperature Test Condition  
 Selected Results as a Percentage of Permitted Limits

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Off Percent of Permitted Limit <sup>3</sup>	PFS-On Percent of Permitted Limit <sup>3</sup>
<b>Metals:</b>				
Antimony	lbs/hour	3.33E-04	<b>597.60%</b>	13.48%
Arsenic	lbs/hour	3.33E-04	25.23%	1.15%
Cadmium	lbs/hour	1.48E-04	<b>504.73%</b>	13.45%
Chromium	lbs/hour	3.21E-04	55.14%	5.23%
Lead	lbs/hour	3.51E-03	<b>133.33%</b>	3.42%
Manganese	lbs/hour	3.33E-02	2.42%	0.12%
Mercury	lbs/hour	4.16E-05	50.00%	49.28%
Nickel	lbs/hour	2.42E-04	89.26%	20.99%
Selenium	lbs/hour	3.33E-04	12.79%	5.05%
Thallium	lbs/hour	6.68E-05	<b>111.53%</b>	3.83%
Lead + Cadmium	µg/dscm	120 (MACT) <sup>4</sup>	<b>107.75%</b>	2.68%
<b>Other Emission Constituents:</b>				
Dioxins/Furans	ng/dscm (TEQ)	0.20 (MACT) <sup>4</sup>	7.00%	5.50%
Particulate	gr/dscf	0.015	4.87%	1.33%

Source: See Table N-3.

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)

[A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> Shaded cells with **bolded** numbers indicate a metal emission rate that exceeded permitted limits.

<sup>4</sup> Maximum Achievable Control Technology (MACT) limit.



**TABLE N-5**  
 ANCDF Surrogate Trial Burn—Liquid Incinerator (LIC)  
 High Temperature Test Condition  
 Selected Results: PFS Offline and PFS Online

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Offline Average of three test runs <sup>3</sup>	PFS-Online Average of three test runs <sup>3</sup>	% Reduction w/PFS On
<b>Metals:</b>					
Antimony	lbs/hour	5.08E-04	<1.76E-04	<2.08E-06	99%
Arsenic	lbs/hour	8.65E-04	<2.91E-04	<1.95E-06	99%
Cadmium	lbs/hour	2.29E-04	<8.09E-05	<9.70E-07	99%
Chromium	lbs/hour	2.29E-04	<1.17E-04	<3.73E-06	97%
Lead	lbs/hour	3.19E-04	<b>&lt;4.30E-04</b>	<3.07E-06	99%
Manganese	lbs/hour	3.71E-02	1.83E-04	8.66E-06	95%
Mercury	lbs/hour	2.43E-04	<6.82E-06	<5.48E-06	20%
Nickel	lbs/hour	1.49E-03	<2.27E-04	<1.74E-05	92%
Selenium	lbs/hour	3.47E-04	<1.60E-05	<6.75E-06	58%
Thallium	lbs/hour	2.29E-03	<4.97E-04	<3.07E-06	99%
Lead+Cadmium	µg/dscm	120 (MACT) <sup>4</sup>	<46.09	<0.36	99%
<b>Other Emission Constituents:</b>					
Dioxins/Furans	ng/dscm (total)	0.20 (MACT) <sup>4</sup>	Not tested	Not tested	Not tested
Particulate	gr/dscf	0.015	0.0021	0.0009	50%

Source: Anniston Chemical Agent Disposal Facility (ANCDF), Liquid Incinerator Surrogate Trial Burn Report, January, 2003, tests conducted March 16-23, 2002 (DEQ Item No. 03-0084).

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)  
 [A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> A "<" symbol in this column indicates that the constituent was below the analytical detection limit. Shaded cells with **bolded** numbers indicate a metal emission rate that exceeded permitted limits.

<sup>4</sup> Maximum Achievable Control Technology (MACT) limit.

**TABLE N-6**  
 ANCDF Surrogate Trial Burn—Liquid Incinerator (LIC)  
 High Temperature Test Condition  
 Selected Results as a Percentage of Permitted Limits

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Offline Percent of Permitted Limit <sup>3</sup>	PFS-Online Percent of Permitted Limit
<b>Metals:</b>				
Antimony	lbs/hour	5.08E-04	34.56%	0.41%
Arsenic	lbs/hour	8.65E-04	33.58%	0.23%
Cadmium	lbs/hour	2.29E-04	35.39%	0.42%
Chromium	lbs/hour	2.29E-04	51.05%	1.63%
Lead	lbs/hour	3.19E-04	<b>134.91%</b>	0.96%
Manganese	lbs/hour	3.71E-02	0.49%	0.02%
Mercury	lbs/hour	2.43E-04	2.81%	2.26%
Nickel	lbs/hour	1.49E-03	15.18%	1.16%
Selenium	lbs/hour	3.47E-04	4.61%	1.95%
Thallium	lbs/hour	2.29E-03	21.73%	0.13%
Lead+Cadmium	µg/dscm	120 (MACT) <sup>4</sup>	38.41%	0.30%
<b>Other Emission Constituents:</b>				
Dioxins/Furans	ng/dscm (total)	0.20 (MACT) <sup>4</sup>	Not tested	Not tested
Particulate	gr/dscf	0.015	14.00%	6.00%

Source: See Table N-5.

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)

[A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> Shaded cells with **bolded** numbers indicate a metal emission rate that exceeded permitted limits.

<sup>4</sup> Maximum Achievable Control Technology (MACT) limit.



**TABLE N-7**  
 ANCDF Surrogate Trial Burn—Deactivation Furnace System (DFS)  
 High Temperature Test Condition  
 Selected Results: PFS Offline and PFS Online  
 (Metal feed rates between Mode 2 and Mode 3 were not equivalent)

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Off Average of three test runs Mode 2 <sup>3</sup>	PFS-On Average of three test runs Mode 3 <sup>4</sup>	% Reduction w/PFS on
<b>Metals:</b>					
Antimony	lbs/hour	3.44E-04	<1.04E-05	<8.10E-06	22%
Arsenic	lbs/hour	3.44E-04	<3.04E-05	<5.72E-06	81%
Cadmium	lbs/hour	1.08E-04	<b>&lt;2.84E-03</b>	<1.69E-05	99%
Chromium	lbs/hour	1.71E-04	<5.37E-05	<3.33E-05	38%
Lead	lbs/hour	2.77E-03	<b>1.44E-02</b>	8.37E-05	99%
Manganese	lbs/hour	3.44E-02	5.02E-05	8.47E-05	0%
Mercury	lbs/hour	4.30E-05	<b>&lt;3.53E-04</b>	<2.26E-05	94%
Nickel	lbs/hour	2.14E-04	<9.30E-05	<4.05E-05	56%
Selenium	lbs/hour	3.44E-04	<2.63E-05	<2.29E-05	13%
Thallium	lbs/hour	6.88E-05	<2.51E-05	<2.89E-06	88%
Lead + Cadmium	µg/dscm	120 (MACT) <sup>5</sup>	<b>566.7</b>	3.2	99%
<b>Other Emission Constituents:</b>					
Dioxins/Furans	ng/dscm (TEQ)	0.20 (MACT) <sup>5</sup>	<0.030	<0.021	>30%
Particulate	gr/dscf	0.015	0.00114	0.00058	49%

Source: Anniston Chemical Agent Disposal Facility (ANCDF), Deactivation Furnace System Surrogate Trial Burn Report, Revision 1, January, 2003, tests conducted May 29-June 4, 2002 (DEQ Item No. 03-0170)..

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)

[A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> Mode 2 metals feed rate was 37.10 lbs/hour. A "<" symbol in this column indicates that the constituent was below the analytical detection limit. Shaded cells with bolded numbers indicate a metal emission rate that exceeded permitted limits.

<sup>4</sup> Mode 3 metals feed rate was 112.3 lbs/hour. A "<" symbol in this column indicates that the constituent was below the detection limit of the analytical method.

<sup>5</sup> Maximum Achievable Control Technology (MACT) limit.

**TABLE N-8**  
 ANCDF Surrogate Trial Burn—Deactivation Furnace System (DFS)  
 High Temperature Test Condition  
 Selected Results as a Percentage of Permitted Limits

Emission Measurement	Measurement Unit <sup>1</sup>	Permit Limit <sup>2</sup>	PFS-Off Percent of Permitted Limit <sup>3</sup>	PFS-On Percent of Permitted Limit <sup>3</sup>
<b>Metals:</b>				
Antimony	lbs/hour	3.44E-04	3.03%	2.36%
Arsenic	lbs/hour	3.44E-04	8.85%	1.66%
Cadmium	lbs/hour	1.08E-04	<b>2634.80%</b>	15.64%
Chromium	lbs/hour	1.71E-04	31.31%	19.41%
Lead	lbs/hour	2.77E-03	<b>520.89%</b>	3.02%
Manganese	lbs/hour	3.44E-02	0.15%	0.25%
Mercury	lbs/hour	4.30E-05	<b>820.23%</b>	52.51%
Nickel	lbs/hour	2.14E-04	43.38%	18.91%
Selenium	lbs/hour	3.44E-04	7.65%	6.66%
Thallium	lbs/hour	6.88E-05	36.52%	4.20%
Lead + Cadmium	µg/dscm	120 (MACT) <sup>4</sup>	<b>472.25%</b>	2.67%
<b>Other Emission Constituents:</b>				
Dioxins/Furans	ng/dscm (TEQ)	0.20 (MACT) <sup>4</sup>	15.00%	10.50%
Particulate	gr/dscf	0.015	7.60%	3.87%

Source: See Table N-7

<sup>1</sup> lbs/hour: pounds per hour

µg/dscm: microgram/dry standard cubic meter (a microgram is one millionth of a gram)

[A gram is one-thousandth of a kilogram (2.2 pounds). There are 453.6 grams to one pound]

ng/dscm: nanograms per dry standard cubic meter (a nanogram is one-billionth of a gram)

gr/dscf: grains per dry standard cubic foot (a grain is .065 grams)

<sup>2</sup> RCRA Hazardous Waste Permit limit, unless otherwise noted.

<sup>3</sup> Mode 2 metals feed rate was 37.10 lbs/hour, Mode 3 was 112.3 lbs/hour. Shaded cells with bolded numbers indicate a metal emission rate that exceeded permitted limits.

<sup>4</sup> Maximum Achievable Control Technology (MACT) limit.