EQCMeeting1of2DOC20080822

Part 1 of 2

OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS 08/22/2008

State of Oregon
Department of Environmental Quality

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Oregon Environmental Quality Commission Meeting

August 21 and 22, 2008

Great Room
Hermiston Conference Center
415 S Highway 395
Hermiston, Oregon

Thursday, August 21—Regular meeting begins at 8:30 am

A. Preliminary Commission Business: Adoption of Minutes of the June 19-20, 2008 Regular Meeting and June 13, 2008 Special Meeting
The Environmental Quality Commission will review, amend if necessary, and approve draft minutes of the June 19-20, 2008, regular EQC meeting and June 13, 2008 special meeting.

B. Informational Item: Update on the Status of the Umatilla Chemical Agent Disposal Facility (UMCDF)
Joni Hammond, Department of Environmental Quality Acting Deputy Director, and Rich Duval, Administrator of DEQ's Chemical Demilitarization Program will give an update on the status of recent activities at the Umatilla Chemical Agent Disposal Facility. In August 2004, the EQC gave approval to start chemical weapon destruction at UMCDF and DEQ's Chemical Demilitarization Program continues close oversight of work at the facility.
Joni Hammond and Rich Duval, Department of Environmental Quality

C. Action Item: Inclusion of the Pollution Abatement System Carbon Filter System in the Umatilla Chemical Agent Disposal Facility Incineration Process as Best Available Technology
The final judgment in GASP, *et al*, v. Environmental Quality Commission, *et al*, Case No. 9708-06159 (GASP IV), remanded three issues to the EQC for findings on best available technology, or BAT, and no major adverse impact. The EQC must determine whether the best available technology determination for the UMCDF incineration process should include and require operation of the Pollution Abatement System Carbon Filter System or PFS. While the PFS was not a demonstrated technology for the chemical demilitarization incineration process when the original operating permit for the UMCDF was issued, the EQC has since found the PFS to be a proven technology resulting in reduced risk to the public by providing for more expedient destruction of the munitions stockpile.
Joni Hammond and Rich Duval, Department of Environmental Quality

D. Action Item: Best Available Technology Determination for Mustard Agent with Elevated Mercury Levels
As remanded by the Court in the final judgment in GASP IV (see Item C), the EQC must make a best available technology determination for the handling of mustard agent with elevated mercury levels at the UMCDF. Several ton containers of mustard gas at the UMCDF site contain elevated mercury levels,

likely due to the gas being put into insufficiently cleaned containers back in the 1940s.
Joni Hammond and Rich Duval, Department of Environmental Quality

E. Informational Item: Director's Dialogue
Dick Pedersen, DEQ Director, will discuss current events and issues involving DEQ.

F. Public Forum
At approximately 11:15 a.m., the EQC will provide members of the public an opportunity to speak to Commission members on environmental issues. Individuals wishing to speak to the EQC must sign a request form at the meeting and limit presentations to five minutes. The EQC may discontinue public forum after a reasonable time if a large number of speakers wish to appear. In accordance with ORS 183.335(13), no comments may be presented on rule adoption items for which public comment periods have closed.

Working Lunch
The EQC will meet in executive session from approximately 11:45 a.m. to 12:45 p.m. to consult with counsel concerning legal rights and duties regarding current or potential litigation against the DEQ. Only representatives of the media may attend and media representatives may not report on any deliberations during the session. [1]

G. Action Item: Amend Plant Site Emission Limit Applicability Rules
The Plant Site Emission Limit rule sets limits on emissions of specified regulated air pollutants. The primary purpose of establishing a PSEL is to assure compliance with ambient air standards, which regulate a group of pollutants known as criteria pollutants (particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead). However, at the end of last year, DEQ discovered an error in the PSEL Rule requiring PSELs for two unintended categories of pollutants. The EQC adopted a temporary rule on February 22, 2008 to fix the error; this proposed rulemaking would make those temporary amendments permanent, avoiding a significant amount of unintended work by DEQ permitting staff and unnecessary burdens on regulated sources.
Andy Ginsburg and Gregg Dahmen, Department of Environmental Quality

H. Action Item: Title V Long-term Funding
Oregon's Title V Operating Permit Program contributes to the prevention of air pollution and helps reduce the number of unhealthy air days and the risks from toxic air pollutants. Title V permit holders are generally the largest stationary emission sources, including power generation, wood and paper products, and fiberglass manufacturing facilities. Smaller sources, such as wood refinishing and fiberglass reinforced plastic facilities, are also subject to the Title V program if those sources have the potential to emit at or above major source emission thresholds. DEQ projects that approximately 123 sources will be subject to Oregon's Title V program in fiscal year 2009. The proposed rules increase fees for all Title V Operating Permit Program sources, which is necessary to cover the reasonable costs associated with DEQ's operation of Oregon's Title V program. The federal Clean Air Act requires each state's Title V program to be funded entirely by permit fees. Failure to

maintain sufficient funding could affect DEQ's ability to maintain federal approval of the state program.
Andy Ginsburg and Andrea Curtis, Department of Environmental Quality

I. Action Item: Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements
The federal Clean Air Act does not provide an exemption for agricultural operations while, prior to 2007, Oregon's state law exempted most agricultural operations from air quality regulations. In the fall of 2005, several environmental groups petitioned the U.S. Environmental Protection Agency to revoke its approval of Oregon's air quality permitting program and the State Clean Air Act Implementation Plan, or SIP, because of the blanket exemption for agricultural sources. Senate Bill 235 (2007) updated Oregon's air quality laws to be consistent with the federal Clean Air Act by allowing the EQC to limit emissions from agricultural sources if needed to meet federal CAA requirements. This proposed rulemaking would align DEQ rules with the updated statutes.
Andy Ginsburg and Jeffrey Stocum, Department of Environmental Quality

J. Informational Item: Dairy Air Quality Task Force Update
As noted above under Item I, Oregon Senate Bill 235 (2007) resolved an inconsistency between state and federal law by allowing the EQC to regulate agricultural operations to the extent needed under the CAA. SB235 also created a task force on dairy air quality, in part to evaluate the potential for regulation beyond CAA requirements for the dairy industry. The task force was asked to study the emissions from dairy operations, evaluate available alternatives for reducing emissions, and present findings and recommendations to DEQ and the Oregon Department of Agriculture by July 1, 2008. The purpose of this item is to present the consensus findings and recommendations of the task force to the EQC, and to answer questions about the task force's deliberations and final report. Implementing the task force recommendations will require future EQC rulemaking.
Andy Ginsburg and David Collier, Department of Environmental Quality

K. Action Item: Pollution Control Tax Credits
The Pollution Control Facilities Tax Credit regulations direct the EQC to "certify a pollution control, solid waste, hazardous waste or used oil facility or portion thereof if the Commission finds that the facility qualifies as a pollution control facility." EQC certification entitles an Oregon taxpayer to subtract up to 35 percent of the facility's cost from its Oregon tax liability.
Maggie Vandehey, Department of Environmental Quality

L. Action Item: Certification of 2009-11 Agency Request Budget
The purpose of this agenda item is to seek approval from the EQC for the chairperson to certify DEQ's 2009-11 Agency Request Budget for submittal to the Department of Administrative Services by September 1, 2008. The presentation will include updates on draft legislative concepts, budget policy packages, and key issues for the base budget (non-policy package components) for 2009-11, as well as an update on the reduction options that DEQ must submit as part of the Agency Request Budget.
Greg Aldrich and Jim Roys, Department of Environmental Quality

M. Discussion Item: EQC's Own Performance Measures

At the direction of the 2005 legislature, the EQC formally adopted a performance measure in December 2006. The EQC's measure is the percentage achieved in an annual self-assessment against 15 best practices for boards and commissions, as laid out by the Department of Administrative Services and customized by the EQC. The EQC will discuss their individual ratings of the EQC's performance for fiscal year 2007 and suggest possible improvements.

Joanie Stevens-Schwenger, Department of Environmental Quality

Thursday, August 21 – Town Hall Meeting 7:00 – 9:00 pm

The EQC will hold a town hall style meeting in the Great Room of the Hermiston Conference Center, Hermiston, Oregon. The public is invited to attend and share their perspectives and concerns on environmental issues with the EQC. The Hermiston Conference Center is located at 415 S Highway 395 in Hermiston, 541-567-6151.

Friday, August 22 — Regular meeting begins at 10:00 am

N. Informational Item: Site visit

Before the regular meeting resumes at 10:00 a.m. at the Hermiston Conference Center, the EQC will tour the PGE Boardman Power Plant.

O. Informational Item: Fish Consumption Rate Project

Oregon's water quality standards contain human health criteria, which are designed to protect human health from toxic pollutants that may occur in surface waters and may accumulate in fish. A key component of the human health criteria is the fish consumption rate, which is intended to reflect how much fish people eat. In order to set standards that protect Oregonians, DEQ must determine how much fish people in Oregon eat. The EQC adopts these standards for Oregon's surface waters. DEQ, the U.S. Environmental Protection Agency and the Confederated Tribes of the Umatilla Indian Reservation have collaborated on the Oregon Fish Consumption Rate project. This report provides an overview of work thus far on the project and describes the three governments' initial draft recommended fish consumption rate. In October 2008, DEQ plans to ask the EQC whether DEQ should conduct rulemaking to revise water quality standards for toxic pollutants based on a recommended fish consumption rate.

Neil Mullane, Jennifer Wigal and Debra Sturdevant, Department of Environmental Quality

Lunch Break

A short lunch break is planned for approximately 11:30 a.m. The presentation of Item O will continue after lunch until approximately 1:00 p.m.

P. Informational Item: Commissioner Reports

Adjourn

[1] This executive session will be held pursuant to ORS 192.660(2)(f), (h).

Future Environmental Quality Commission meeting dates include:

October 23 - 24, 2008 (Portland, DEQ Headquarters)
December 11 - 12, 2008 (Hillsboro, DEQ Laboratory)

Agenda Notes

Staff Reports: Staff reports for each item on this agenda can be viewed and printed from DEQ's Web site at http://www.deq.state.or.us/about/eqc/eqc.htm. To request a particular staff report be sent to you in the mail, contact the EQC Assistant, Department of Environmental Quality, Director's Office, 811 SW Sixth Avenue, Portland, Oregon 97204; telephone 503-229-5990, toll-free 1-800-452-4011 extension 5990, or 503-229-6993 (TTY). Please specify the agenda item letter when requesting reports. If special physical, language or other accommodations are needed for this meeting, please advise the EQC Assistant as soon as possible, but at least 48 hours in advance of the meeting.

Public Forum: The Commission will provide time in the meeting during the afternoon of Thursday, August 21, for members of the public to speak to the Commission. Individuals wishing to speak to the Commission must sign a request form at the meeting and limit presentations to five minutes. The Commission may discontinue the public forum after a reasonable time if a large number of speakers wish to appear. In accordance with ORS 183.335(13), no comments may be presented on Rule Adoption items for which public comment periods have closed.

Note: Because of the uncertain length of time needed for each agenda item, the Commission may hear any item at any time during the meeting. If a specific time is indicated for an agenda item, an effort will be made to consider that item as close to that time as possible. However, scheduled times may be modified if participants agree. Those wishing to hear discussion of an item should arrive at the beginning of the meeting to avoid missing the item.

The Environmental Quality Commission is a five-member, all volunteer, citizen panel appointed by the governor for four-year terms to serve as DEQ's policy and rule-making board. Members are eligible for reappointment but may not serve more than two consecutive terms.

Bill Blosser, Vice Chairman
Bill Blosser is owner of William Blosser Consulting. He is employed by, and has held several positions with CH2M Hill in Portland. Bill served as Director of the Oregon Department of Land Conservation and Development from 2001-2002 and was formerly president of Sokol Blosser Winery in Dundee, Oregon. Bill has served on and chaired numerous commissions and task forces, including terms as chair of the Water Resources Commission, chair of the Land Conservation and Development Commission and chair of the Policy Advisory Committee on Water Quality to the EQC. Bill has a Bachelor of Arts degree in history and humanities from Stanford University and a master's degree in regional planning from the University of North Carolina,

Chapel Hill. Commissioner Blosser was appointed to the EQC in January 2006 and lives in Portland.

Ken Williamson, Commissioner
Ken Williamson is head of the School of Chemical, Biological and Environmental Engineering at Oregon State University in Corvallis. He received his B.S. and M.S. at Oregon State University and his Ph.D. at Stanford University. Commissioner Williamson was appointed to the EQC in February 2004 and reappointed in May, 2007. He lives in Portland. He represents the EQC on the Oregon Watershed Enhancement Board (OWEB).

Judy Uherbelau, Commissioner
Judy Uherbelau is a graduate of Ball State University with a B.S. in Economics/Political Science. She received a J.D. from UCLA School of Law and recently closed her law practice with Thomas C. Howser, PC in Ashland. Judy served in the Peace Corps and the Oregon House of Representatives as well as numerous boards and commissions. Commissioner Uherbelau was appointed to the EQC in February 2005 and reappointed in June 2008. She lives in Ashland.

Donalda Dodson, Commissioner
Donalda Dodson is currently Interim Executive Director of the Oregon Child Development Coalition. Previously, she served as Administrator of the Department of Human Services Office of Family Health and as Manager of the Maternal/Child Health Program at the Marion County Health Department. Donalda has a Bachelor of Science degree in nursing and a master's degree in public health. She has chaired or served on nearly a dozen public health committees and task forces and expresses a strong interest in bringing environmental issues into the public health arena. Commissioner Dodson was appointed to the EQC in August of 2005 and reappointed in July of 2007. She resides in Salem.

Jane O'Keeffe, Commissioner
Jane O'Keeffe has been an operating partner in the O'Keeffe Family Ranch, a fourth-generation cattle operation in Adel, near Lakeview, for more than 25 years and has served as partner in the Campbell Crossing Ranch in Kimberly since 2007. She has served as a member and co-chair of the Oregon Watershed Enhancement Board and has been active in other local natural resource boards involving forest lands and sustainability. Her public service also includes work as consultant to the National Forest Counties and Schools Coalition and seven years as a Lake County commissioner. Jane has a bachelor's degree in agriculture and resources economics from Oregon State University. Commissioner O'Keeffe was appointed to the EQC in June 2008. She is a native of northeast Oregon and resides in Adel.

Dick Pedersen, Director
Department of Environmental Quality
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Wendy Simons, Assistant to the Commission
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Please Sign In

Thurs.

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Environmental Quality Commission Meeting
Hermiston, Oregon August 21 &22, 2008

Name	Organization	Phone
MIKE SULLIVAN	AWPPW	971-237-3125
Ralph Saperstein	OWQC	5035440130
KAYLIN BURNETT	ARMY	(541) 564-7069
Ty Teigen	Public	509 582 8141
Tom SACKETT	Public	5415647095
DAVE MEARS	PUBLIC	541-564-7068
Don Barclay	Army	541-626-9277
GUS ALJURE	UMCDF	541-564-7064
Frank Augustine	VERSAR	703-642-6868
KOICHI HAYASHI	KOBE STEEL	+81-78-261-7042
Samantha Bates	East Oregonian	164-0834
HAWK CONRAD	UMCDF	541-564-7085
Stephanie Brasher	Public	541-564-7056
Heather Erz	Public	541-564-7063
Steven Potts	ODEQ	541-567-8297
Hal McClure	UMCDF	541-564-7304
WENDELL WRZESINSKI	UMCDF	541-564-7053
George Nelson	SAIC	541-571-5915
Rick Taft	UMCDF	541-564-7086
Rod Osgood	IUOE Local 701	541-567-1888
SUE OLIVER	ELEMENTS UNLIMITED	541-379-2767
Tom Downey	CTSI	541-444-8226
Rod Skeen	CTUIR	541-966-2413
Karyn Jones	GASP Et Al	541-567-6579
Tamra Mabbott	Umatilla County	541-278-6246

Please Sign In

Thursday ②

Environmental Quality Commission Meeting
Hermiston, Oregon August 21 &22, 2008

Name	Organization	Phone
Kathy Eldrige	Outreach Office	541/564-9339
PAUL ROMAIN	OR. PETROLEUM ASSN	503/226-8090
MIKE KARNOSH	CONFEDERATED TRIBES OF GRAND RONDE	503-879-2383
Kathleen Feehan	CTUIR	541-966-2357
STEVEN CORSON	PGE	503-464-8444
REUBEN PLANTICO	"	503-464-7152
DOUG HAMRICK	WASHINGTON DEMIL CO	541 564-7110
LLEWELLYN MATTHEWS	NWPULP&PAPER ASS	~~206-2~~ 425-455-1323
TERRY TALLMAN	MORROW CO	541 676-5624
Holly Sears	ORRA	
Arya Behbehani-Divers	PGE	503-464-8141
MARTY MYERS	TMCF	541 481 9274
Lori Timmons	Morrow County	541-922-4624
Carla McLane	Morrow County	541-922-4624

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TOWN HALL MEETING

Environmental Quality Commission Meeting
Hermiston, Oregon August 21 &22, 2008

Please sign in if you would like to receive future EQC agendas via email.

Name	Organization	Phone
Arya Behbehani-Divers	PGE	503-464-8141
Reuben Plantico	"	503-464-7152
CHUCK LITTLEE	LABORERS LOCAL 121	541-567-5878
John Baker	PGE	541-667-9678
Dave Lovin	POM	541-481-7467
TERRY TALLMAN	Morrow Co	541 676 5624
Tom Straughan	ODA	541-278-6721
Janet Greenup	Morrow SWCD	541-676-5452
Jim Wenzl	Self	541 564-6553
Pat C. Mahondro	URS	541-564-7256
Don Horneck	OSU	541-567-8321
Duane Smith	DEQ	541-278-4667.
Chet Prior	Farmer	541-376-8444
Rick Hill	DEQ	541-278-4625
Michale Martin	~~US~~ UMCD	541-564-5325
Mando Rodriguez	JR Simplot	541-565-9733
Robert Flowers	CAC	541-922-2574
Heidi Hartan	Umatilla Co SWCD.	276-8131
EUGENE WIGLESWORTH	RETIRED UPO MANAGER	922-2338
STEVE CORSON	PGE	503 464 8444
Gerald Breazeale	City of Irrigon	541-922-3047
MIKE LADD	OWRD	541-278-5456
Melinda McCoy	EPA-R10	206-553-6102
Tom Downey	CTSI	541-444-8225
Don A. Essig	Idaho DEQ	208-373-0119
Samantha Bates	East Oregonian	966-0834

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Friday
8/22
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Please Sign In

Environmental Quality Commission Meeting
Hermiston, Oregon August 21 &22, 2008

Name	Organization	Phone
Mary Lou Soscia	US EPA	(503) 326-5873
Rick George	CTUIR	541 966 2351
William Quaempts	CTUIR	541 276-3165

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Approved ___
Approved with Corrections ___

Minutes are not final until approved by Commission.

Oregon Environmental Quality Commission Minutes of Special Meeting Concerning Selection of Department of Environmental Quality Director

June 13, 2008
8:00 a.m.
Special Meeting

DEQ Headquarters, 811 SW 6th Avenue, Room EQC-B
Portland, Oregon 97204

The following members of the Environmental Quality Commission were present:

Bill Blosser, Vice Chairman
Kenneth Williamson, Member
Donalda Dodson, Member
Judy Uherbelau, Member

Chairwoman Lynn Hampton was absent.

Friday, June 13 – Executive session meeting began at 8:00 a.m.
From 8:00 a.m. until 9:00 a.m., the Environmental Quality Commission discussed comments they had received on the candidates for the director position.

From 9:07 a.m. until 10:02 a.m., the EQC interviewed Dan Opalski.

From 10:07 a.m. until 11:02 a.m. the EQC interviewed Dick Pedersen.

From 11:02 a.m. until 1:00 p.m., the EQC discussed the candidates.

Public meeting began at 1:00 p.m. in Room EQC-A, DEQ Headquarters.
Vice Chairman Blosser said that the EQC had received extensive and valuable comment from the public and from DEQ staff. He was very pleased to have received many signed comments from DEQ staff.

Commissioner Williamson moved that the EQC offer the position of director to Dick Pedersen. Commissioner Dodson seconded the motion.

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Approved ___
Approved with Corrections ___

Minutes are not final until approved by Commission.

Oregon Environmental Quality Commission Meeting
Minutes of the Three Hundred and Forty-fourth Meeting

June 19 and 20, 2008

The Environmental Quality Commission held a public meeting beginning at 8:30 a.m. on June 19, 2008, at the Rogue Regency Inn, 2300 Biddle Road, Medford, Oregon.

The following members of the EQC were present:

Bill Blosser, Vice Chairman
Kenneth Williamson, Member
Judy Uherbelau, Member

Chairwoman Lynn Hampton and Commission member Donalda Dodson were absent.

A. Preliminary Commission Business: Adoption of Minutes of the April 24-25, 2008 Regular Meeting
The Environmental Quality Commission reviewed and approved the draft minutes from the April 24-25, 2008, regular EQC meeting.

B. Action Item: Umatilla Chemical Agent Disposal Facility Post-Trial Burn Risk Assessment
Joni Hammond, acting deputy director, introduced Dr. Bruce Hope, toxicologist at DEQ, who presented information on the post-trial burn risk assessment, including a summary of comments received during the public comment period that closed June 11, 2008, and DEQ's response to comments. Since the April EQC meeting, DEQ has discussed this risk assessment with concerned parties, which are close to agreeing on some points where they had some differences. The general conclusion is that the risk assessments performed by DEQ and others find low risk right next to stack, with diminishing risk moving farther away from the stack. Hence, DEQ's recommendation is that the EQC should find that the facility has no major adverse effect.

Commissioners expressed concerns about residual risk, and whether they could make the requested findings given the unresolved question of residual risk as expressed by Dr. Hope. Dr. Hope responded that the monitoring program hasn't found anything in 10 years and he sees no indication that deposition is raising risk above acceptable levels. Leaving open the possibility that future cleanup work will be needed doesn't contradict the EQC finding the most recent risk assessment to be acceptable.

Dr. Hope summarized the comments received during the public comment period. Comments by G.A.S.P., a nonprofit based in Hermiston, Oregon, included criticisms of risk assessments in general, and DEQ's specifically. In his opinion, the essential point for the EQC is that DEQ, the Army and the Confederated Tribes of the Umatilla Indian Reservation have all done risk assessments and have come to the same result. He doesn't believe that G.A.S.P.'s comments undermine those results. In addition, two other items on today's agenda, secondary waste and the mustard containers with mercury contamination, were part of this risk assessment and no problems were found with them.

Commissioner Williamson moved concurrence with the findings of DEQ's risk assessment as stated in the staff report for Item B. Vice chairman Blosser seconded the motion, and asked for further discussion. Commissioner Uherbelau stated that she intended to vote for the motion but feels uneasy about it because she knows of many past determinations that haven't turned out as we thought they would. However, the Army can't leave the weapons sitting there forever.

Commissioner Williamson commented that he sees two parts to the risk from the UMCDF: risks from emissions from nerve agents, which have not been detected; and risks from other more common pollutants. We've had years of dealing with more common pollutants under the Superfund process, where risk assessments have helped us to focus on what's really important in the cleanup. He congratulated Dr. Hope for doing a good job of performing and explaining the risk assessment, and for getting concurrence of CTUIR.

The EQC voted unanimously in favor of the DEQ recommendation. Larry Edelman of the Department of Justice stated that the EQC did not need to issue a written order of its action.

C. Action Item: Finding of Best Available Technology Determination for Secondary Wastes Originally Destined for Treatment in the Umatilla Chemical Agent Disposal Facility Dunnage Incinerator

Joni Hammond, acting deputy director of DEQ, introduced Rich Duval, administrator of DEQ's chemical demilitarization program. Mr. Duval gave the EQC some background information on the issue of disposing secondary waste at UMCDF. Secondary waste, which consists of materials other than munitions generated during processing, was not well planned for in the original facility design. The original plan was to use a dunnage incinerator, but other weapons destruction facilities around the country that have tried dunnage incinerators have not had good results. Therefore UMCDF has been looking for other methods of disposing of secondary waste. In 2005-6, trial run sampling found that the metal parts furnace achieved acceptable levels of emissions. According to Mr. Duval, using the metal parts furnace would be efficient as well, since the facility could burn secondary waste during the two to eight hours everyday when the furnace would otherwise be idle.

Commissioner Williamson moved to approve the recommendation in the staff report. Vice chairman Blosser seconded the motion. The motion passed unanimously. Commissioner Williamson moved to authorize the director of DEQ to issue a final written order implementing the EQC's decision. Commissioner Uherbelau seconded the motion, and asked that the Commissioners receive a copy. The motion passed unanimously.

D. Informational Item: Inclusion of the Pollution Abatement System Carbon Filter System in the Umatilla Chemical Agent Disposal Facility Incineration Process as Best Available Technology

Rich Duval, administrator of DEQ's chemical demilitarization program, presented the EQC with background on the pollution filtration system. The G.A.S.P. decision requires the EQC to clarify the status of the pollution filtration system as best available technology. In May 2004, the EQC recognized the PFS as integral to the operation of the pollution abatement system at the UMCDF, but didn't use the phrases "best available technology" and "no adverse impact" in the order issued at that time. In August, DEQ plans to ask the EQC to add this additional language.

E. Informational Item: Best Available Technology Determination for Mustard Agent with Elevated Mercury Levels

Rich Duval, administrator of DEQ's chemical demilitarization program, presented background information to the EQC on mustard containers found to have elevated mercury levels and the actions taken by DEQ to identify successful technologies to deal with the problem. The mercury likely resulted from mustard gas being put into insufficiently cleaned containers back in the 1940s. Mr. Duval showed photographs of the inside of a mustard gas ton container where a "heel" of solid material has formed over time as chemicals settle out. Testing of the heels has found samples with high mercury levels. UMCDF is looking at demonstrated technologies to deal with disposing of the containers, including incineration, neutralization, and the DAVINCH process. DAVINCH, or Detonation of Ammunition in a Vacuum Integrated Chamber, is a new technology for destroying chemical weapons. The Blue Grass Chemical Agent Destruction Pilot Plant in Kentucky is also considering the DAVINCH technology.

In response to commissioners' questions, Mr. Duval commented that the destruction of the containers is slated to begin at the end of 2010 and would take approximately 18 months. UMCDF must dispose of these materials onsite, as transport of chemical agents is prohibited by federal law. The ultimate disposal of the mercury will be in a landfill, as sulfide mercury sludge in the case of neutralization. Mr. Duval told the EQC that he will share additional information about the DAVINCH process with them as well as the public as DEQ learns more about it. A public comment period on this issue will be open through August 6, 2008. DEQ hopes to come to the EQC with a recommendation for the August meeting.

Larry Edelman of the Department of Justice commented that this is the most important of the BAT determinations, and may take more time to do well, as the EQC will actually be identifying a new technology.

F. Action Item: Clean Diesel Incentives

Andy Ginsburg, air quality administrator at DEQ, gave the EQC some background on the clean diesel program, created in 2007 by the Legislature. Kevin Downing, clean diesel specialist at DEQ, told the EQC that the clean diesel program is important because diesel moves 94 percent of freight in the U.S., and diesel exhaust is high in particulate matter and nitrogen oxides or NOx. Particulate matter is of great concern in Oregon due to health risks, as well as impacts of black carbon emissions from diesel on global warming. Multnomah and Washington counties are in the 95th percentile nationally for levels of diesel emissions. Diesel engines are used where people are working and living, and the emissions happen in the breathing zone.

Big advances were made in raising standards for new diesel engines from 1988 to 2004. However, diesel engines last a long time; this program addresses legacy engines by providing incentives for owners to make improvements that reduce emissions, such as repowering engines and adding catalytic emissions filters.

Commissioner Uherbelau moved the staff recommendation for item F. Commissioner Williamson seconded the motion. The motion passed unanimously.

Dick Pedersen, director of DEQ, praised the efforts of Kevin Downing as a state and national champion of clean diesel. Pedersen asked for EQC's recommendation to send a letter to the Board of Education informing them of the EQC's action today, and the importance of diesel retrofits. Andy Ginsburg suggested that the letter highlight the program and encourage the Board to work with school districts and DEQ to use the program. Vice chairman Blosser suggested that the letter also include health data about diesel exposures, while Commissioner Williamson suggested that the letter also include a reminder about reducing idling. The EQC agreed on sending the letter, to be signed by both Dick Pedersen and Bill Blosser.

G. Public Forum

One of two people requesting to speak to the EQC about the Fish Consumption Rate project was not yet present at the beginning of the public forum, so Vice chairman Blosser suggested that the twp of them be allowed to speak once he had arrived. No one else requested to speak.

Dick Pedersen suggested that the group break for lunch early and reconvene fifteen minutes early. Mr. Pedersen took a few minutes to introduce several DEQ Western Region employees to the EQC, with a special recognition of John Blanchard who is planning to retire in August after more than 30 years at DEQ.

Lunch Break

H. Informational Item: Director's Dialogue

Dick Pedersen, DEQ Director, discussed current events and issues involving DEQ, including the recently completed Kaizen process in the Office of Compliance and Enforcement; total dissolved gas monitoring on the Columbia river; a permit for Owens Corning in Gresham; Lakeside Landfill; the 401 Certification advisory committee's work; permitting of the proposed Bradwood Landing liquefied natural gas facility; the Fish Consumption Rate project; the Dairy Task Force's recommendations; a recent award for the Air Quality division's TRACS improvement project; the signing of the biennial performance partnership agreement with the EPA; and two letters to the EQC related to synchronizing DEQ's role in transportation planning with the federal government and field burning.

G. Public Forum

Vice chairman Blosser reopened the public forum at 1:45 p.m. for Rick George, representing the Confederated Tribes of the Umatilla Indian Reservation and Peter Ruffier, city of Eugene wastewater manager, speaking on behalf of Association of Clean Water Agencies. Mr. Ruffier told the EQC that ACWA has been very involved with the Fish Consumption Rate project from the beginning. Their goal is reduce overall toxics and improve human health, with no position on the fish consumption rate number itself. They appreciate the dialogue between ACWA and the Tribes, and the Tribes' patience in understanding the wastewater business. ACWA wants the state to pursue a unified and comprehensive approach to reducing toxics, and has created a strategy that goes beyond end-of-pipe sources, including legacy pollutants, air toxics, landfills, and forestry, among others.

Mr. George spoke on behalf of the Tribes' water commission, and expressed his optimism that toxics goals can be met. The CTUIR decided to reach out and work with permitted entities and the public, ACWA and cities, pulp and paper, and other tribes, and feel that substantial progress has been made. As part of the process, a panel of scientists was convened that brought solid information to the participants. Agreement has been reached among DEQ, EPA, and CTUIR on a proposed fish consumption number; now the emphasis is on implementation.

Vice chairman Blosser expressed his pleasure at the results of the process, and thanked the presenters for traveling a long distance to speak with the EQC. Commissioner Williamson expressed his opinion that this process will set a national standard with wide-ranging impacts.

I. Informational Item: Tour of local site with Air Quality permit

The EQC members, along with Dick Pedersen, DEQ director, Keith Andersen, acting DEQ Western Region administrator, John Becker, air quality manager in DEQ's Medford office, Byron Peterson, permit writer in DEQ's Western Region, and Wendy Simons, EQC coordinator, traveled to Timber Products in Medford, Oregon. Dave Pope and Dick Marcoulier of Timber Products described equipment the company is currently installing to meet the requirements for the control of hazardous air pollutants under the federal Maximum Achievable Control Technology, or

MACT, program. The EQC then observed the ongoing installation of the two systems, a bioremediation unit and a regenerative thermal oxidizer.

Thursday, June 19 – Town Hall Meeting 7:00 – 9:00 pm

The EQC held a town hall style meeting at the Banquet Room of the Rogue Regency Inn in Medford, Oregon. Approximately 50-60 citizens attended and expressed their views to the EQC on a range of topics, including: the health of the Klamath basin; air quality and regulation of open burning; the health of salmon runs in the Rogue river; the appropriateness of a regulatory agency having adjudicatory powers; potential environmental impacts of liquefied natural gas terminals and pipelines; and Bureau of Land Management forestry operations and policies. Town hall meeting notes are attached to the meeting minutes.

Friday, June 20 — Regular meeting began at 9:00 am

The EQC was scheduled to meet in executive session from 8:00 am to 9:00 am to consult with counsel concerning legal rights and duties regarding current or potential litigation against the DEQ. However, the EQC did not have a quorum, so the two members present held a private meeting with legal counsel.

J. Action Item: Water Quality Permit Fee Increases

Neil Mullane, acting water quality administrator at DEQ, gave the EQC some background on the recent history of water quality permitting. The issues involved in permitting have become more complex, resulting in a backlog of permit approvals in Oregon. DEQ convened a Blue Ribbon Commission to help develop solutions, many of which were subsequently adopted by the Legislature. Item J affects the National Pollution Discharge Elimination System and Water Pollution Control Facility permit programs, primarily involving cities and large industries. Item K affects a different set of stakeholders, primarily households and small businesses with septic systems.

Melissa Aerne, program analyst for DEQ, presented more detailed background on the proposed fee increases. The three percent annual increase to cover increased program costs was authorized by the Legislature in 2005. The first increase was in 2007. This fee increase will raise about $120,000 in 2008-09, much less than estimated cost increases of $1.4 million. The five percent increase is part of a two-phase increase to add positions to the water quality permitting program. Phase one took place in 2006, when the EQC approved 11 percent to restore 4 positions. This fee increase would add 2.5 additional FTE.

Regarding the stormwater fee increase, the Legislature authorized a 100 percent increase, but DEQ analysis showed that an increase of 82 percent would suffice. The revenues will allow DEQ to perform more site inspections, review all reports, and have more interaction with MS4 permit holders. Finally, the rulemaking contains a surcharge approved in Senate Bill 737 to research and study on persistent bioaccumulative toxins.

DEQ reached out through several avenues, including the BRC members and industry associations, public hearings, notification to permit holders, press releases and radio interviews. Commissioner Uherbelau expressed her surprise that DEQ received only one public comment for a fee increase. Vice chairman Blosser commented that perhaps there is a more cost effective way to gather comments, since so few people turn up for public hearings. Mr. Mullane responded that DEQ often draws 30-40 people, and sometimes as many as 200. He was also surprised at low turnout this time, but it could reflect the outreach efforts by DEQ and others. Also, Oregon's permit fees are lower than those in other states.

Commissioner Uherbelau moved the staff recommendation. Commissioner Williamson seconded the motion. The motion passed unanimously.

K. Action Item: Onsite Fee Increases

Neil Mullane, acting Water Quality administrator at DEQ, introduced Zach Loboy, onsite wastewater management program coordinator, who presented background on onsite, or septic, systems. Thirty percent of Oregon households rely upon septic, and the percentage is increasing every year. Thirteen Oregon counties administer their own septic system programs, while 23 counties contract with DEQ to administer their programs. This rulemaking addresses two kinds of permits: construction-installation permits issued at county level (homes, very small businesses), and WPCF-onsite permits, issued only by DEQ (RV parks, taverns, and other small businesses).

Item K includes the three and five percent increases outlined by Ms. Aerne under Item J, although these increases will be levied only on WPCF-onsite permit holders, of which there are about 700.

The proposed $20 surcharge would take application fees from $40 to $60. The most recent increase was $30 to $40 in 1998. All revenues from this fee go to improving this program, which is entirely fee-supported. The new revenues would support three new positions to do contract county program reviews and provide program support, which will ensure greater consistency among counties. Applications have averaged about 13,000 a year recently.

The proposed rulemaking would also make two housekeeping changes: delete "or structure" to give more discretion to inspectors in locating septic systems, and change fees to an easier-to-read table format. Commissioners expressed concern about whether deleting the words "or structure" will have the intended effect.

Commissioner Williamson moved the staff recommendation on Item K. Commissioner Uherbelau seconded the motion. The motion passed unanimously.

L. Informational Item: Electronic Recycling Law

Wendy Wiles, Land Quality administrator for DEQ, introduced Loretta Pickerell, solid waste manager at DEQ, and Kathy Kiwala, electronic waste project lead at DEQ. Ms. Pickerell told the EQC that the electronic recycling law, signed a year ago this month, was a compromise bill with both a manufacturer and state run program, and contained very ambitious guidelines giving DEQ a year to implement the program.

Kathy Kiwala related that the legislation enacting this program intentionally directed DEQ to launch the program without making rules first. Instead, the program has been designed by an advisory group. Oregon is the sixth state to pass an e-waste bill, and its program is most similar to Washington State's program in its emphasis on product stewardship.

The legislation specifies which devices will be covered (television sets, personal computers, and computer monitors), as well as who can participate in the program for free. All equipment sold into Oregon by catalog or online will be covered, and DEQ plans to do some spot checking at retail locations. Commissioners asked questions about what large businesses and universities do with their outmoded computers and monitors, and suggested that requirements are needed for institutions buying personal computers in large quantities.

Ms. Kiwala said that recyclers will be required to track components after they sell them off, and that the program includes a set of environmentally sensitive management practices. DEQ anticipates that the flow of materials will shift because it will be free for people to recycle. Commissioners expressed concern about policing the flow of materials, especially when they are shipped overseas. Ms. Kiwala responded that hopefully this program will build consumer awareness, and that manufacturers will have an incentive to be responsible because their names will be on the line. Commissioners inquired about how fees for the program were determined. Ms. Pickerell responded that the Legislature set the fees until 2012, at which time the EQC will be able to set fees to recover the costs for the program.

Ms. Kiwala shared information about the collection system. Cities of 10,000 in population or greater and every county must have a collection site, and they are to use existing infrastructure if possible. Manufacturers will pay fees based upon sales, while DEQ's website lists registered brands. DEQ will track pounds of each manufacturers' products that come through the system, and estimates that 3.3 pounds per capita will come through the system in 2009 and that recycling will cost 32-36 cents per pound. Commissioner Williamson expressed his opinion that the program will receive much more in the first year.

Loretta Pickerell talked about DEQ's recent activities related to product stewardship in general. DEQ wants to learn from the e-waste program as it develops, and is also involved in dialogues around the state and nationally on product stewardship for prescription drugs, paints, mercury-containing products (fluorescent light bulbs, thermostats, etc.), and other products. The legislative concept DEQ is currently working on establishes a framework and a system for adding products in the future, which is preferable to establishing a different process for each product. Disposed products comprise 75 percent of the waste stream, which is very costly for local governments.

Commissioner Williamson expressed the opinion that this is certainly the future. Europe is ahead of the U.S., but they put the onus on retailers, not manufacturers, for taking back products and packaging as well. Vice chairman Blosser urged DEQ to work on an approach that will capture a larger percentage of the waste stream and go beyond a product-by-product approach. Dick Pedersen responded that this is the goal of the product stewardship legislation.

Mr. Pedersen congratulated Kathy Kiwala and thanked the advisory committee. Vice chairman Blosser conveyed the EQC's thanks to the rest of the team and the advisory committee.

M. Informational Item: Recognition of Local Efforts

John Becker, air quality manager in DEQ's Medford office, told the EQC about his work with cities and counties in southern Oregon related to the change in particulate standards from PM10 to PM2.5. In stagnant winter conditions, it is evident that residential woodstoves were a big part of the problem. As a result of his conversations with cities in the Rogue Valley, seven of them passed woodstove change out ordinances. In addition, the city of Shady Cove passed an ordinance independently. One factor in the program's success is that households with annual incomes less than $40,000 could get a zero percent interest loan to buy a certified woodstove that is not due until sale of the house.

N. Informational Item: Draft 2009 Legislative Agenda

Greg Aldrich, governmental relations manager at DEQ, presented the timeline for further development of DEQ's legislative agenda and updated the EQC on progress in developing DEQ's legislative concepts and policy packages for the 2009 Legislative session. Vice chairman Blosser asked why DEQ doesn't index all penalty values to prevent them losing their value against inflation. Greg Aldrich responded that DEQ could do this. Mr. Blosser also asked whether cap and trade is already the foregone policy choice to address greenhouse gas emissions. Andy Ginsburg, air quality administrator at DEQ, answered that the Western Climate Initiative is still discussing a carbon tax, but that the "train is very far down the track" toward cap and trade, because of the impact on low income people. Commissioner Williamson added that there are concerns with a carbon tax, in that it does not guarantee that emissions will be limited and that advocates of emissions limits do not want a complex tax that is easy for companies to evade.

The EQC recessed for lunch. The meeting resumed at 1:17 p.m.

Greg Aldrich stepped through revisions that DEQ staff has made to policy packages since the last EQC meeting, as well as the prioritization of packages by DEQ's executive management team. Jim Roys, manager of business operations and development at DEQ, told the EQC that DEQ did very well in the most recent legislative session, yet cannot afford to fill some positions it received. DEQ is down from its peak in 2001-03 in numbers of employees, although several positions that biennium were limited duration positions in the Vehicle Inspection Program. The agency request for 2009-11 would increase the percentage of DEQ funding from state sources (general fund and lottery) from 20 percent to 24 percent. The next revenue forecast will be in September, although the May 2009 forecast will set the budget for the session.

Mr. Aldrich told the EQC that DEQ will come back for approval at the August meeting, and submit the budget by September 1, 2008. Mr. Pedersen promised to pass any key information along to the EQC as it happens before the August meeting.

O. Action Item: Reconsideration of Permit

Larry Knudsen, Department of Justice and counsel to the EQC, asked the EQC to authorize DOJ to withdraw for reconsideration the 1200Z and 1200COLS permits in response to litigation pending in Multnomah county circuit court where those permits have been challenged. Commissioner Williamson moved to authorize DOJ to take the action described by Mr. Knudsen. Commissioner Uherbelau seconded the motion. The motion passed unanimously.

P. Informational Item: Commissioner Reports

Commissioner Williamson reported on his work as EQC representative on the Oregon Watershed Enhancement Board. OWEB's last meeting was in Ontario, where they visited sites along the Malheur River, including a concentrated animal feeding operation site EPA investigated a couple of years ago. The group was surprised by the magnitude of the water quality problems in that part of the state. OWEB has made substantial investments in stream restoration, including very basic improvements like fencing to keep livestock out, alternative drinking water sources for animals, moving CAFOs, and transitioning away from flood irrigation. The area experiences 14 tons per acre per year average erosion, as well as heavy herbicide and pesticide use.

Commissioner Williamson also serves on a federal forestry advisory committee which is encouraging collaboration between the federal Bureau of Land Management and the state in managing Oregon forests. He sees a new paradigm emerging from that committee, whereby they try to foster local groups of stakeholders to develop large scale plans for areas over 250,000 acres. Next session there will be a policy package for Oregon State University to work with these local groups on conflict management. Ground rules will include forbidding the cutting of old growth forests. Commissioner Williamson noted that this is the most hopeful development he's seen in forest management.

The meeting adjourned at 2:10 p.m.

Notes from Town Hall Meeting, "A Conversation with the EQC"
June 19, 2008, 7 – 9p.m., Rogue River Inn, Medford, Oregon
Compiled by Wendy Simons, EQC Coordinator

Dick Pedersen, DEQ director, opened the discussion by introducing himself and the Environment Quality Commission to those in attendance.

Commissioner Judy Uherbelau, Commissioner Ken Williamson, and Vice Chairman Bill Blosser introduced themselves, with each giving a brief summary of their relevant public and career experience.

Regina Chichizola, Klamath Riverkeeper: She spoke about 401 certification related to relicensing the Keno reservoir dam on the Klamath, and her fear that the salmon won't be able to survive when they do return to the upper river due to poor water quality. She is skeptical of the 401 process, in that it seems to give a pass to the applicants. She thinks the J.C. Boyle dam should be removed. She urged the EQC to make agricultural and forestry-related pollution a legislative priority, and for DEQ to "stand strong" and deny 401 certifications when necessary.

David Sears (sp?), citizen: He has seen air quality advances in the Rogue valley, including wood stove change outs, reduced use of orchard smudge pots, and auto inspections. He thinks auto inspections should be performed over a wider area, perhaps the whole state. It seems to him that the onus is put on individuals, while industries are getting a pass because they are big enough to stand up to government. He compared the treatment of BLM vs. the treatment of individuals on open burning.

Mike Montero, environmental planner and member of Rogue Valley transportation committee: He sees increasing tensions between economic development and the environment, but doesn't think that urban development has to harm the environment. In order to achieve a reduction in vehicle miles traveled or VMT, they would like to encourage nodal development. This is difficult because of a disconnect between the land use planning process and transportation planning and funding.

Roger King, citizen: He moved to the Rogue River area 14 years ago for the fishing. The salmon run has decreased from 35,000 to 10,000 over the last decade. Ocean currents cause part of the decline, but pollution by sewage is also a factor. He has found the county and city of Shady Grove to be unresponsive to incidents. He cited a recent example of two 8-inch pipes pouring sewage directly into the river for 48 hours with no penalties resulting. The county will issue citations, but no fines.

John Blanchard, Medford DEQ office: Depending on the cause of an upset, a civil penalty can be imposed. Jackson county has oversight locally of septic systems. DEQ has few people to investigate complaints, and has to prioritize based upon the level of harm. The city of Shady Grove is in the process of upgrading the system, but also has issues with property owners.

Roger King: EPA handled the problem in the end. His complaints to the city, county, and DEQ brought either no answer or no action. In his view, the city is negligent. Sewage is coming back up manholes. The property owner in question is afraid of reprisal by the city,

Curt Chancler, reporter and member of local citizen watchdog group: He has spent a lot of time in courts observing what happens there. He is concerned about "exigent authority," whereby public officials have authority to enter onto property. He is concerned that government agencies can make, enforce, and adjudicate rules, which leads to dictatorial power. He would like people to be able to appeal agencies' actions to a court judge, but that administrative agencies are increasingly being empowered to hear appeals by the legislature. He knows of a businessman who is planning to bring criminal charges against DEQ employees for giving false information; he thinks it unfair that there are not the same consequences for public employees as for private citizens for giving false information.

Marcie Laudani, citizen: She owns a passive solar home in the area. She chose the area because of its natural beauty and potential for tourism. An LNG pipeline will harm the area. She cited a crossing site planned for a 100-year floodplain in the Trail-Shady Grove area with a one-in-three failure rate for the pipe. She is concerned about the displacement of fish spawning areas, and that the access road next to the Rogue River will need to be widened for the pipeline. Several points along the proposed pipeline will be vulnerable. DEQ needs to enforce regulation on emissions for this project.

Fred Fleetwood, citizen: (handed out written testimony) His major concerns are with irrigators de-watering streams, and with stream crossings for a proposed LNG pipeline.

Olivia Schmidt, Columbia River Clean Energy Coalition: The Clean Water Act requires that projects maintain existing uses. Threats from LNG include: the need for 1500 foot exclusion zones around tankers; lighted terminals on the riverbank because of national security concerns; and taking millions of gallons of ballast water onto each ship. Building a Columbia River facility would require an open trench to cross the Clackamas River. Intermittent streams would receive no protection; she urged DEQ to look out for these streams. Her air quality concerns are that the terminals produce CO2, and that the natural gas itself is more or less dirty depending on the source. Many overseas sources are dirtier than domestic natural gas. LNG fairs poorly under life-cycle analysis, as the compression and transportation of LNG consumes energy.

Dick Pedersen gave a brief overview of the roles of DEQ, the Federal Energy Regulatory Commission, and the Oregon Department of Energy. DEQ has not yet received an application for a proposed Jordan Cove terminal and associated pipeline.

Bea Frederickson, resident of Shady Grove: The pipeline would bisect her relatives' beautiful property, as well as many other valuable Oregon properties. Water would be withdrawn from streams to perform hydrostatic testing of the pipeline, which she fears would have a negative impact. LNG has a heavy footprint. Why compromise natural areas in Oregon for energy destined for California?

Dan Serres, Columbia Riverkeeper and FLOW: His group is working on both the northern and southern proposed LNG facilities. He sees lessons for the rest of the state from the Bradwood facility: the proposal itself keeps changing; FERC is bending over backwards to approve these facilities and is ignoring citizens' concerns; and Oregonians are reliant upon state agencies for protection.

Unidentified citizen: She moved here for the clean environment. Her husband has COPD and is vulnerable. The companies involved say that the gas is odorless and colorless, which makes her concerned that they won't know when there is a leak. She has heard that LNG costs twice as much as domestic natural gas and uses as much CO2 as a coal plant. She encourages EQC to not allow DEQ to issue a permit for LNG facilities.

Diane Philips, citizen: The proposed pipeline and connectors will make 397 stream crossings. Many are 303B listed and TMDL listed already for temperature, and many contain endangered species. Each crossing requires a wide swath of forest to be clearcut. She is also concerned about hydrostatic testing, which must be done in late summer during construction when fish are in the streams. This testing will involve a large volume of water being taken out of creeks and reservoirs. She is also worried about the impact on Coos Bay of ballast and cooling water and particulates. She founded a group "Oregon Citizens Against the Pipeline," because she feels that citizens have been left out of the process.

Dick Pedersen: Temperature TMDLs are a definite concern.

Lesley Adams, staff of Klamath-Siskiyou group: She shares concerns voiced already, and thinks that restoring salmon runs should be our top priority. She wonders why public resources are being used to analyze fossil fuel projects, especially when DEQ is limited in its ability to do other work.

Tara Mattis, local landowner: She is concerned about the BLM Western Oregon Plan Revisions or WOPR. She knows of a local situation where a private logger requested and has been granted right of way access on public lands. However, those lands are fragile and have a high landslide potential with possible negative effects for coho salmon. She has consulted state fisheries and forestry agencies, but has been told that they are unable to do anything on federal land. She got no help from regional offices of other federal agencies. She would like to be able to examine memoranda of understanding between federal and state agencies, but has not been given access to the documents. She considers BLM to be callous to wildlife and local citizens. She would like to see state agencies hold federal agencies accountable for meeting state standards.

Commissioner Uherbelau: Asked Ms. Mattis if she has contacted Representative DeFazio.

Ms. Mattis: He will ask who she has contacted at the state level.

Dick Pedersen: All agencies, state and federal, have to comply with the Clean Water Act.

Lesley Adams: Make sure to contact the Governor with concerns about WOPR. She knows that Rep. DeFazio and other legislators are introducing bills to overrode WOPR.

Ray Johnson, businessman in Shady Grove: He lives close to sites referred to earlier, as well as the proposed Eagle Point compression station. He thinks that LNG will have unintended consequences, and is not a good ting for Oregon, the U.S., or even California. Because of fuel costs, goods from overseas are getting more expensive. The ships involved in LNG are huge and bring an immense amount of destructive energy that endangers Coos Bay. He reminded the audience of an accident in Texas with ammonium nitrate; there would be a danger of an explosion in Coos Bay.

Question from audience: What are TMDLs?
Dick Pedersen: Rivers not meeting standards go on the 303d list. Total Maximum Daily Load plans aim to bring the rivers back into compliance.

Richard Harrington, citizen: He is concerned about the air quality impacts of LNG facilities. Compressor emissions could accumulate in the area when there is an inversion. CO_2 and carbonic acid are both threats. The exhaust plumes can blow horizontally and threaten people living uphill from the facilities. Coos Bay facility presents dangers; cited example of unprocessed natural gas being sent through pipelines after Katrina. It is necessary to model different scenarios of air emissions because this is a geographically unique site. Monitoring sites should be able to cause immediate shutdowns. He would like DEQ to hold hearings in a number of locations so citizens can attend.

Morris Holkopf (sp?), recent candidate for county commissioner: T. Boone Pickens says we'll soon use propane in cars. The pipeline is not needed when LNG could be transported by truck or other means.

Robin Hartmann, Roseburg, of Oregon Shores Conservation Coalition and the Sierra Club: She perceives that the current federal administration is rushing to complete projects like the Jordan Cove terminal and Pacific Corridor connector pipeline because it's nearing the end of its term; hence, it's doing poor review work. The 2005 federal energy bill removed LNG siting authority from the states. People on local watershed councils have spent hours and hours sitting at the table and working together to improve streams. In contrast, the backers of this project are seeking blanket extensions to work in riverbeds for extended amounts of time. It's breaking the spirit of state and local agencies and citizens who have worked so hard for so long. She asks the EQC to represent Oregonians, to look for legal handles to say "no," and stand up for landowners and resources.

Matt Mattis, local landowner: He is concerned about the Coyote Wolf Creek project on BLM land. Officials concerned are very secretive about it, finding ways not to notify people who should be notified.

M.A. Hanson, citizen: The native plant society is coming out against LNG proposals all over the state. She monitors the tributaries of the South Umpqua and is very concerned. California has enough energy for another 14 years, according to the California Energy Commission. The jobs for Oregonians from this project are very few, and most of the jobs on the terminal site are for police and firefighters.

Thaddeus Gala, physician in Shady Grove: The proposed LNG project will cause irreversible damage. Why damage our retirement and resources for fossil fuel facilities? He asked EQC members to state their positions on the proposed project.

Commissioner Uherbelau: The EQC has to wait until the project backers ask for a permit. If the project meets the criteria, the EQC has to issue the permit. It isn't a matter of her personal opinion of the project.

Vice Chairman Blosser: If all of the claims of potential harm made tonight are correct, then the EQC could not issue a permit. The EQC will need to see the evidence. The project's backers cannot simply assert there will be no damage.

Commissioner Williamson: The pressure point for the project is meeting the requirements of the Clean Water Act for dredging related to the terminals. DEQ also has a say about whether requirements for construction permits have been met. The greater issue for everyone to consider is that in the twenty-first century easy energy will become a thing of the past. Oregon is not an energy-producing state, and needs to become more efficient. These proposed LNG projects are based on past patterns of energy use.

State of Oregon
Department of Environmental Quality

Umatilla Chemical Demilitarization Program Status Update Environmental Quality Commission August 21, 2008 (Agenda Item B)

Agent Processing at the Umatilla Chemical Agent Disposal Facility

Cumulative Operations:

As of August 13, 2008, 206,284 munitions have been destroyed, which represents 94 percent of all Umatilla munitions and bulk containers and 35 percent of the original Umatilla stockpile by agent weight.

GB Operations:

GB is a high-volatility (i.e., easily vaporized) nerve agent used primarily for area clearance. Short-lived in the environment, it will self-clear within a few days. This chemical is hazardous if inhaled.

GB munitions and bulk items processing was completed July 2007. GB munitions and bulk items comprised 21.4 percent of the total Umatilla stockpile by agent weight. The UMCDF destroyed 155,539 munitions and bulk containers filled with 2,028,020 pounds of GB nerve agent. This represented 70.5 percent of all Umatilla munitions and bulk containers and 21.4 percent of the original Umatilla stockpile by agent weight.

The only remaining GB treatment operation is GB-contaminated secondary wastes. The GB-contaminated wastes are transported from permitted storage to the UMCDF for treatment as incinerator availability allows.

VX Operations:

VX is a low-volatility (i.e., persistent in the environment) nerve agent used primarily to deny enemy access to an area. Without vigorous decontamination, this agent will last for several months in the environment. The hazard of this nerve agent is mainly skin contact.

The 155 mm VX projectile campaign began March 20, 2008, and was completed June 27, 2008. The UMCDF completed changeover activities and began processing the 8-inch VX projectiles on July 15, 2008, and completed the campaign on August 6, 2008. All VX projectiles have been destroyed and the only remaining VX munitions are the mines. After the mines are completed, the UMCDF will begin changeover activities for the start of mustard ton container operations.

VX munitions/bulk items comprise 9.8 percent of the total Umatilla stockpile by agent weight. As of August 13, 2008, the UMCDF had destroyed 14,519 VX rockets and warheads, one VX ton container, 156 VX spray tanks, 32,313 155mm VX projectiles, and 3,752 8-inch VX projectiles. This represents approximately:

- 100 percent of the VX rockets
- 100 percent of the VX spray tanks
- 100 percent of the VX ton containers
- 100 percent of the VX 155 mm projectiles (completed June 26, 2008)
- 100 percent of the VX 8-inch projectiles (completed August 6, 2008)
- Zero percent of the VX land mines (scheduled to begin September 2008)
- 81 percent of the VX munitions
- 83 percent of the VX agent

Now that projectile treatment has been completed, the UMCDF is conducting changeover activities necessary to begin mine processing. The mines (and the VX campaign) are scheduled to be completed by the end of 2008, after which the UMCDF will begin changeover activities for the start of mustard ton container operations.

HD Operations:

HD (also known as mustard) is a low-volatility blister agent used to incapacitate enemies. Persistent in the environment, it can last for several decades under certain conditions. This blister agent is hazardous if inhaled or if it comes in contact with skin.

The HD campaign is scheduled to begin October 2009 and is expected to be completed by mid-2011.

Other UMCDF Chemical Demilitarization Program News

GASP I Judgment: The court remanded to the EQC three "best available technology and no major adverse impact on public health and the environment" determinations pertaining to operation of the UMCDF. The EQC accepted the results of the health risk assessment and reevaluated the best available technology for treatment of secondary wastes originally intended for destruction in the dunnage incinerator during its June 19, 2008, meeting. The EQC determined incineration still represented the best available technology, but for the UMCDF, the metal parts furnace and deactivation furnace system rather than the dunnage incinerator represented the best available technology due to their superior design. The remaining two best available technology determinations are:

- Destruction of mustard ton containers containing significantly higher mercury levels than identified in the original application; and
- The role of the Pollution Abatement System Carbon Filter System (PFS).

These will be presented to the EQC as separate agenda items at this August 21, 2008, meeting.

UMCDF PMR Activity (June 1, 2008, through July 31, 2008):

SUBMITTALS
(decisions were also made during this period on 08-016, 08-017, 08-023, 08-038, and 08-039)

PMR#	Title	Submitted
UMCDF-08-016-DMIL(1R)	Mine Processing Changes	6/3/2008
UMCDF-08-017-MISC(1N)	Redline Annual Update BRA/Tank Systems	6/18/2008
UMCDF-08-023-MPF(1R)	MPF Secondary Waste 100 Percent Operational Parameters	6/18/2008
UMCDF-08-033-BRA(2)	Brine Loadout Station	6/24/2008
UMCDF-08-005-INSP(2)	Inspection Schedule Update	6/24/2008
UMCDF-08-039-LIC(1N)	Correction of LIC 1 Tin Emission Rate	6/24/2008
UMCDF-08-038-MISC(1R)	Removal of Risk Assessment Workplan/Protocol Requirements	6/24/2008
UMCDF-08-022-WAST(2)	Brine Management	7/1/2008
UMCDF-08-019-MISC(1N)	Redline Annual Update to CHB/LAB/HVAC Systems	7/9/2008
UMCDF-08-015-DUN(1R)	Deletion of the DUN	7/17/2008
UMCDF-08-006-ACS(2)	Agent Collection System (ACS) and Spent Decontamination System (SDS) Increase in Tank Capacity	7/22/2008
UMCDF-08-040-DMIL(1R)	Mine Processing Clarification *(Corrections from conditional approval of PMR 08-016)*	7/24/2008

DENIALS/REJECTIONS
(both were also submitted during this period)

PMR#	Title	Received	Decn
UMCDF-08-017-MISC(1N)	Redline Annual Update BRA/Tank Systems	6/18/2008	7/17/2008
UMCDF-08-038-MISC(1R)	Removal of Risk Assessment Workplan/Protocol Requirements	6/24/2008	7/18/2008

APPROVALS/ACCEPTANCES
(08-016, 08-023, and 08-039 which were also submitted during this period)

PMR#	Title	Received	Decn
UMCDF-08-039-LIC(1N)	Correction of LIC 1 Tin Emission Rate	6/24/2008	7/2/2008
UMCDF-08-023-MPF(1R)	MPF Secondary Waste 100 Percent Operational Parameters	6/18/2008	7/22/2008
UMCDF-08-016-DMIL(1R)	Mine Processing Changes	6/3/2008	7/10/2008
UMCDF-08-014-CONT(1N)	Annual Contingency Plan Update	5/28/2008	7/29/2008

IN PROCESS: The following PMNs and PMRs are under Department review
(includes 08-005, 08-006, 08-015, 08-022, 08-033, and 08-040, which were also submitted during this period)

PMR#	Title	Received	Public Comment Period Close	Target Decision/ Review Date
UMCDF-05-034-WAST(3)	Deletion of the DUN and Addition of the CMS	10/25/05	12/24/05[1]	TBD
UMCDF-07-006-DFS(3TA)	Minimum Temperature Limit Change on the DFS	01/16/07	04/25/08[2]	09/30/08
UMCDF-07-005-MISC(2)	Condition II.M-Liability Insurance Requirement Changes	01/30/07	04/02/07	10/01/08

IN PROCESS: The following PMNs and PMRs are under Department review *(includes 08-005, 08-006, 08-015, 08-022, 08-033, and 08-040, which were also submitted during this period)*				
PMR#	Title	Received	Public Comment Period Close	Target Decision/ Review Date
UMCDF-08-008-WAP(2)	WAP Update for Spent Carbon Sampling and Analysis Requirements	03/11/08	05/12/08[1]	09/09/08
UMCDF-08-018-MPF(2)	MPF DAL Low-Temperature Monitoring Changes	05/13/08	07/14/08[1]	09/30/08
UMCDF-08-037-MISC(1N)	Annual Procedures Update	05/29/08	N/A	TBD
UMCDF-08-033-BRA(2)	Brine Loadout Station	06/24/08	08/25/08[1]	09/22/08
UMCDF-08-005-INSP(2)	Inspection Schedule Update	06/24/08	08/25/08[1]	09/22/08
UMCDF-08-022-WAST(2)	Brine Management	07/01/08	09/01/08[1]	09/29/08
UMCDF-08-015-DUN(1R)	Deletion of the DUN	07/17/08	N/A	09/02/08
UMCDF-08-006-ACS(2)	ACS and SDS Increase in Tank Capacity	07/22/08	09/22/08[1]	10/20/08
UMCDF-08-040-DMIL(1R)	Mine Processing Clarification	07/24/08	N/A	09/08/08
[1] Initial (permittee) public comment period. [2] Department (draft permit) public comment period.				

UMCD PMR Activity (June 1, 2008, through July 31, 2008):

DENIAL			
PMR#	Title	Received	Decn
UMCD-08-001-MON(1R)	SUOMP Igloo Monitoring	4/21/2008	07/02/08

Significant Events at Other Demilitarization Facilities

Anniston Chemical Agent Disposal Facility, Alabama

The ANCDF processed the last VX projectiles May 24, 2008, and has begun changeover activities to prepare for VX mine processing. The ANCDF has destroyed 100 percent of its GB munitions (142,428 GB munitions),and 80 percent of its VX munitions (35,662 VX rockets, 139,581 VX projectiles, and 993 VX landmines), totaling 48 percent of its entire stockpile.

Newport Chemical Agent Disposal Facility, Indiana

The NECDF completed neutralization of its VX chemical agent stockpile on August 8, 2008. Approximately 2,538,000 pounds of VX chemical agent (approximately 301,067 gallons) was neutralized, and the United States has received credit for destroying 2,428,000 pounds of the Newport stockpile under the Chemical Weapons Convention Treaty.

Pine Bluff Chemical Agent Disposal Facility, Arkansas

The PBCDF has completed processing VX chemical agent, having treated the last VX landmine June 20, 2008. The PBCDF has destroyed 16 percent of its total stockpile by agent weight, and is undergoing changeover activities preparatory to the start of HD ton container processing.

Tooele Chemical Agent Disposal Facility, Utah

The TOCDF has processed 54,453 projectiles and 2,271 ton containers containing HD mustard (blister) agent, which is over 54 percent of the HD munitions stored at the Deseret Chemical Depot.

Processing continues to be limited to only those ton containers that show a concentration of one ppm or less of mercury contamination. Work continues on designing a carbon filtration system that will provide sufficient flue gas mercury removal to allow the processing of mustard that has been determined to have mercury concentrations in excess of one ppm.

Sampling of the 6,397 HD ton containers in the TOCDF stockpile was completed July 29, 2008.

The Deseret Chemical Depot has issued a draft finding of no significant impact and environmental assessment as it pertains to its proposal to install two autoclaves at the depot to provide another means (in addition to the metal parts furnace) to thermally treat (by pressurized steam) some secondary wastes. The TOCDF has stored most of its hazardous wastes rather than treating as generated, and operation of the metal parts furnace must focus on treatment of the agent-filled munitions in order to meet the April 2012 treaty deadline. Therefore, there is little opportunity to use the furnace for secondary waste processing. The autoclaves are proposed to be installed in igloos already equipped with a carbon filtration system through which the exhaust from the autoclaves would be vented. The Army's report indicates installation and use of the autoclaves to expedite its secondary waste treatment would reduce the life of the project by two years (but would have no effect on meeting the treaty deadline).

Pueblo Chemical Agent Destruction Pilot Plant, Colorado
Blue Grass Chemical Agent Destruction Pilot Plant, Kentucky

Neutralization followed by biotreatment will be used to destroy the Pueblo 2,611-ton stockpile, while neutralization followed by supercritical water oxidation will be used to destroy the Blue Grass 523-ton stockpile.

The PCAPP basic site infrastructure (roads, fencing, access control, and lighting) and the foundation, shell, and underground utilities for the multipurpose building are complete. The basic site infrastructure for the BGCAPP is also complete, which will be the last destruction plant built in the United States. Chemical agent operations are slated to begin 2017 and to be completed by 2023.

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 19, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda Item C, Action Item: Finding of Best Available Technology Determination—Inclusion of the Pollution Abatement System Carbon Filter System in the Umatilla Chemical Agent Disposal Facility Incineration Process
August 21-22, 2008 EQC Meeting

Purpose of Item

The Department of Environmental Quality requests that the Environmental Quality Commission determine that the best available technology determination for the Umatilla Chemical Agent Disposal Facility be revised to include and require operation of the pollution abatement system carbon filter system, or PFS, as part of the incineration process.

This item provides background on the development and use of the UMCDF PFS and information supporting DEQ's April 21, 2008, position that the best available technology for the UMCDF incineration process should be revised to include the PFS.

Background

The final judgment in GASP, *et al*, v. EQC, *et al*, Case No. 9708-06159 (GASP IV), remanded three issues to the EQC for findings on best available technology and no major adverse impact. One of the remanded best available technology determinations is the role of the PFS in the UMCDF incineration process, which is the subject of this agenda item.

In order to issue the UMCDF's operating permit in February 1997, ORS 466.055(3) required DEQ to find that the proposed UMCDF utilized the best available technology for treating agent-filled munitions and bulk items and the resulting secondary wastes. The EQC and DEQ determined the best available technology for the UMCDF was the Army's baseline incineration system, which was designed to meet all applicable regulatory criteria without a PFS. However, based on recommendations made by the National Research Council, the EQC required an additional condition be added to the final Permit requiring the construction and operation of the PFS as an additional measure of safety.

Although the PFS was not a demonstrated technology for the chemical demilitarization incineration process when DEQ issued the permit, the PFS has since been demonstrated to increase metals-removal efficiencies from the exhaust gas stream at the UMCDF. The PFS also allows the UMCDF to operate at the demonstrated waste feed rates.

In the approval of Permit Modification Request UMCDF-03-041-PFS(3), "Change in Incinerator Emissions compliance Point," the EQC found:

1) PFS is a proven technology and an integral part of the pollution abatement systems on the UMCDF incinerators;
2) testing for compliance after the PFS provides a better means of assessing potential effects on public health, safety, and the environment; and
3) use of the PFS reduces risk to the public by providing for more expedient destruction of the stockpile.

The EQC's decision identified inclusion of the PFS in the UMCDF incineration process to be the best available technology without making a new, formal best available technology finding.

DEQ conducted a public comment period June 26 - August 11, 2008, including a public meeting and hearing on July 24, 2008, to solicit information and opinions on the available treatment technologies.

Key Issues

The key issue is whether the best available technology determination for the UMCDF incineration process should include and require operation of the PFS. The EQC must answer this question in order to address the remand of this issue to the EQC in the Multnomah County Circuit Court's GASP IV decision.

The EQC has already identified the PFS as an integral part of the pollution abatement systems on the UMCDF incinerators and acknowledged that it provides for more expedient destruction of the chemical agent munitions stockpile. DEQ will bring a separate action item before the EQC concerning treatment of mustard agent containing mercury and disposition of secondary waste from the mustard destruction process. The mustard BAT action item will also address the future role of the PFS and possible additional changes to the PAS/PFS.

DEQ Recommendation/ Requested Action

DEQ requests that the EQC make a finding that utilization of the PFS in the UMCDF incineration process is the best available technology for final emission control and overall munitions disposal operations.

Attachments

A. Department Memorandum, "Best Available Technology – Inclusion of the Pollution Abatement System Carbon Filter System (PFS) in the Umatilla Chemical Agent Disposal Facility (UMCDF) Incineration Process," dated June 27, 2008 (DEQ Item No. 08-0708)
B. Response to Comments received during Public Comment period
C. Full Text of Comments received during Public Comment period closing August 11, 2008 (posted on EQC's webpage)

Available Upon Request UMCDF Permit Modification Request UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point" (DEQ Item No. 03-1653)

Approved:

Section: [signature]
Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program

Division: [signature]
Joni Hammond, Acting Deputy Director

Report Prepared By: Kelly Hodney, Sr. Hazardous Waste Specialist
Phone: (541) 567-8297 x30

State of Oregon
Department of Environmental Quality **Memorandum**

DEQ Item No. 08-0708 (11)

To: Richard C. Duval, Administrator
Chemical Demilitarization Program

Date: June 27, 2008

From: Kelly Hodney
Senior Hazardous Waste Specialist

Subject: Best Available Technology – Inclusion of the Pollution Abatement System Carbon Filter System (PFS) in the Umatilla Chemical Agent Disposal Facility (UMCDF) Incineration Process

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This memorandum documents the Department's determination and recommendation to the Commission that baseline incineration with inclusion of the Pollution Abatement system (PAS) Carbon Filter System (PFS) in the Umatilla Chemical Agent Disposal Facility (UMCDF) incineration process is the Best Available Technology for treatment of wastes currently authorized for processing.

<u>Cause for Reevaluation</u>:

In Opinion and Order dated April 17, 2007 (Reference 18), Judge Michael Marcus of the Multnomah County Circuit Court remanded the Environmental Quality Commission's (EQC's) order issuing Hazardous Waste Permit No. ORQ 000 009 431 (Permit) to the UMCDF for the destruction of chemical agent and chemical agent-filled munitions and bulk items stored at the Umatilla Chemical Depot for further action as it pertains to the best available technology and no major adverse effect determinations required by Oregon Revised Statute (ORS) 466.055 (GASP, *et al*, v. Environmental Quality Commission, *et al*, Case No. 9708-06159 [GASP IV]). Judgment was entered in GASP IV on June 12, 2007 (Reference 19), and the Court directed the EQC to reassess the best available technology and no major adverse effect determinations in light of certain changes in facility design and new evidence.

> "It is ADJUDGED that the OREGON EQC'S determinations made pursuant to ORS 466.055 as to whether the Umatilla Chemical Agency *[sic]* Disposal Facility uses the best available technology and has no major adverse impact on public health or the environment in regard to (a) destruction of any mustard in any ton container that contains significantly higher mercury levels than previously reported; (b) the destruction of hazardous waste originally intended for the dunnage incinerator; and (c) the role of PFS carbon filters; are remanded to the State of Oregon Environmental Quality Commission for consideration and further proceedings consistent with the court's opinion of April 17, 2007."

The "best available technology" determination is required by ORS 466.055, "Criteria for new facility," which states, in part:

> "Before issuing a permit for a new facility designed to dispose of or treat hazardous waste or PCB, the Environmental Quality Commission must find, on the basis of information submitted by the applicant, the Department of Environmental Quality or any other interested party, that the proposed facility meets the following criteria . . .
>
> (3) The proposed facility uses the ***best available technology*** [emphasis added] for treating or disposing of hazardous waste or PCB as determined by the department or the United States Environmental Protection Agency . . .

Consistent with the above, Oregon Administrative Rule (OAR) 340-120-0010(c) also states:

> *Technology and Design.* The facility shall use the ***best available technology*** [emphasis added] as determined by the Department for treatment and disposal of hazardous waste and PCB. The facility shall use the highest and best practicable treatment and/or control as determined by the Department to protect public health and safety and the environment;

This memorandum documents the Department of Environmental Quality's (Department/DEQ's) reevaluation and findings of the best available technology determination as it pertains to the role of the pollution abatement system (PAS) carbon filter system (PFS) (Reference 19, Item c).

Background

In February 1997, the EQC and Department issued Permit No. ORQ 000 009 431 to the UMCDF for the storage and treatment of the Umatilla Chemical Depot chemical weapons stockpile. As part of the permitting process, the EQC ensured and verified that several regulatory statutes (ORS 466.050, 466.055[1]-[5]) had been met (Reference 5). As identified above, ORS 466.055(3) requires the Department to find that the proposed facility uses the best available technology for treating agent-filled munitions and bulk items and the resulting secondary wastes. In making this evaluation, the EQC and the Department developed the following criteria (References 2, 15, and 5 [Items 60, 63, 73, and 74]) from which to make a best available technology determination of the technology proposed for the UMCDF (incineration). These criteria were established primarily to compare the baseline incineration process in the U.S. Army's application to alternative technologies that were then in development.

Best Available Technology Criteria:

1. Types, quantities, and toxicity of discharges to the environment by operation of the proposed facility compared to the alternative technologies.

2. Risks of discharge from a catastrophic event or mechanical breakdown in operation of the proposed facility compared to the alternative technologies.

3. Safety of the operations of the proposed facility compared to the alternative technologies.

4. The rapidity with which each of the technologies can destroy the stockpile.

5. Impacts that each of the technologies have on consumption of natural resources.

6. Time required to test the technology and have it fully operational; impacts of time on overall risk of stockpile storage.

7. Cost.

Based on information reviewed by the Department from the Department of the Army and Ecology and Environment (an independent subcontractor to the Department) (Reference 1), the Department (Reference 3) and EQC (Reference 5) both found that incineration was the best available technology for disposing of the Umatilla Chemical Depot stockpile as well as the secondary wastes that would result from the treatment of the chemical weapons, and would not present a major adverse impact to public health/safety or the environment. At the time, the EQC required that the permit include the PAS carbon filter system, but it did not base its BAT determination on inclusion of the filters.

History of UMCDF PFS Permit Requirement

Johnston Atoll Chemical Agent Disposal System (JACADS) was the prototype for the U.S. Army's chemical agent incinerator facilities later constructed in the continental United States. However, JACADS and another predecessor to the UMCDF, the Tooele Chemical Agent Disposal Facility (TOCDF), were not designed with a PFS. Subsequent to their construction, the National Research Council (NRC) issued a report in 1994 entitled, *Recommendations for the Disposal of Chemical Agents and Munitions* (Reference 13). This report made several recommendations for potential means of minimizing risks to the public and environment from agent release or other process discharges. In addition to the TOCDF system improvements[1], one of the recommendations was the addition of carbon filters to the furnace systems.

[1] As a result of lessons learned at JACADS, areas of improvement that the NRC recommended for implementation at the TOCDF site before the start of agent operations included upgrade of the monitoring system, demonstration of the Dunnage

> At the time the 1997 best available technology finding was made, the UMCDF PFS design was still in the preliminary design stage and was based on the conceptual design for the TOCDF (which was never installed). Testimony received during the application process (Reference 4) indicated the use of carbon filters in Europe had resulted in significant further reduction of dioxins and other emissions. However, at the time the best available technology determinations were made for issuance of the UMCDF Permit, the use of carbon filters was not a demonstrated technology in the United States, particularly as it pertained to the chemical agent incineration process. Thus, although the UMCDF best available technology determination did not include the PFS, based on recommendations made by the NRC (References 13 and 14) and testimony received during the application process, the EQC required an additional condition be added to the final Permit (Reference 16) to require the construction and operation of the PFS as an additional measure of safety (Reference 7).

In September 1998, a risk assessment was conducted on the UMCDF PFS (Reference 12). This assessment evaluated any additional risks that inclusion of the PFS in the UMCDF process might pose including, but not limited to, increased cancer risks, releases from the PFS attributable to accidents and other hazards[2], additional waste streams, etc. The assessment was based on the design of the PFS at that time and did not take credit for potential emissions reductions. The conclusion was that inclusion of the PFS in UMCDF operations had an overall neutral value from a human health/environmental risk standpoint.

Several modifications have been made to the PFS design and its operational requirements subsequent to issuance of the Permit. These modifications, listed below, were made via the permit modification process and primarily represent improvements to the design as part of the finalization of the PFS design.

Incinerator and brine reduction area or suitable alternatives, development of an abatement system for nitrogen oxides, development and demonstration of a Liquid Incinerator slag removal system, improved control of feed materials for the Deactivation Furnace System and Metal Parts Furnace, and solution of the problems associated with gelled agent.

[2] Scenarios evaluated included carbon filter fires and desorption (release) of contaminants previously captured by the carbon due to high-humidity or high-temperature conditions.

PFS Permit Modification Requests

Tracking #	Title	Submitted
UMCDF-97-005-PAS(2TA)	PAS Carbon Filter System and Removal of Acid Wash System	11/19/1997
UMCDF-99-042-CONS(1R)	Update to Specification Section 15987, Specification for Pollution Abatement System (PAS) Filter Units	12/22/1999
UMCDF-00-001-CONS(1R)	Update to Specification Section 15828, PAS Filter System Clean Liquor Air Cooler	1/7/2000
UMCDF-00-014-CONS(1R)	Design Modifications to Specification Section 15829, PFS Gas Reheater	5/17/2000
UMCDF-01-023-CONS(1R)	Update to Specification Section 15987, Specification for Pollution Abatement System (PAS) Filter Units	7/31/2001
UMCDF-03-014-PFS(2)	Carbon Filter System Agent Monitoring Changes	3/25/2003
UMCDF-03-041-PFS(3)	Change in Incinerator Emissions Compliance Point	9/16/2003
UMCDF-03-055-MISC(1R)	Annual Update to the General and Pollution Abatement System Drawings and Specifications 09850, 09900, 15829, 15830, and 15987	12/16/2003
UMCDF-04-031-PFS(1R)	Pollution Abatement System Carbon Filter System Dry Conditions	7/14/2004
UMCDF-04-005-PFS(1R)	As-Built for the Carbon Filter System Agent Monitoring Design Changes	7/22/2004
UMCDF-05-040-PFS(1R)	PFS Relative Humidity Changes	9/23/2005
UMCDF-06-003-PFS(1R)	PFS Relative Humidity Monitoring As-Built	4/6/2006
UMCDF-06-042-PFS(1R)	Maximum PFS Prefilter Pressure Differential	9/12/2006
UMCDF-06-022-PFS(1R)	PFS Condensate Collection System	11/14/2006
UMCDF-07-019-PFS(2)	PFS Carbon Change-Out Conditions	3/27/2007

The PFS is installed downstream of the furnace PAS mist eliminator primarily to capture residual particulates and organic compounds remaining in the gas existing the PAS. Each PFS consists of a series of filters and beds.

1) **Prefilters** - The prefilters remove most of the larger particles entrained in the incoming gas.
2) **First high-efficiency particulate air (HEPA) filters** - Residual particles (including metals at submicron sizes) are removed by the first HEPA filters.
3) **Activated carbon beds** - The residual products of incomplete combustion such as organic compounds, which are not removed by the first HEPA filter, are adsorbed by the activated carbon as the gas flows through the carbon beds.
4) **Final HEPA filters** - The gas flow may pick up some activated carbon as dust particles. Therefore, a second (final) HEPA filter is used as the last element of the PFS to capture these dust particles.

It is the cumulative modifications to the PFS design and operation, and, as a result of these changes, the potential impact(s) to the DEQ/EQC's original best available technology determination, that the Court has remanded to the EQC for consideration and reevaluation (Reference 19).

Assessment:

The best available technology for the UMCDF (incineration versus neutralization, etc.) was completed for issuance of the Permit and was determined to be incineration. Therefore, this assessment does not reevaluate the chosen technology (incineration). Instead, as remanded by the Court to the EQC, this assessment reexamines, in light of subsequent changes made to the PFS design and requirements for its use and operation, whether the best available technology determination, as it relates to the UMCDF incineration process, should now include and require operation of the PFS.

As identified in PMR 03-041 the revised PFS design includes prefilters and HEPA filters upstream of the carbon beds. These filters are specifically designed to remove particulate matter, which is where most of the metals are present. During the Liquid Incinerator 1 (LIC1) surrogate trial burn (STB), the increased metals removal efficiency of the PFS was demonstrated as shown below.

Element	UMCDF LIC1 HTT-PFS Off			UMCDF LIC1 HTT-PFS On		
	Feed Rate (lb-mass/hr)	MRE (%)	Emission Rate (g/s)	Feed Rate (lb-mass/hr)	MRE (%)	Emission Rate (g/s)
Antimony	1.79E-01	99.990	2.23E-06	1.79E-01	99.9994	1.42E-07
Arsenic	1.99E-01	99.986	3.48E-06	1.99E-01	99.9993	1.81E-07
Cadmium	2.46E-02	99.979	6.42E-07	2.46E-02	99.998	6.29E-08
Chromium	4.44E-02	99.959	2.30E-06	4.44E-02	99.980	1.13E-06
Lead	2.30E-01	99.974	7.50E-06	2.30E-01	99.998	5.08E-07
Manganese	1.60E-01	99.935	1.30E-05	1.60E-01	99.978	4.36E-06
Mercury	1.26E-02	99.957	6.86E-07	1.26E-02	99.961	6.26E-07
Nickel	1.35E-01	99.967	5.66E-06	1.36E-01	99.993	1.21E-06
Selenium	1.33E-01	99.995	9.02E-07	1.33E-01	99.996	7.25E-07
Thallium	2.23E-01	99.989	3.17E-06	2.23E-01	99.9996	1.13E-07

MRE = Metals-Removal Efficiency

In addition, the results of the LIC1 STB demonstrated operation of the PFS resulted in minimal variation in the system operating parameters. Most of the operating parameters were essentially at the same levels when the PFS was bypassed and online (Reference 20).

In addition to PFS design improvements and demonstrated increased metals removal efficiency, the change in the emissions compliance point made via approval of PMR 03-041, resulted in a significant alteration in the operation of the PFS. The Department believes it is likely this modification that has been interpreted by the Multnomah County Circuit Court in its Opinion and Order dated April 17, 2007 (Reference 18) as requiring operation of the PFS as an "essential" element of UMCDF operation. This PMR changed the Resource Conservation and Recovery

Act (RCRA) compliance point from after the PAS (but before the PFS) to after the PFS. This modification allowed the UMCDF to use the same emissions compliance point during trial burns conducted after approval of PMR 03-041 for both RCRA and Maximum Achievable Control Technology (MACT) purposes. Previously, because emissions sampling could not be adequately or safely conducted before the PFS, two separate trial burn runs had to be conducted:

Trial Burn Run	RCRA/ MACT	Purpose
PFS Bypassed	RCRA	Meet requirement to demonstrate compliance of the RCRA performance standards before entering the incinerator PFS units (Permit Conditions VI.A.1.vi and VII.A.8).
PFS Online	RCRA	Meet requirement to demonstrate compliance with the RCRA particulate matter emissions requirements after the PFS to ensure that the carbon within the PFS units would not cause an exceedance of the emission standard (Permit Conditions VI.B.1.ii/VII.B.1.ii, VI.C.1.ii/VII.C.1.ii, VI.D.1.ii/VII.D.1.ii).
	MACT	Demonstrate compliance with MACT emissions standards at the exit of each incinerator system and prior to discharge to the environment.

This modification simplified and eliminated unnecessarily burdensome (duplicative) trial burn testing requirements. However, and more significantly, this change allowed the UMCDF to "take credit" for the additional emissions removal efficiencies of the PFS units.

Previous to this change, due to the anticipated high cadmium emissions in M55 rockets, it was determined the DFS feed rate that could be demonstrated during the "before-the-PFS" (PFS bypassed) trial burn would limit DFS rocket processing to two to four rockets per hour. The consequent reduction in the rocket feed rate would have significantly lengthened the time required to destroy the Umatilla Chemical Depot stockpile, thus increasing the risk to the public due to prolonging the amount of time the munitions would have to remain in storage. Changing the compliance point to after the PFS and utilizing the additional particulate matter and metals removal efficiency provided by the PFS, allowed the UMCDF to operate at the full munitions feed rates demonstrated during the trial burn while maintaining emissions below the RCRA and MACT emission standards.

One of the above-identified permit modification requests (PMRs) was PMR UMCDF-03-041-PFS(3) (PMR 03-0431), "Change in Incinerator Emissions Compliance Point" (Reference 20). Prior to this time, the PFS had been required by the EQC only as an additional measure of safety. However, in reviewing this PMR the Commission found, "Although cause is not specifically required for permit modifications requested by a permittee, the Commission finds that the new information regarding the PFS and the new MACT standards, would support a finding of cause for modifying the permit as requested by the permittees" (Reference 8, Item 29). Further, in approving PMR 03-041, the Commission found that the PFS was ***now proven technology and an integral part of the pollution abatement systems on the UMCDF incinerators***; testing for compliance after the PFS provided a better means of assessing potential effects on public health, safety, and the environment; and use of the PFS reduced risk to the public by providing for more expedient destruction of the stockpile

(Reference 8, Item 30). Basically, the EQC's order, based on Department recommendation (Reference 17), identified inclusion of the PFS in the UMCDF incineration process to be the best available technology without making a new, formal best available technology determination.

Treatment utilizing baseline incineration only versus baseline incineration in conjunction with the PFS was evaluated as to which best meets each of the best available technology criteria established by the EQC.

Best Available Technology Criteria*	Baseline Incineration	
	Only	+ PFS
1. Types, quantities, and toxicity of discharges to the environment by operation of the proposed facility.		✔
2. Risks of discharge from a catastrophic event or mechanical breakdown in operation of the proposed facility.		✔
3. Safety of the operations of the proposed facility.		✔
4. The rapidity with which each of the technologies can destroy the stockpile.		✔
5. Impacts that each of the technologies have on consumption of natural resources.	✔	✔
6. Time required to test the technology and have it fully operational; impacts of time on overall risk of stockpile storage.	N/A	N/A
7. Cost.	N/A	N/A

* The original criteria were written to assess the baseline incineration process against developing alternative technologies. Therefore, for this purpose, the criteria have been revised to focus on comparison of baseline incineration versus baseline incineration in conjunction with operation of the PFS.

<u>Options</u>:

The best available technology for the UMCDF for issuance of the Permit was determined to be the U.S. Army's baseline incineration technology (Reference 5). The PFS was required by the EQC to be constructed and operated at the UMCDF as an additional safety measure (Reference 7). Based on new, additional information, the EQC later found that the PFS was an integral part of the pollution abatement systems on the UMCDF incinerators (Reference 8, Item 30). Due to the number of design and operational requirement changes subsequent to issuance of the Permit and in absence of a formal BAT reevaluation after EQC approval of PMR 03-041, the Court (Reference 19) remanded the EQC's best available technology effect determination to the EQC for further evaluation as it pertains to the role of the PFSs. Therefore, the options to be considered are:

- Incorporate the PFS into the best available technology for UMCDF baseline incineration, or
- Decline to incorporate the PFS into the best available technology for UMCDF baseline incineration.

Conclusion:

As identified above, the UMCDF has clearly demonstrated the PFS provides increased emissions removal efficiencies, and operation of the UMCDF PFS was determined to be necessary in order to allow processing of munitions through the DFS at demonstrated munitions feed rates. The EQC has already found (Reference 8, Item 30) that the PFS is now a proven technology; an integral part of the UMCDF incinerator pollution abatement systems; testing for compliance after the PFS provides a better means of assessing potential effects on public health, safety, and the environment; and use of the PFS reduces risk to the public by allowing for more expedient destruction of the stockpile.

Alternatives to inclusion of the PFS in the UMCDF incineration process are:

- Significantly reducing the munitions feed rates in order to meet all metals emissions rates before the PFS, which would have the negative result of increasing the amount of time the munitions would remain in storage. Continued storage is the greatest contributor to public risk. Thus, this option would unnecessarily increase the risk to the public/environment.
- Increase allowable emissions rates.

Either of these alternatives would result in negative impacts to the public and environment and are unacceptable alternatives to use of the PFS.

Therefore, based on the information evaluated and consistent with previous EQC decision (Reference 8), the Department has determined that inclusion of the PFS with the already established baseline incineration technology has been demonstrated to be the best available technology for the UMCDF.

References:

1. Ecology and Environment, Inc. (E & E), November 1996, "Best Available Technology Findings Report: Umatilla Chemical Depot, Hermiston, Oregon," prepared for the State of Oregon Department of Environmental Quality (DEQ), Seattle, Washington. DEQ Item 1386

2. Environmental Quality Commission (EQC), August 23, 1996a, "Minutes of the Two Hundred and Fifty-Fourth Meeting." DEQ Item 98-1379

3. EQC, November 22, 1996b, Minutes of Environmental Quality Commission Special Session. DEQ Item 2433

4. EQC, February 7, 1997a, Transcript of Meeting of the Environmental Quality Commission. DEQ Item 98-1375

5. EQC, February 10, 1997b, "Findings and Conclusions of the Commission and Order 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." DEQ Item 98-1458

6. EQC, November 19, 1999, Transcript of Proceeding from the November 19, 1999, EQC Meeting "Public Comment on a Request to Revoke the Umatilla Chemical Weapons Depot Permits." DEQ Item 00-0181

7. EQC, March 19, 1999, "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." DEQ Item 99-0490

8. EQC, 2004a, "Findings and Conclusions of the Commission and Order in the matter of PMR UMCDF-03-041-PFS(3), 'Change in Incinerator Emissions Compliance Point,'" May 21, 2004. DEQ Item 04-0795

9. EQC, 2004b, Transcript, State of Oregon Department of Environmental Quality May 20, 2004, Meeting, Item H: Decision on the Umatilla Chemical Agent Disposal Facility Permit Modification Request UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point," May 28,2004. DEQ Item 04-0861

10. EQC, 2004c, Minutes of the Three Hundredth and Eighteenth Meeting of the Oregon EQC and public hearing on start of chemical agent operations, May 20-21, 2004. DEQ Item 04-1206

11. GASP, et al., (GASP), December 14, 1998, letter "Request for Contest Case Hearing and other Relief." DEQ Item 98-1247

12. Mitreteck Systems Center for Science and Technology (Mitreteck), September 1998, "Risk Assessment of the Pollution Abatement Filter System for the Umatilla Chemical Agent Disposal Facility," McLean, Virginia, Mitreteck Technical Report MTR 1997-60. DEQ Item 99-0066

13. National Research Council (NRC), 1994, *Recommendations for the Disposal of Chemical Agents and Munitions*, Washington, D.C., National Academy Press. DEQ Item 2330

14. NRC, August 1999, *Carbon Filtration for Reducing Emissions from Chemical Agent Incineration*, Washington, D.C., National Academy Press. DEQ Item 99-1410

15. State of Oregon, Department of Environmental Quality (DEQ), 1996, "Department Recommended Permit Conditions in Response to Public Comment and to Issues Raised at Commissions Meetings," report prepared for the November 22, 1996, EQC meeting. DEQ Item 2046

16. DEQ, 1997, "Department Recommended Permit Conditions," facsimile dated January 15, 1997. DEQ Item 2315

17. DEQ, 2004, "Agenda Item H, Action Item: Decision on Modification of the UMCDF Hazardous Waste Permit to Change the Incinerator Emission Compliance Point, May 20-21, 2004, EQC Meeting," memorandum dated April 29, 2004. DEQ Item 04-0695

18. State of Oregon, Multnomah County Circuit Court, April 17, 2007, "Opinion and Order," Case No. 9708-06159, in the Matter of GASP, et al, vs. EQC, et al," (GASP IV). DEQ Item 07-0678

19. State of Oregon, Multnomah County Circuit Court, June 12, 2007, "Stipulated General Judgment," Case No. 9708-06159, GASP IV. DEQ Item 07-1227

20. Umatilla Chemical Agent Disposal Facility (UMCDF), 2003, "Submittal of Class 3 Permit Modification Request UMCDF-03-041-PFS(3), "Change in Incinerator Emissions Compliance Point," letter No. ENV-03-0288 dated September 15, 2003. DEQ Item 03-1653

cf: Kelly Hodney, DEQ Hermiston

Response to Comments

Best Available Technology Determination –
Pollution Abatement System Carbon Filter System

State of Oregon
Department of Environmental Quality
Umatilla Chemical Demilitarization Program
256 E. Hurlburt Ave.
Hermiston, OR 97838
Phone: (541) 567-8297
(800) 452-4011
Fax: (541) 567-4741

www.oregon.gov/DEQ

PERMIT NUMBER: ORQ 000 009 431

WHAT WAS COMMENTED ON? The Department of Environmental Quality (DEQ) issued a notice June 27, 2008, requesting public comments on the best available technology pertaining to operation of the Pollution Abatement System Carbon Filter System (PFS) as part of the Umatilla Chemical Agent Disposal Facility (UMCDF) incineration treatment process.

PUBLIC COMMENTS: A public comment period was conducted for this best available technology determination from June 27, 2008, through August 11, 2008. A public meeting and a public hearing were held July 24, 2008. The DEQ received 14 sets of comments during the public comment period, the majority of which concurred with the Department's best available technology determinations.

List of Commenters

Supportive of Inclusion of the PFS

Allison R. Cook
Russell Dorran
M. Steven Eldrige
Frank J. Harkenrider
Tim Mabry
Bob Severson, Mayor, Hermiston, Oregon
Tami Sinor
James Wenzl
Umatilla Chamber of Commerce

Comments Not in Support and Requesting Delay of Determination

Confederated Tribes of the Umatilla Indian Reservation (CTUIR)
G.A.S.P., et al.

Primarily Pertain to Another Matter

ARCTECH, Inc.
David P. Trott, Mayor, Umatilla, Oregon
UMCDF

WHERE CAN I GET MORE INFORMATION? A copy of this response to comments has been provided to each party who provided comment during the public comment period, along with a copy of the associated notice of decision. Copies of the notice of decision and the response to comments will also be placed in each of the information repositories listed in the notice of decision.

ACCESSIBILITY INFORMATION: The DEQ is committed to accommodating people with disabilities. Please notify the 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 Shilo Ray in the DEQ Hermiston office (541) 567-8297, ext. 21, or toll-free in Oregon at (800) 452-4011), fax to (541) 567-4741, TTY (503) 229-6993, or e-mail to deqinfo@deq.state.or.us to request an alternate format.

Response to Comments not in Support of Inclusion of the Pollution Abatement System Carbon Filter System (PFS) in the UMCDF Incineration Treatment Process as the Best Available Technology (BAT)

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-1	In the PFS BAT staff report, the DEQ states, "Basically, the EQC's order, based on Department recommendation (Reference 17), identified inclusion of the PFS in the UMCDF incineration process to be the best available technology without making a new, formal best available technology determination." How was the public notified that the EQC was going to determine the PFS as BAT? Please provide evidence indicating proper notice and opportunity to comment on this important issue. (GASP)	The Department conducted a public comment period for this BAT determination June 27 through August 11, 2008, and held a public meeting and a public hearing on July 24, 2008. The staff report was merely trying to explain that the earlier EQC order implicitly recognized the PFS as part of the BAT system, not that a formal BAT PFS determination was made. This is the formal process.
RTC-2	How many times has the bypass around the PFS been used during UMCDF operations? What were the types and quantities of emissions during those events? (GASP)	Before approval of PMR 03-041, it was necessary to bypass the PFS during trial burns to demonstrate compliance with the RCRA requirements (it was not bypassed for trial burn runs to demonstrate compliance with the MACT requirements). The trial burn results were reported and are available to the public via the DEQ's Chemical Demilitarization Program web page (http://www.deq.state.or.us/umatilla/cdpsearch/cdpSearch.asp)..
RTC-3	In the PFS BAT staff report, the DEQ mentions the concern about the release of cadmium during the M55 rocket incineration campaigns. How much cadmium was captured during the burning of the M55 rockets? How much was released? How much PCB was captured during the M55 campaigns? How much was released? What data supports your response? (GASP)	The PFS BAT staff report did not identify a concern regarding the release of cadmium or other contaminants. The requested information is outside the scope of this BAT determination, but the public may search and retrieve information regarding this and other subjects related to UMCDF operations via the DEQ's Chemical Demilitarization Program document search web page (http://www.deq.state.or.us/umatilla/cdpsearch/cdpSearch.asp).

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-4	If a fire occurs in the PFS carbon filter beds during the final days of the incineration of mercury-contaminated HD ton containers, how much mercury is likely to be emitted into the environment? What quantities of other contaminates will likely be released? Has such a scenario been considered in the DEQ's BAT analysis? (GASP)	This is outside the scope of this BAT; however, a risk assessment (refer to DEQ Item No. 08-0707 for more information,) was prepared to evaluate any additional risks associated with inclusion of the PFS in the UMCDF process (without factoring in the additional metals removal efficiencies benefits), including risk from accidents and other hazards. Scenarios evaluated included carbon filter fires and desorption (release) of contaminants previously captured by the carbon due to high-humidity or high-temperature conditions. The conclusion was that inclusion of the PFS in UMCDF operations had an overall neutral value from a human health/environmental risk standpoint.
RTC-5	What is the legal basis for considering cost as a factor in determining the BAT? Please be specific. (GASP)	The Environmental Quality Commission included cost consideration in the BAT criteria based on ORS 466.055(3), which requires: "The proposed facility uses the best available technology for treating or disposing of hazardous waste or PCB as determined by the department or the United States Environmental Protection Agency," and OAR 340-120-0010(c), which requires: "The facility shall use the best available technology as determined by the Department for treatment and disposal of hazardous waste and PCB. The facility shall use the highest and best practicable treatment and/or control as determined by the Department to protect public health and safety and the environment." The EQC and Dept also looked to federal regulatory BAT criteria, which include cost , as guidance

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-6	GASP requests an extension of the comment period and points out that the EQC should not be making a determination that the PFS with sulfur-impregnated carbon is BAT for HD with high-mercury until such time that TOCDF completes construction of its PFS and demonstrates that it will work. (GASP)	A public comment period for this BAT was held from June 27 through August 11, 2008. In addition, both a public meeting and public hearing were held on July 24, 2008. The public had sufficient opportunity to comment on this BAT determination, and the DEQ had sufficient information upon which to makes its determination that the BAT for the UMCDF incineration process should include and require operation of the PFS. Possible modification of the PFS for high-mercury mustard ton container treatment operations is outside the scope of this PFS BAT evaluation and will be addressed as part of the reevaluation of BAT for high-mercury mustard; therefore, extension of the public comment period is not warranted.
RTC-7	The PFS should not be declared BAT, especially for high-mercury mustard, until the issues with analysis, treatment, and disposal of spent carbon are resolved. (CTUIR)	The PFS BAT evaluation is limited to whether the BAT for the chosen technology for the UMCDF (incineration) should include the PFS as part of the treatment process. The EQC determined the carbon micronization system as part of BAT for treatment of agent-contaminated carbon, however, no decision regarding ultimate treatment and disposal of spent carbon as a secondary waste is being proposed at this time.

08-0879

HODNEY Kelly

Attachment C
for Items C&D
Full text of
comments on PFS&
mustard containers

From: DUVAL Rich
Sent: Monday, August 11, 2008 5:20 PM
To: RAY Shilo
Cc: HODNEY Kelly
Subject: Fw: Public Comment

Public comment

Sent from my BlackBerry Wireless Handheld

-----Original Message-----
From: Tami Sinor <tami.sinor@umatillaelectric.com>
To: DUVAL Rich
Sent: Mon Aug 11 16:51:57 2008
Subject: Public Comment

Dear Mr. Duval,

As a former employee of the Umatilla Chemical Agent Disposal Facility, I'm fully confident that incineration

is the best of all available technologies for destroying Umatilla's mustard agent stockpile.

I also urge the Environmental Quality Commission to support a Best Available Technology designation for the Carbon Filtration System for the extra safety measures it has provided for the life of the UMCDF.

Thank you for your continuing efforts to ensure the health and safety of both the Umatilla Chemical Depot workforce and surrounding communities.

Sincerely,

Tami Sinor

UEC UMATILLA ELECTRIC COOPERATIVE

August 11, 2008

Rich Duval, Administrator
DEQ Chemical Demilitarization Program
256 e. Hurlburt Avenue
Hermiston, OR 97838

Mr. Duval,

Thank you for the opportunity to provide comments for your consideration as you re-evaluate the Best Available Technology (BAT) for the Umatilla Chemical Disposal Facility (UMCDF) as it pertains to the processing of Mustard-Filled Ton Containers stored at Umatilla Chemical Depot (UMCD).

I understand that the processing of Mustard Agent presents new challenges for the disposal technology employed. Special issues include the treatment of the solid material that accumulates in the long-stored mustard-filled ton containers and methods that effectively deal with certain lots of the mustard-filled ton containers that are expected to contain higher levels of mercury than originally anticipated.

The UMCDF's pollution abatement system, which incorporates a highly effective carbon filtration system, has worked well during the processing of nerve agents. Enhancements to this system to meet the special challenges of processing mustard agent and successfully manage the wastes (including mercury) are a part of Umatilla's plan, a plan based in part on data generated during extensive testing and from successful mustard planning and disposal being done in Tooele, Utah.

Although I am not an expert on the subject, what I have read regarding the preparations for Mustard disposal at Umatilla, including use of the incineration facility that has already destroyed over 35% of the Umatilla stockpile in a safe matter, meeting and exceeding EQC requirements. Further, with the use of the Pollution Abatement System Carbon Filter System, convinces me that the project should be allowed to continue its work as planned.

I urge you to reject considerations that lengthen the demilitarization at the Umatilla Chemical Disposal Facility (UMCDF). Additionally please re-confirm the Umatilla Chemical Disposal Facility (UMCDF) incineration process as Best Available Technology (BAT) for processing of mustard-filled ton containers and the use of the Pollution Abatement System Carbon Filter System as the Best Available Technology (BAT) for treatment of Mustard Agent ton containers with higher levels of mercury than originally anticipated.

Sincerely,

Steve

M. Steven Eldrige
General Manager and CEO

MSE/trs

08- 0878

UEC UM ATIL ELE CTR COO PER

FACSIMILE TRANSMIT AL SHE

TO: Rich Duval	FROM: St ve Eldrig
COMPANY: DEQ	DATE: 8/ 1/2008
FAX NUMBER: (541) 567-4741	TOTAL N O. OF PAGE OVER: 2
	PHONE N UMBER: (5 1) 564-4
REGARDING: Public Comment	FAX NUM BER:

☐ URGENT ☑ FOR REVIEW ☑ PLEASE COMMENT ☐ PLEAS ☐ PLEASE RECYCLE

NOTES/COMMENTS:

08-0878

UMATILLA ELECTRIC COOPERATIVE

FACSIMILE TRANSMITTAL SHEET

TO: Rich Duval	FROM: Steve Eldrige
COMPANY: DEQ	DATE: 8/11/2008
FAX NUMBER: (541) 567-4741	TOTAL NO. OF PAGES INCLUDING COVER: 2
	PHONE NUMBER: (541) 564-4388
REGARDING: Public Comment	FAX NUMBER:

☐ URGENT ☑ FOR REVIEW ☑ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

PO BOX 1148 – 750 W. ELM STREET, HERMISTON, OREGON 97838

DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
EDGEWOOD CHEMICAL BIOLOGICAL CENTER
5183 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5424

REPLY TO
ATTENTION OF

AMSRD-ECB-PI-OP 11 August 2008

Mr. Daman Walia
ARCTECH, Inc.
14100 Park Meadow Drive
Chantilly, VA 20151

Subject: Edgewood Chemical Biological Center (ECBC) Participation with ARCTECH, Incorporated in the Draining and Treatment of Ton Containers

Dear Mr. Walia:

We appreciate your interest in ECBC for collaboration on draining and treatment of ton containers containing the chemical agent mustard (HD) with high Mercury concentrations at the Umatilla Chemical Depot (UMCD).

If ARCTECH should be awarded the contract, ECBC agrees to enter into negotiations in good faith for a Cooperative Research and Development Agreement (CRADA) to provide technical services. Specific terms of our participation would be negotiated after contract award.

If you have any questions please contact David Kline at (410) 436-9733 or via E-mail at david.kline1@us.army.mil.

Sincerely,

for TIMOTHY A. BLADES
Deputy Director Operations,
Directorate of Program Integration

DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
EDGEWOOD CHEMICAL BIOLOGICAL CENTER
5183 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5424

REPLY TO
ATTENTION OF

AMSRD-ECB-PI-OP

11 August 2008

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Chantilly, VA 20151

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If you have any questions please contact David Kline at (410) 436-9733 or via E-mail at david.kline1@us.army.mil.

Sincerely,

for TIMOTHY A. BLADES
Deputy Director Operations,
Directorate of Program Integration

a. HUMASORB® treated brines reduced the metals concentration to below the permit limits in a significant portion of the test containers.

b. Brine treatment by the HUMASORB® system allowed for faster processing of the brine in the BRA from 20% of capacity to 90% of capacity.

c. The solids generated from the HUMASORB® process were non-hazardous.

4. PMCD is very satisfied with ARCTECH and the performance of the HUMASORB® system at JI. HUMASORB® system performed as promised and ARCTECH met all the obligations of the contract and performed the project on-time and as per schedule. ARCTECH personnel demonstrated professionalism and flexibility throughout the project from inception to finish to meet the needs of PMCD. Please contact me if you have further questions concerning this project.

5. Questions on this matter should be referred to Mr. Charles Papish, (808) 421-0011 x 3975.

Gary W. McCloskey

GARY W. MCCLOSKEY
JACADS Site Project Manager

Copy Furnished:
R. Malone, SAIC

DEPARTMENT OF THE ARMY
US ARMY CHEMICAL MATERIALS AGENCY (PROVISIONAL)
JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM
PO BOX 156
APO AP 96558-0006

REPLY TO ATTENTION OF:

SFAE-CD-CO-J (50q) 19 August 2003
JACADS Project Office (CD-CO-J-2021)

MEMORANDUM FOR Record

SUBJECT: ARCTECH's HUMASORB® Technology--Successful Application at Johnston Atoll Chemical Agent Disposal System (JACADS)

1. The U.S. Army is currently is the process of destroying the obsolete U.S. stockpile of chemical weapons using an reverse assembly followed by incineration process. This is underway at locations in the continental United States and was completed on Johnston Atoll in the Pacific in November 2000. Incineration was the technology selected for this disposal at five of the nine stockpile locations. Various chemical agents and munition parts are processed in furnaces designed to handle liquid agent, explosive components and metal/miscellaneous parts. The gas stream from these furnaces is treated in a pollution abatement system (PAS) designed to capture metals and other contaminates prior to being released from a stack. In the PAS, the gas stream is washed down with a caustic solution, which result in the formation of a brine solution.

2. The waste brines produced during the destruction of chemical weapons contain a number of toxic metals which are typically processed through a Brine Reduction Area (BRA) that evaporates the solution to generate dry solid salt, which then has to be disposed off as a hazardous waste. However, the brine-processing rate is often limited when toxic metals are present above the RCRA permitted feed limits. This decrease in throughput leads to increase in operational costs and project schedule delays. The deployment of a waste brine treatment system for removal of metals can offer significant economical and operational advantages for risk mitigation.

3. The Program Manager for Chemical Demilitarization (PMCD) contracted with ARCTECH in 2001 to design, build and install a HUMASORB® system at Johnston island (JI) for treatment of brines generated from the JACADS PAS. A mobile HUMASORB® system had already been successfully tested in 1999 at JI to remove metals from Spent Decontamination Solution (SDS).

ARCTECH completed the task of design, fabrication and installation of the HUMASORB® system in 2002 and successfully treated approximately 160,000-180,000 gallons of brines in 2002 and 2003. ARCTECH personnel modified the process in the field as needed to treat brines with varying characteristics. HUMASORB® system deployment at JI for brine treatment led to the following advantages:

DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND ACQUISITION CENTER
EDGEWOOD CONTRACTING DIVISION
5179 HOADLEY ROAD, BLDG E4455
ABERDEEN PROVING GROUND, MD 21010-5401

REPLY TO
ATTENTION OF:

February 21, 2008

AMSRD-ACC-E

Dr. Daman Walia
ARCTECH, Inc.
14100 Park Meadow Drive, Suite 210
Chantilly, VA 20151

Dear Dr. Walia,

Reference: Chemical Materials Agency (CMA) Industry Briefing – Assessment of Technologies Suitable for the Treatment of Chemical Agents Lewisite (L), Tabun (GA) and GA/UCON; APG-EA; 27 November 2007

Thank you for responding to the CMA market survey of potentially applicable technologies on behalf of ARCTECH.

Your submission, Actodemil®/HUMASORB Technology for Safe Destruction of Chemical Agents Lewisite (L), Tabun (GA) and GA/UCON Obsolete Wastes Stored at the Deseret Chemical Depot (DST), Tooele, Utah, was evaluated by a CMA panel composed of Government and contractor technical experts. The assessment was carried out using the process efficacy, maturity, safety and residuals parameters presented at the briefing.

Based on the information you provided, the panel judged the ARCTECH concept to be potentially applicable to the elimination of the two chemical agents in question. Further consideration of the available technologies to meet CMA's objectives is ongoing.

Point of contact for this action is Mrs. Jennifer Zeman, 410-436-4492, email: Jennifer.zeman1@us.army.mil.

Sincerely,

Jennifer Zeman

Jennifer Zeman
Contract Specialist

slow process but very costly to operate and costly to build. As your Memorandum concludes the limitations of this process to address let alone mercury but also several other toxic melts present in the UMCDF TC,s.

ARCTECH has proven track record of conceiving to implementing technological solutions, which our public is seeking to ensure environment is protected and safe for the operators. The world leader organization, the ECBC has both experience and personnel and has agreed to team with ARCTECH for deployment of Actodemil and HUMASORB technology at UMCDF. An ECBC letter confirming this intent is attached here with.

I very much appreciate your and your staff in undertaking this very challenging task to guide your Environmental Quality Commission members on reaching a decision for Best Available Technology solution for implementation in your state in compliance with aspirations of its citizens.. We will be very pleased to provide any additional information about our technologies and experience in its applications for munitions demil operations.

Thank you very much.

Sincerely,
ARCTECH, Inc

Daman S. Walia, PhD
President and CEO

14100 Park Meadow Drive • Chantilly, Virginia 20151-2217 • (703) 222-0280 • Fax (703) 222-0299

Our Actodemil and HUMASORB technology is based on humic acid derived from abundant coal natural resources and chemicals such as caustic and hydrogen peroxide which are plentiful and available at low costs. The amount of energy input is minimal as small amount of heated water to 50-60 degrees C is used. Most of the water will be recycled. Only other use of energy will be for evaporating small amount of water.

6. Time required to test the technology and have it fully operational; impacts of time on overall risk of stockpile storage.

The selected BAT with incineration and PFS and our Actodemil and HUMASORB technologies both can be equally rapidly deployed and brought operational. However if the incineration with PFS does not perform as it is a technology which has to date been never practiced in large scale commercial operations, the time lost will severely impact the 2012 target date for completing the UMCDF activity.

7. Cost

The selected BAT with incineration and PFS is very high cost. U.S. Army estimate for capital cost alone is $47 million as stated in your reports. No O&M costs are given. Recognizing the very high cost energy today, just the cost for energy alone will be very high. We understand that on average the cost of operation of chem. demil facilities are $300,000 per day so even if it takes 100 days to incinerate the high mercury TC,s, it will result in $30 million, thus toal cost approaching $77 without cost of energy and replacement of very high cost SIC for PFC.

Our Actodemil and HUMASORB units are inherently much lower cost because of simpler process units primarily tanks, mixers and metering pumps. Already two CHAT units are available by U.S. Army/ECBC and our HUMASORB unit is in storage at TOCDF. Other units will be built at out side fabrication shops, skid mounted for rapid deployment at UMCDF. We have stated above the average costs of our units and expect much lower cost then $47 million for capital alone for the selected BAT. For treating 425-430 TC,s each containing average of 150 gallons or 64,500 gallons and at average cost of $150 per gallon on high side for O&M will cost about $15 million thus at 50% of selected BAT.

We also noted that you have listed two other technologies for this need at UMCDF. These are chemical neutralization and DAVINCH Process. We would like to offer our brief comments on their applicability for safe disposal of high mercury TC,s at UMCDF. The chemical neutralization as practiced at Edgewood only destroyed the mustard. The hydrolysate containing schedule II chemical thiodyglycol was shipped to DuPont waste treatment facility. Its application at UMCDF will require complete treatment and as well as disposal of mercury waste water by dilution, which will be problematic under NPDES and LDR as stated in your Memorandum. The DAVINCH Process by Kobe Steel is based on controlled detonation and applied for recovered unexplode4d shells. Its application for TC,s containing heterogeneous material will pose many challenges to detonate bulk chemical agents prone to leaks and release of mercury. Small quantities of agents transferred in suitable containers will be required to be detonated and thus not only very

14100 Park Meadow Drive • Chantilly, Virginia 20151-2217 • (703) 222-0280 • Fax (703) 222-0299

electricity although back up power may be available, accidental releases of highly lethal and toxic chemicals , which can seriously endanger the workers and as well as release in to the environment. To date chemical demil incinerations have been successfully operated without catastrophic blow up, but the mustard TC,s contain hydrogen as measured by the TOCDF analysis. Any carry over of hydrogen as part of entrapped in mustard or in feed will increase the risk of such catastrophy.

Our Actodemil and HUMASORB technology again being operated near ambient conditions and in batch can easily manage upsets which might occur due to mechanical failures, which might be simple pump break down. Any trapped hydrogen in gelled mustard will be released during the a-HAX wash out and hydrolysis. Provisions for spill containment are standard feature of our Actodemil and HuMASORB units.

3. Safety of the operations of the proposed facility compared to alternative technologies

The selected BAT with incineration and PFC pose very serious safety concerns of workers due to both local releases of toxins as described in #1 and potential of hydrogen explosions as described in #2.

Our Actodemil and HUMASORB best feature is not only safety of the environment from any releases but also safety to the workers.

4. The rapidity with which each of the technologies can destroy the stockpile.

Certainly the large existing furnaces for incineration have high through put but to meet very low mercury emission standards from the stack, the through put will have to be considerably slowed down. For example at TOCDF, the emission requirement for mercury is 130 microgram per cubic meter of dry gas with 7% oxygen. Both the wide varyiations of mercury in TC,s and consistent requirement of limit on its emissions will pose very serious operational problems , which will be only manageable with slowing the feed.

Our Actodemil and HUMASORB shall incorporate two CHATS , which will enable retrieval of 10TC,s per shift at 60% availability factors and thus the 425-430 of high mercury TC,s will require less than 50 days of operations. Even if all the 2635 TC,s are treated with our technology, it will require less than one year of operations thus with provisions for permitting, contracting, system installation at UMCDF, systemization, and O&M, it will be well within the target date of 2012.

5. Impacts that each of the technologies have on consumption of natural resources

The selected BAT with incineration and PFC requires very large amounts of natural gas , which is now more than ten times more costly then when UMCDF facility was started in late 1990,s. Natural gas because of its clean burning attributes and decreasing supplies has become a very precious natural resource. So its continuing use for burning wastes which are not combustible themselves except high amounts of gas is burned to co burn the waste is not only increasing the high costs but adversely impacting precious natural resource.

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removal of these toxic metals and to keep these being emitted in to the environment. Mustard is highly chlorinated chemical like PCB,s and because of concerns of highly toxic dioxins being the result of incineration of chlorinated chemicals, your state and federal laws specifically state careful requirements for containment of combustion of chlorinated chemicals such as PCB. The incineration of highly chlorinated mustard will result in high amounts of dioxins which will require much larger amounts and surface area of activated carbon then provisions in current PFS. This problem will be further compounded by replacing the activated carbon with high surface area with lower surface area of SIC, thus resulting in emissions of dioxins in to the environment. Other potential emissions of mercury and other toxic metals potentially will result from the formation of vapors of metal halides formed at high temperature of incineration due to presence of both metals and chlorine gas. These vaporous metal halides will breakthrough the PFS and thus resulting in to emissions in to the environment (For example today chlorine gas is used to remove metal impurities from graphite by forming metal halide vapors at high temperature for production of nuclear grade graphite).

Our Actodemil and HUMASORB technology being operated at near ambient conditions will not result in formation of dioxins and bind the toxic mercury and other toxic metals expected to be present in HUMASORB due to unique properties of humic acid. It is a batch process and thus it lends it self to homogenize and treat varying concentrations of mustard and mercury etc in the TC,s.

Both the selected BAT with incineration and our Actodemil and HUMASORB will result in producing wastes containing mercury exceeding LDR of 260 ppm. SIC with mercury and spent HUMASORB with mercury and as well as other toxic metals. This limit will trigger RMERC/IMERC The spent SIC with mercury will fail TCLP as the mercury is only bound to sulfur molecules, whereas the metals will chelate in to humic acid molecule in the HUMASORB and it will pass TCLP as it was proven at the JACCADS project. The spent SIC will also contain traces of chemical agent. Thus the mercury laden SIC can not be run through an on –site incinerator, since this would continually cycle mercury through incinerators with no removal as stated by you in your Memorandum 08-0707 dated June 27,2008.As you stated in the memorandum " the agent free criteria in the permit may have to be modified to allow the off-site shipment of this spent carbon or an alternative treatment method identified to manage this waste stream on-site." The compliance to RMERC/IMERC for small volume of spent HUMASORB compare to very large volumes of SIC from all the PFC,s units and being free of any chemical agent will be more cost effective and protective of environment , which is the primary objective for seeking this BAT.

2. Risks of discharge from catastrophic event or mechanical breakdown in operations of the proposed facility compared to the alternative technologies.

The selected BAT with incineration and PFC poses the highest risk of discharge of both chemical agents and toxic metals from both catastrophic event and mechanical breakdown. As this BAT is very fast continuous operations and there is no recourse if the incineration furnace blows up or and components of PAC and PFC mechanically malfunctions. What ever chemical agent and its products are in the system can not be retrieved and contained and will result in discharge. Even a simple disruption in

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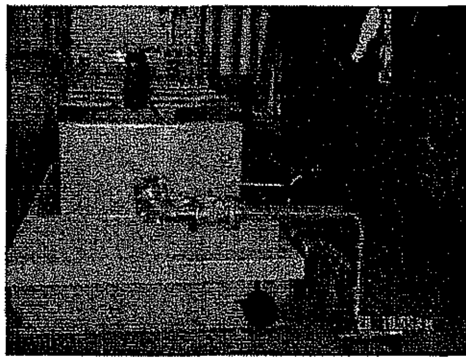
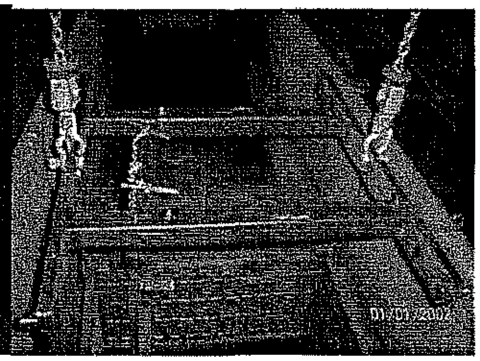
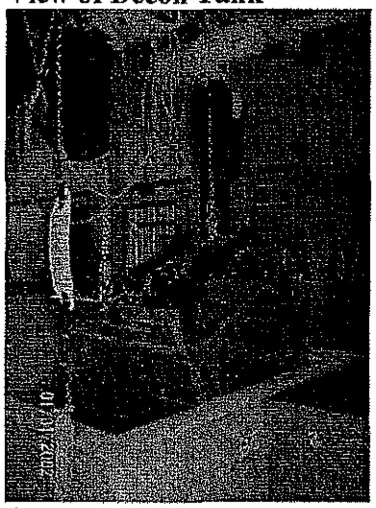


View of Decon Tank



Cages being Immersed in decon Tank



Cages being Immersed in Rinse Tank

COMMENTS ON BAT DETERMINATIONS OF INCINERATION WITH PFS AND BENEFITS OF ACTODEMIL AND HUMASORB TECHNOLOGY PER 7 CRITERIA SETFORTH ARE AS FOLLOWS:

Criteria 1: Types,quantities,and toxicity of discharges to the environment by operation of the prposed facility compared to the alternate technologies.

The use of SIC filters for mercury capture in combustion gases is yet unproven in any continuous commercial scale operations. It is being tested for its applications for removal of mercury from coal combustion gases by spraying SIC in the combustion gases and then capturing the SIC with mercury in bag house filter. Fresh SIC is sprayed on continuous basis to ensure active surfaces of SIC particles available to maximize the mercury capture. In the proposed approach at UMCDF, SIC will be installed as fixed bed in the PFS and thus will result in decreasing removal efficiencies of mercury over time and resulting in to unacceptable emissions of mercury in to the environment. Mercury content in TC,s is highly heterogeneous as shown from the analysis at TOCDF, and thus this heterogeneous feedstock will result in varying removal efficiencies in the PFS and thus resulting in to release of mercury in to environment when a slug of high mercury containing feed is incinerated. Since the TOCDF analysis showed that the TC,s also contain several other toxic metals as listed above, but is no provision has been made for

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The list of projectile sizes to be treated and destroyed with the decon/demil process equipment include 57mm, 85mm, 88mm, 100mm, 105mm, 115mm, 122mm, 130mm, 150mm, and 155mm. The decon-demil system is capable of treating multiple casings, of multiple sizes, at any given time. The design criterion is for treating up to 300, 100mm projectiles per day.

In the ARCTECH decon/demil facility, the first step in the process is to load the projectiles into metal cages. After the cages have been loaded they are immersed in a decontamination tank which is filled with the a-HAX decontamination fluid, which accomplishes the complete destruction of any TNT that might be present on the surface of the projectiles.

The decontamination tank is rectangular and made of stainless steel. A suction and discharge header, a heat exchanger and a pump are integrated to circulate the heated a-HAX through the tank. In the decontamination step the cages containing the empty projectiles are slowly lowered into the decontamination tank using a hoist and trolley system. The cages are lowered at an angle to ensure that the empty projectiles are completely submerged in the a-HAX reactant which has already been heated to an initial temperature of 195 degrees F, or 90 degrees Celsius, well below the boiling point of water.

After the cages have been immersed in the a-HAX reactant for approximately 1 and a half hours they are slowly removed from the tank. As they are being removed from the decontamination tank the cages are tilted at angle to ensure that all of the a-HAX has been completely drained from the projectiles.

The completely drained cages are then slowly moved to the next step which is rising of the projectiles. Rinsing is accomplished in a 2 tank system. Fresh water flows from one tank to the other to provide counter current rinsing. From the decontamination tank the cage is lowered slowly into the first rinse tank at an angle until it is completely submerged in the water. After a quick immersion the cage is removed slowly from the first rinse tank, and is then ready to be lowered into the second rinse tank. Again after a quick immersion the cage is removed from the second rinse tank and is then ready to be fed into the drying chamber.

The drying chamber is a totally enclosed tunnel equipped with a moving conveyor in which forced air is directed through a series of nozzles to dry the projectiles. After the cage is lowered into the chamber it moves slowly through the tunnel. After about 8 to 10 minutes it reaches the end where it is deposited onto a gravity conveyor.

The final step is the deformation of the projectiles and this is accomplished by using a bandsaw to cut the projectiles into two pieces. The dried projectiles are manually loaded onto the bandsaw and held in place with a quick clamp operating vise. A semi automatic mitering saw then cuts the projectiles into two. The cut pieces are collected and loaded onto mobile bins for transportation to a smelter for recycling.

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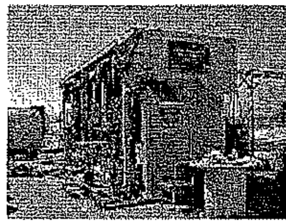
Successful Operations with Brines of Varying Characteristics at JI

Input Brine

	Concentration, mg/L		
Metal	Brine # 1	Brine # 2	Brine # 3
Aluminum	64	4.3	7.8
Antimony	0.79	3.5	24
Arsenic	0.25	0.22	2.7
Barium	ND < 2.0	2	ND
Beryllium	ND <0.02	0.02	ND
Boron	72	16	76
Cadmium	0.62	0.82	0.74
Chromium	360	9.3	20
Cobalt	0.61	0.1	ND
Copper	650	12	18
Lead	2.1	8.2	26
Manganese	12	0.6	0.54
Mercury	0.13	0.0049	ND
Nickel	32	1.6	0.92
Selenium	ND <0.2	0.2	ND
Silver	2	0.35	ND
Thallium	0.23	0.1	ND
Tin	0.6	0.36	0.59
Vanadium	0.51	0.1	ND
Zinc	78	46	69



	Input	Treated
Phosphorus	14-1,100 PPM	ND-36 PPM

Operating Conditions
Brine Flow Rate: 8-10 gpm
HUMASORB®: Same dosage for all brines
pH: 4-5 (for all the 36 isotainers)
Additives:Iron compound for some brines
No downtime for HUMASORB® system at JI

Treated Brine

	Concentration, mg/L		
Metal	Brine # 1	Brine # 2	Brine # 3
Aluminum	1.06	2.45	ND
Antimony	0.061	2.1	ND
Arsenic	ND	0.117	ND
Barium	ND	0.065	0.00433
Beryllium	ND	ND	ND
Boron	46.2	14.7	50.4
Cadmium	ND	0.504	0.0103
Chromium	1.84	1.65	0.0105
Cobalt	ND	0.015	ND
Copper	2.02	1.47	0.0105
Lead	ND	0.271	ND
Manganese	0.108	0.377	3.97
Mercury	ND	ND	ND
Nickel	0.0401	0.636	0.00766
Selenium	0.0637	ND	ND
Silver	ND	0.0223	0.143
Thallium	ND	ND	ND
Tin	ND	ND	ND
Vanadium	ND	ND	ND
Zinc	0.0693	29.4	0.0518

Actodemil® Technology for safe and Effective Decontamination and Deformation of Empty projectile Shells, El Haikstep Demil Facility, Cairo, Egyptian Armament Authority

The Egyptian Armament Authority (EAA) is currently conducting disposal of obsolete and outdated munitions at a state-of-the-art facility in El Haikstep, Cairo. Following dismantling and demilitarization of projectiles the empty shells have to be properly disposed in accordance with both the Egyptian and the U.S. Army requirements so that they cannot ever be used as an IED. ARCTECH is implementing an approach that combines its Actodemil® technology to first decontaminate the projectile shells to remove any residual TNT that might be present on the surface of the projectiles. The destruction of TNT is accomplished by hydrolyzing the compounds with the a-HAX chemical reactant. After decontamination has been accomplished to the required 5X levels the shells will be cut in two using a bandsaw machine so that they cannot be reused for the originally intended purpose. The two step process of decontamination to the 5X level and the cutting of the projectiles after decontamination will ensure that the projectiles have been effectively demilitarized. Following the effective demilitarization, the empty projectile shells can be recycled at a metals smelting facility.

The overall objectives of this project are to accomplish the following:

- Decontamination of the empty projectile shells using the a-HAX treatment to the decontamination factor of 5X.
- Deformation of the decontaminated projectile shells to ensure that they can never be reused as an improvised explosive device (IED).

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(L), Tabun (GA), and GA/UCON Obsolete Wastes, Stored at the Deseret Chemical Depot (DST), Tooele, Utah", in response to the U.S. Army Solicitation Number USA-SNOTE-071029-001. This requirement was prompted by the Army to safely dispose off variable small quantities of chemical agents which contained Arsenic, mercury and other toxic metals. Our proposal was determined to be acceptable for this requirement. A copy of the U.S. Army letter dated February 21, 2008 is attached.

Our Actodemil® and HUMASORB® technologies have been well proven in a number of applications for safe disposition of chemical and conventional munitions wastes. Following are some of the examples:

<u>Actodemil®/HUMASORB® Technology testing under U.S. Army Chemical demil Program</u>: Tests were conducted to determine the process efficacy for destruction of agents under a variety of conditions and decontamination of metal and other surfaces. Several series of tests were conducted which clearly indicated that:

Using the alkalized humic acid reactant solution complete destruction of all agents (greater than 99.9999%) can be achieved with the final agent concentration below the drinking water standard (20 ppb for nerve agents and 200 ppb for mustard agents).

- Agents are destroyed in the reaction and not merely adsorbed to the humic acid matrix.
- There are no Schedule I compounds present at the end of the reaction.
- Agent does not reform during the acidification step and, the reaction is, therefore irreversible.
- There are a few expected Schedule II compounds in the hydrolysate but treatment with hydrogen peroxide and/or Fenton's reagent significantly reduces the concentration of these compounds in the solid residue and liquid recycle stream.
- Test were conducted with various metal surfaces and PVC and PC plastic. In all cases the surfaces were completely decontaminated. In addition, the aluminum was completely solubilized in the reactant solution.

Based on the above test the following are relevant technology application projects for treatment of secondary wastes:

HUMASORB Technology Application of Secondary wastes at Chemical demil site at Johnston Island (JACADS): The effectiveness of HUMASORB® for chelation of more than 20 heavy metals and subsequent solid liquid separation with a commercial filter press was also proven by treating almost 200,000 gallons of caustic wastewater at JACADS. The removal of toxic heavy metals allowed speedy operation of the brine evaporators. Only six drums containing spent humic acid with bound toxic metals were disposed off in a non-hazardous landfill as it passed TCLP tests. A copy of the U.S. Army Site Manager at JACCADS , Mr. Gary W. Mccloskey is included herewith.

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- *Implementation of process* can be accomplished in a short period of time:
  - Standard industrial equipment will mean ease in procure, install and assembly.

- *Environmental Impacts will be minimal*
  - No process liquid effluent so no impact on local watersheds.
  - Toxic contaminant free solids acceptable for safe disposal offsite either as hazardous waste or as non-hazardous waste at a permitted disposal site.
  - Headspace gasses will be treated; air discharge will only contain CO2.

- *Process is safe* because it has inherently mild conditions
  - Local process controls; automatic emergency shutdown in the event of process offset
  - Process Modules are isolated to reduce chemical hazards or spread of contamination
  - Redundancy for safety-related alarms and interlocks
  - Secondary containment to contain and effectively mange any spill

- *Public Acceptability*
  - Public acceptance will be high due to no release of process liquid effluent into the local watersheds
  - ARCTECH's proven track record of creating safe and environmentally sound technologies will further enhance creditability with public for use of HUMASORB®

In 2003-04 we were approached by TOCDF about the use of our HUMASORB Technology approach for consideration for the mercury mustard campaign. This inerest came after our successful operation of our HUMASORB system at JACCADS to remove mercury along with 20 toxic metals from caustic wastewaters. Later URS (the parent company of EG&G) was given contract to do 10% design i.e. do alternative approaches analysis. We provided our HUMASORB approach ; Hot a-HAX water jet wash, chemical hydrolysis with high shear mixing to break heal along with our proprietary chemical, followed by chemical oxidation to completely destroy thiodiglycol, and adsorption of mercury and other toxins on HUMASORB. This to be followed by filtration of spent HUMASORB for disposal as non hazardous in landfill (HUMASORB binds metals etc and passes TCLP). The clean water can be recycled and/or treat in the existing brines treatment system at TOCDF. Our HUMASORB treatment unit after operation at JACCADS is sitting in storage at TOCDF. Other process units are off the shelf and could be acquired in 4-6 months, installed and operational in very short time. URS engineers evaluated several approaches, we were told 20 or so including SIC but recommended HUMASORB. URS was given follow on contract to do 30% design based on site specific requirements and with detailed process design from us for HUMASORB. URS completed this 30% design and presented to Army and EG&G. We were asked to provide our proposal for supporting the 60% design by URS. At that time URS was asked to take 180 and look at incineration in LIC.

On January 18, 2008 ARCTECH submitted our proposal entitled, "Actodemil/HUMASORB Technology or Safe destruction of Chemical Agents, Lewisite

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The Actodemil®/HUMASORB® total technology system, because of mild treatment conditions uses standard industry equipment, with high degree of maintainability with minimal breakdowns and minimal potential of catastrophic failure. Thus the process is easily maintained with routine preventative measures using readily available spare parts onsite. The process equipment is expected to last more than the two-year lifespan of this project.

The total technology Actodemil®/HUMASORB® approach proposed by ARCTECH offers the following advantages:

- Total solution for the safe and affective treatment of mercury and other toxic metals contaminated mustard chemical agents and as well as proven for other agents such as L, GA, VX, GB, heavy metals, and other Schedule II organics.
- Implementation at atmospheric pressure and low temperature thereby providing a high level of environment protection and safety
- Production of a significantly small amount of wastes for final offsite disposal.
- Speedy implementation with factory-built mobile modules
- Elimination of any liquid effluent thus speeding up the permitting process
- Cost effective solution.

The following summarizes the technology parameters of the total Actodemil®/HUMASORB® approach:

- ***Process Maturity***: All four three treatment steps in the HUMASORB® process are mature, have been tested and proven effective:
  - In tests conducted under ACWA oxidation was shown to completely destroy Schedule II compounds
  - HUMASORB® chelation of phosphorus and solid/liquid separation conducted on SDS at JACADS
  - U.S. Army/CMA evaluation in October 2003 for VHX treatment concluded that oxidation and HUMASORB® chelation based on mature technologies.
  - Evaporation/condenser and ancillary technologies are industry standard mature technologies

- ***Process reliability and Maintainability*** and Ease of Operations
  - Batch treatment of "treat-hold-test-proceed" ensures complete reliability of treatment before release
  - Equipment are industry standard with established reliability. Process monitoring and control ensures further reliability
  - Equipment are industry standard requiring routine maintenance
  - Equipment and systems will far exceed expected life cycle of project of 2 to 3 years.
  - Utilities of power and natural gas are standard and commercially available.
  - Interruption of utilities will not adversely impact the batch treatment process.
  - Easy and simple batch operations for HAZWOPER and OSHA trained Personnel

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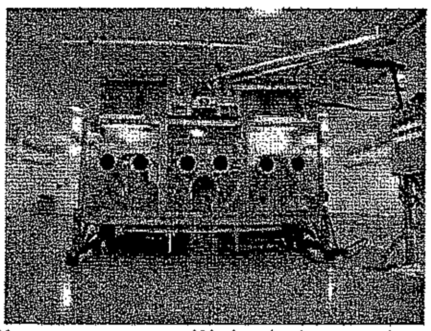
Ancillary Systems: The ancillary systems will include a system for accessing the bulk HD liquids from the filled TCs, and for pumping the alkalized humic acid reagent to the empty TCs for decontamination. This will be accomplished using the two CHATS systems that has been used by ECBC (U.S.Army Edgewood Chemical Biological Center) in many previous applications including for mustard from ton containers with heels. ECBC has currently two CHAT systems available and these units can treat 10 containers per shift even at only availability factor of 60% or so. In this system the TC will be loaded by fork lift into the first chamber of the CHATS. Here the TC will be rotated to locate a plug hole at the top position. Next, the TC will be rolled into the accessing chamber. Once the face of the TC is in the second chamber both sides will be sealed off. At this station a valve will be installed into the top plug hole and the TC rotated so that the valve is now at the bottom. The material will then be pumped out using a double diaphragm pump to a holding tank. The water based dilute a-HAX solution will be pumped in to the TC to remove any gelled mustard. The ECBC has operated the CHAT systems for the U.S.Army chemical demil projects to treat TC,s containing mercury blistering agents and nerve GB and VX agents. A pictorial of the CHATS system is shown below:



In addition, the ancillary systems will include an air treatment unit and systems for monitoring and process control. The air treatment system will include treatment of gases swept from the CHATS system, from the reactors and from the oxidation process into wet scrubbers followed by polishing through carbon filters. This will eliminate the escape of any odor-causing gases formed during oxidation. The monitoring and control systems include instrumentation for pH, level, and temperature measurement at various locations in the treatment process. An onsite laboratory at UMCDF will be utilized for analysis and measurement of total organic carbon to ensure complete destruction of organics from the oxidation step. Other auxiliary equipment include an air compressor fitted with air dryer, a fork lift, safety, maintenance, and repair supplies.

The proposed approach produces no liquid waste. All the water is either recycled back into the process or evaporated. The only waste requiring disposal will be the chelated solid filter cake from the filter press, salt resulting from the evaporator, and decontaminated/treated solid wastes such as TCs, and spent carbon, buckets, barrels.

The sequential batch treatment strategy of treat – hold – test – proceed is designed to ensure that treatment of HD is reliably completed and mercury is contained for safe disposal. ARCTECH's design also incorporates redundancy in process equipment for robust, reliable and uninterrupted operations.

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Step 1: Retrieval and Destruction of Mustard agents that is present in the TCs. The mustard as well as any gelled or mustard heel will be retrieved from the TCs with hot a-HAX solution (temperature of 50 to 60°C) using the already proven U.S. Army CHATS system described below under the ancillary systems. This will be followed by destruction using the established Actodemil® technology stirred tank reactors in which the alkalized humic acid reagent is used to hydrolyze and completely and irreversibly destroy the agents. The TCs cleaned to 3X can be safely disposed off by treatment to 5X levels using the already established UMCDF procedures.

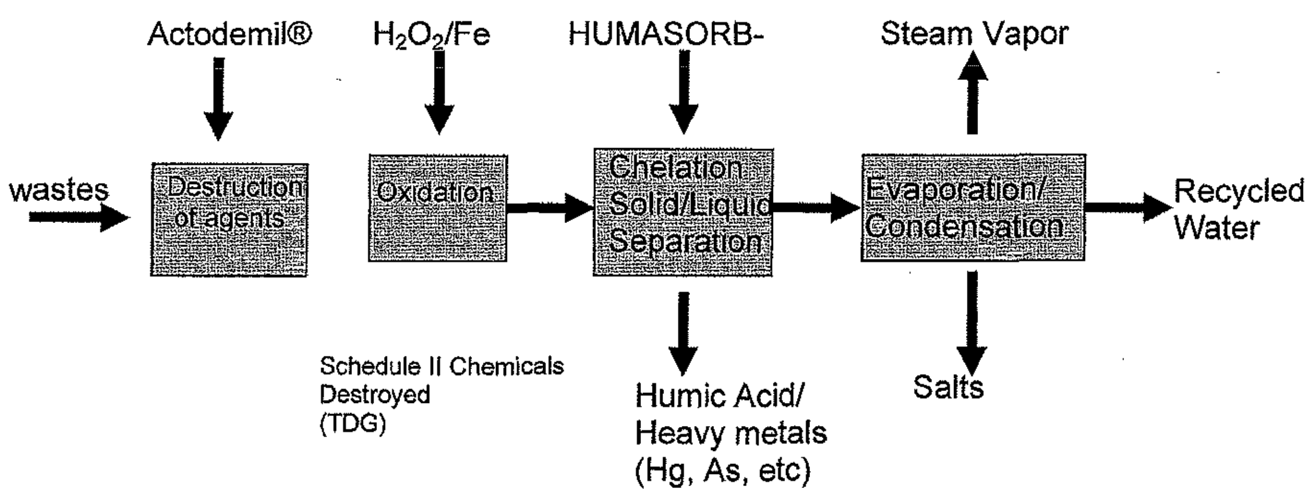
Step 2: Sequential Oxidation: A 2-step Oxidation for safe destruction of Schedule II and trace organics will be implemented:

- First step with hydrogen peroxide at high pH to treat thiodyglycol and prevent possibility of reformation of mustard chemical agent.
- Second step with Fenton's reagent oxidation at pH less than 5 for complete mineralization

Step 3: Chelation and removal with HUMASORB of residual dissolved and suspended components such as arsenic, mercury, and other heavy metals that will be present in the wastes.

Step 4: Evaporation and condensation of treated water for partial recycling into the process and final disposal.

The four steps in the Actodemil®/HUMASORB® total approach are schematically shown below:



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reduction. Cost of this operation was about $2 million. The HUMASORB unit is in storage at TOCDF and is available for application at other chemical demil sites.

The unique chemistry basis of our technology is the use of alkalized organic humic aid (our proprietary water based a-HAX and HUMASORB products)for chemical neutralization or destruction by hydrolysis of chemical agents and explosives followed by chemical oxidation for complete destruction of schedule II chemicals. We use our HUMASORB adsorber for binding the toxic metals for final safe disposition of toxic metals as the metal bound HUMASORB meets TCLP criteria. Humic acid products currently are used as soil amendment and fertilizer for food production. The USDA 2004, national Organic Food Program allows the use of humic acid for organic food production. The U.S. EPA has allowed the use of our humic acid products for rendering pesticides safe and exempted our humic acid from any residence tolerance requirement as it was judged as safe.

Chemical hydrolysis for complete destruction of chemical agents and explosive chemicals is a well prove chemistry and the U.S. Army used it at Edgewood for safe destruction of mustard chemical agent stored in ton containers. Army is currently utilizing it successfully for safe destruction of VX chemical agents at Newport, Indinia. But at both of these demil sites, the schedule II chemicals were not destroyed chemically on site and thus were shipped off site.

The use of a-HAX in our technology is based on proven safe chemical hydrolysis, however has distinct benefits. Chemical hydrolysis with caustic solution results in the production of large volumes of toxic waste liquids, which must be further treated for safe disposal. Our a-HAX not only chemically hydrolyses but also adsorbs the toxic metals. Further the organic humic acid in HUMASORB is easily separated from the spent solution by aggregation and precipitation. A small volume of the separated humic acid and filter cake (1-5%) can be land filled and the large volume of clean liquids (95-99%) can be recirculated and evaporated thus eliminating production of any liquid wastes.

Our these innovative technological solutions are part of our efforts for creating environmentally sound approach of using our vast resources of coal for lower cost energy, cleaner waters, safer foods and safe destruction and recycling of wastes. This holisitic technological approach is being developed for creating solution for global warming in practical and cost effective manner. Many commercial applications of our products and technology have been already successfully implemented in the U.S.A. and in overseas markets. Please note our www.arctech.com for additional information.

ARCTECH'S PROPOSED TOTAL TECHNOLOGY SOLUTION FOR SAFE DISPOSTION OF MUSTARD TON CONTAINERS – OVERVIEW AND DESCRIPTION

ARCTECH's proposed Actodemil®/HUMASORB® total treatment system consists of four steps and is based on a strategy of treat – hold – test – proceed.

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average of 22ppm and this calculates to be average of 747 ppm in the container contents. You have also reported that the TOCDF sampling shows that these containers have other toxic metals regulated as Federal Waste Codes. These toxic metals are arsenic, cadmium, chromium, lead and selenium along with mercury. The challenge is to apply BAT which will enable safe disposition of ton containers now estimated to be 425-430 by modeling and not actual analysis of all 2635 at UMCDF. So it might become necessary to treat all 2635 in same manner if analysis of all of them turns out to be over one ppm mercury and all of this must be done to comply with estmate completion date of 2017. We would first describe our Actodemil and HUMASORB technology and then make our comments on your above stated determinations for incineration with modified PFS and our technology approach per your seven criteria set forth for theBAT determinations.

We have a long history of creating environmentally benign and cost effective technologies for safe disposition of military unique materials. In 1980,s, we had developed composting technology for clean up explosive contaminated soils and sludges at military depots. This technology has been successfully deployed at many depots including Umatilla. In early 1990,s we developed chemical neutralization Actodemil technology for safe destruction and recycling of explosives from obsolete munitions in to highly effective fertilizer. This technology approach was included in the U.S.EPA as acceptable recycling technology per 1997 Munitions Rule. To date we have successfully implemented this technology in the USA and abroad and have met the Universal Treatment Criteria set forth for land application of the fertilizer produced with Actodemil. We have also now deployed a system based on this technology for decontamination of shells instead of using polluting thermal approach of 3X to 5X cleanup levels prior to release for recycling the shells. These Actodemil units cost less than $5 million each. In mid 1990,s we were selected by the U.S.Army as one of the seven technology for evaluation as non-thermal treatment total system under the ACWA program. In this program we proved destruction of all the nerve (GB,VX) and blistering mustards (HD,H,HT) to six nines and as well as schedule II chemicals or precursors, which can be remade in to chemical agents. In case of mustards, it is thiodyglycol (TDG) and must be completely destroyed. An expert panel from the National Research Council in 2001 report entitled " Disposal of Neutralent Wastes" ranked our technology as #1 among 9 technologies. as per criteria set forth by the U.S. Army in terms of robustness, cost, practical operability,continuity,space efficiency,and materials efficiency.This report concluded "The use of hydrogen peroxide or Fenton,s reagent was key feature of the technology developed by ARCTECH and tested on hydrolysates for the ACWA program.The procedures were shown to be effective at the bench scale for hydrolysates of VX, GB, and mustard". However due to our inability to submit data on final treated effluents containing schedule II chemicals by the U.S. Army due date, it did not get selected for further evaluation. This was caused by the U.S. Army delay in supplying the standard chemicals, which are only available from the U.S. Army, needed for completing the analysis. The data did prove that the schedule II chemicals of both mustard and nerve agents were completely destroyed. In late 1990,s and early 2000 , we built and operated HUMASORB treatment unit at Johnston Island (JACAADS) for removing 20 different toxic metals including mercury from about 200,000 gallons of waste waters produced during the incineration of chemical agents. Only six drums of spent HUMASORB with bound toxic metals passed TCLP and were land filled. This accomplished a 1:1000 waste

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Preserving Tomorrow's World...Today

Mr. Richard Duval
Administrator
DEQ Chemical demilitarization program
The State of Oregon
256 E. Hurlburt Avenue
Hermiston, OR 97838

August 11,2008

Via e-mail: cdp@deq.state.or.us

Subject: Public Comments on UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers Hazardous Waste Permit Number ORQ 000 009 431
Due Date : August 11,2008

Dear Mr. Duval:

We very much appreciate the opportunity afforded to us for submitting our public comments on above referenced your determinations and information on our available and proven Actodemil® and HUMASORB® technologies which can be rapidly and safely deployed at modest costs. Our technology will destroy mustard and contain the mercury without its emissions in to the local environment for safe and rapid disposition of high amounts of mercury and other toxic metals in mustard-filled ton containers (TC,S), which are currently stored at Umatilla Chemical Demil facility. We understand you have determined that the Best Available Technology (BAT) according to your seven criteria is use of current furnaces for incineration and followed by use of current Pollution Abatement System (PAS) which comprises of wet scrubber and then followed by treatment of gases in Pollution Filter(carbon) System (PFS). Only change required will be to replace activated carbon in use today to sulfur impregnated carbon (SIC) as fixed bed filter. The SIC is expected to bind mercury vapors on its particle surfaces (mercury is chacophilic element which means it has affinity for sulfur) which will be produced during burning of high mercury containing mustard. Both current PAS and PFS are common to all the incineration furnaces exhausts.

We also noted that the U.S. Army is estimating a capital cost of $ 47 million for this change at UMCDF. No incremental costs for O&M are reported. Your reports also state that currently there are 2635 ton containers at UMCDF, which were sent from TOCDF (Utah) in 1968-69. Thus based on sampling and analysis of mercury containing ton containers at TOCDF , it has been modeled that at UMCDF will have 425-430 ton containers with high level of mercury i.e over one ppm. The TOCDF sampling and analysis has shown that the ton containers contain an average of 2440 ppm in the heels (gelled up mustard) amounting to be about 30%. The liquid portions contain on an

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08-0875

HODNEY Kelly

From: Daman WALIA [dwalia@arctech.com]

Sent: Monday, August 11, 2008 4:20 PM

To: CDP

Subject: Letter to DEQ Oregon on Hg Mustard,Aug 11 2008 a.pdf

Hi Mr. Duval:

Pl note our attached public comments for your UMCDF Best Available Technology Technology Determination: Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers

Thank you very much

With regards

Daman

A. Detail site condition should be considered for a precise cost estimation, but We believe that Davinch is competitive (less costly) than either of the other incineration and neutralization processes mentioned with estimates cited in the DEQ letters, and can achieve its schedule onjectives faster than either as well.

The Court has noted "Petitioners were also able to adduce evidence that neutralization technologies have by now demonstrated their practical utility to the extent that the Army has used or plans to use neutralization technologies to destroy agent at Aberdeen, Blue Grass and Pueblo chemical weapons sites, and that the Army estimates a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration." G.A.S.P., et al v. EQC, et al., Case No. 0009 09349 (Opinion & Order July 26, 2004) at 27.

Question- Based on actual operation of your technology in Belgium can you estimate the amount of haz waste that will be produced and identify what it consists of?

A. Haz waste is limited to Arsenic and Mercury which come from the content of ton container.We have the data from the actual operation that 99% of the arsenic remains in the chamber after detonation because the detonation product gas tempetarure comes down quickly to 40 to 50 degree C. The Mercury will be expected to act same behavior as Arsenic due to the property of Electric Potential diagram, so it remains 99% in the chamber as Arsenic

Do you have a permitting and operation estimated timeline for UMCDF?

A. Yes, we expect that we will finish the operation before march 2012. We have recommended the higher-throughput Davinch (DV200) to accelerate the operation rate in case there is some delay on the contract. DEQ has stated that they anticipate no permitting issues with a controlled detonation system of this type. We expect that EPA would confirm that this is a RCRA subpart "X" device, rather than subpart "O". We expect no major issues with DDESB as the emulsion explosives used are extremely safe and very common in the mining and construction industries. The ACWA project of the US Army is considering such a system (EDT) for use at their sites in Kentucky and Colorado, and the National Academy of Sciences has addressed these issues, including permits, in their Dec. 2006 evaluation for the Army Nonstockpile Project, and will again do so for the ongoing NAS/NRC study being conducted for ACWA at this very moment.

Other than RCRA, what other types of permits do you anticipate?

A. To be accurate, our U.S. partners, VERSAR/GEOMET, who have a lot of experience with permitting in various states in the course of their work for various US Govt customers, such as EPA, US Army Corps of Engineers, USAFCEE, and many states will prepare for you a summary of the Federal, State, and any other permits that will be required (DDESB). They will use their experience to provide estimates of timelines, if you so wish.

We are in dialogue with the DDESB (DOD explosive Safety Board) and TCES (Technical Center for Explosive Safety) to make sure all requirements are or will be met.

With regard to the design of DAVINCH detonation chamber, ASME new code case 2564 on impulsively loaded vessels was published and DAVINCH was recognized to meet the requirements of the new rule at the ASME PVP 2008 conference in Chicago, 28-31 July 2008.

Are there any certification documents available stating that the technology has met all requirements for chemical weapons disposal to meet the treaty requirements? If so, may I please have a copy?

A. Concerning the treaty requirements, we have already destroyed more than 2000 chemical weapons under inspection of and with approval by OPCW in Japan.

RAY Shilo

From: Karyn Jones [karynj@charter.net]

Sent: Monday, August 11, 2008 5:13 PM

To: DUVAL Rich; RAY Shilo

Subject: BAT Comment Attachment

Rich, This attachment was inadvertantly left off of our comments. I just realized it as I reviewed them. I am submitting them a few minutes late hoping that they will be accepted. Thank you. Karyn Jones

Has plasma arc successfully destroyed mercury contaminated hd?

A. The Davinch system itself is a Controlled Detonation system and is NOT a plasma arc system (as were one or more systems discussed in the early days of the ACWA project. For example, Startech, Burns & Roe, etc.). The plasma part of the Davinch is the "cold plasma" used to process the off-gas products of detonation, and just incidentally would destroy agent if there were any small residual amount (which has not been the case). Davinch detonation system is non-incineration process to destroy the chemical agent such as HD by the controlled detonation in the chamber with the energy of10GPa and3,000 degree K temperature and can achieve the high destruction efficiency more than 99.9999%. The main purpose of the plasma arc (cold plasma) is as an oxidizer is to destroy the CO and H2 which are the product gas of detonation chamber. But it may be considered to be the back up to destroy the chemical agent because it has an additional destruction efficiency more than 99.99%.

Have all of the environmental permit requirements been met in Belgium?

A. Yes . EU regulations, Belgian regulations as well as the local Flemish regulations, which is the strictest in Belgium, are met.

What happens to the secondary waste that is produced? Does it need further treatment?

Secondary wastes, liquid and solid, are confirmed that they are chemical agent-free, Especially, fragments can be confirmed by the AEL rule after cleansing shots.

Therefore, we believe that no secondary treatment is necessary and that these secondary wastes can be shipped directly to an off-site waste-management commercial firm, which is authorized to treat wastes containing arsenic and mercury. If you wish, we will identify such firms for you, but will discuss with DEQ to see if they have preferences.

Is water used? If yes, at what rate?

A. Yes Our rough estimation on Umatilla plant the water will be used 0.33m3 per one ton container (only summer season) . Though the liquid contents and the emptied TC with heel inside are to be destroyed separately, the water consumption mentioned here is calculated as the quantity per TC for easier understanding.

The water is used to cool down the equipment like vacuum pumps in a closed circuit, therefore the discharged water (used cooling water) can not be contaminated.

It is a fact each mustard ton container will have a different heel to liquid ratio and contain different chemical/heavy metals compositions. Will this effect operation?

A. NO it does not affect the destruction results. It only has to do with the detonation condition like donor charge amount or oxygen amount, for example, the donor charge amount will be adjusted if a very big amount of heel is found inside an emptied TC, when the TC is inspected (for example by X-ray) before destruction.

Do you have a cost estimate for UMCDF?

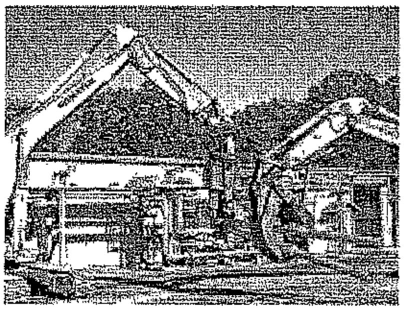
The Resource Conservation and Recovery Act (RCRA) permit issued by the state will take an additional few months to achieve before full closure. RCRA governs the construction, operation and closure of hazardous waste storage, treatment and disposal facilities. Since ABCDF is located on APG, its property and structures will remain under Army control after closure. Some of the equipment at ABCDF may be used at another CMA or government facility. The site will be re-used by APG.

Remaining disposal facilities are located in Anniston, Ala., Pine Bluff, Ark., Pueblo, Colo., Newport, Ind., Richmond, Ky, Umatilla, Ore., and Tooele, Utah. ABDCF is the second chemical demilitarization facility to close. Johnston Atoll Chemical Agent Disposal System completed closure operations in November 2000.

Army Neutralizes 1,623 Tons of Mustard Agent, Meets Requirements for Aberdeen Chemical Agent Disposal Facility Closure

Mar 13, 2007

BY Heather McDowell



Giant shears and a grapple begin tearing down the process neutralization building where containers of mustard agent were drained and neutralized at the Aberdeen Chemical Agent Disposal Facility in Maryland. Photo by Conrad Johnson

ABERDEEN PROVING GROUND, Md. (Army News Service, March 13, 2007) - The Army announced yesterday the completion of all requirements to close the Aberdeen Chemical Agent Disposal Facility. The command neutralized 1,623 tons of mustard agent, decontaminated and disposed of the steel containers used to hold the agent, and demolished buildings used during the disposal process.

"Today marks a significant achievement in the global chemical weapons disarmament effort. ABCDF is the first chemical weapons disposal facility in the continental U.S. to destroy its stockpile and decontaminate and demolish its plant," said Dale Ormond, Army Chemical Materials Agency acting director. "It is a model for all the other facilities that will follow suit."

The site has fewer buildings since the ton container cleanout facility and process neutralization building, the two structures dedicated to agent destruction activities, were demolished. Auxiliary buildings, such as the medical infirmary and administrative trailers have also been removed. In addition, all waste generated from closure has been decontaminated and disposed.

"Safety has always been the cornerstone of our project. We built, operated and now closed this facility with safety as the first priority. The fact that our safety record during closure is on par with banking institutions is testament to this," said Brian O\'Donnell, ABCDF site project manager.

3-3-3

NEUTRALIZATION

The commitment to safety led to a change in the facility's startup date, which had been scheduled for March 3. Record-setting snowstorms and equipment adjustments delayed some essential tests and the conduct of the integrated operations demonstration in which the proficiency of all four shifts in running the facility is evaluated, using water rather than mustard agent. The successful completion of this evaluation has certified that both personnel and equipment are ready to start mustard agent operations.

Public meetings were held, most recently in January, to explain the accelerated neutralization process, and information is always available to the public. For details on the process, call the Edgewood Chemical Stockpile Outreach Office, 410-676-6800, or go to the Chemical Materials Agency (Provisional) website, www.cma.army.mil, for information and fact sheets.

NEUTRALIZATION

The project includes a diverse team of government personnel, including the Army Corps of Engineers, and contractors. Bechtel Aberdeen, the contractor responsible for the project, heads a team of more than 400 people to destroy the aging mustard stockpile. Mustard, a syrupy blister compound with the consistency of molasses, has been safely stored and monitored for more than 60 years at the Chemical Agent Storage Yard, under the supervision of the Edgewood Chemical Activity, located in the Edgewood Area of APG.

"We have an impressive team of individuals supporting this mustard agent neutralization process," said Lt. Col. Gerald Gladney, Edgewood Chemical Activity commander. "Every team member has received extensive training and is ready to execute this critical mission in an extremely safe and highly competent manner. It is abundantly clear to everyone involved in this process that each individual has a personal responsibility for considering safety first and safeguarding the workers, our community and the environment always."

Members of the U.S. Army Technical Escort Unit, an Army organization with 60 years of experience in the movement of hazardous chemicals, will move the large steel containers of mustard to the neutralization facility.

The Army worked closely with representatives from the U.S. Environmental Protection Agency and the Maryland Department of the Environment, who approved the plans and procedures for the neutralization facility. Employees will work around the clock for the next six months to destroy the agent. Following a gradual ramp-up of the process, the facility is expected to drain and neutralize an average of 12 containers per day.

Bechtel Aberdeen project manager Lee Smith noted that the plant essentially has been open and operating on a 24-hour-a-day, 7-day-a-week test, training and evaluation schedule since early December, with workers compiling thousands of hours of hands-on experience in the months leading up to neutralization start-up.

"We take worker safety very seriously," he added. "Everyone who works here is not only proficient at their job, but also in maintaining the highest standards of personal and plant safety. Our goal is to perform our mission while protecting our workforce, our community and the fragile environment of the Chesapeake Bay watershed."

-MORE-

ABCDF
Aberdeen Chemical Agent Disposal Facility

Press release

FOR IMMEDIATE RELEASE
For more information, call Jeff Lindblad, 410-436-4555, or Barry Napp, 410-436-6137, Chemical Materials Agency (Provisional) Public Outreach and Information Office

April 22, 2003

APG TO BEGIN NEUTRALIZING CHEMICAL AGENT STOCKPILE

ABERDEEN PROVING GROUND, Md. – The process of destroying the bulk mustard agent stockpile at Aberdeen Proving Ground, Md., will begin April 23, 2003, under the accelerated program implemented by the Army following the Sept. 11, 2001, terrorist attacks.

"We are safely accelerating the destruction of the mustard agent stockpile by more than two years," said Kevin J. Flamm, the Army's Project Manager for Alternative Technologies and Approaches. "I'm proud of this team and what it is doing for our community and our country."

Destruction had been scheduled for completion by the year 2006, but security concerns after the terrorist attacks led to "Speedy Neut," a project that reordered the sequence and design of the original neutralization process. Now the Aberdeen Chemical Agent Disposal Facility (ABCDF) will remove the greater risk by destroying the mustard agent first. Later, after all of the agent has been destroyed, the empty steel containers will be decontaminated and cut in two for recycling off-site.

"This plan was made possible because of the dedicated team already in place working on the original destruction facility," said Joseph Lovrich, ABCDF site manager. "The team reworked the existing plans to find a solution that would dispose of the agent sooner, without compromising safety or security."

"We put a great deal of time into training and preparation, and have been working in concert with federal and state regulators and the community," he added, "so that a project of this magnitude would meet all state, federal and military requirements."

-MORE-

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Table Attachment D-1-2. Building and Room Ventilation Categories

Building	Room	Ventilation Category
MDB	Munitions Demilitarization Room	A
MDB	Toxic Room	A
MDB	Agent Neutralization Room	A
MDB	Explosive Containment Room	A
MDB	Toxic Maintenance Area	A
MDB	Agent Neutralization Room	A
MDB	Explosive Containment Vestibule	A/B
MDB	Metal Parts Treater Room	B
MDB	Waste Shredding Room	B
MDB	Loading Area	C
MDB	Unpack Area	C
MDB	Projectile Reconfiguration Room	C
MDB	Hydrolysate Tank Room	C
MDB	Energetics Neutralization Room	C
MDB	Continuous Steam Treater Room	C
MDB	Offgas Treatment Room	C
MDB	Condensate Tank Room	C
MDB	Hydraulic Equipment Room	C
MDB	Observation Corridor	C
MDB	Residue Handling Area	D
MDB	Electrical Rooms	D
MDB	Battery Rooms	D
MDB	Mechanical Equipment Room	D
MDB	Control Room	E
PAB	All Rooms	D

Notes:

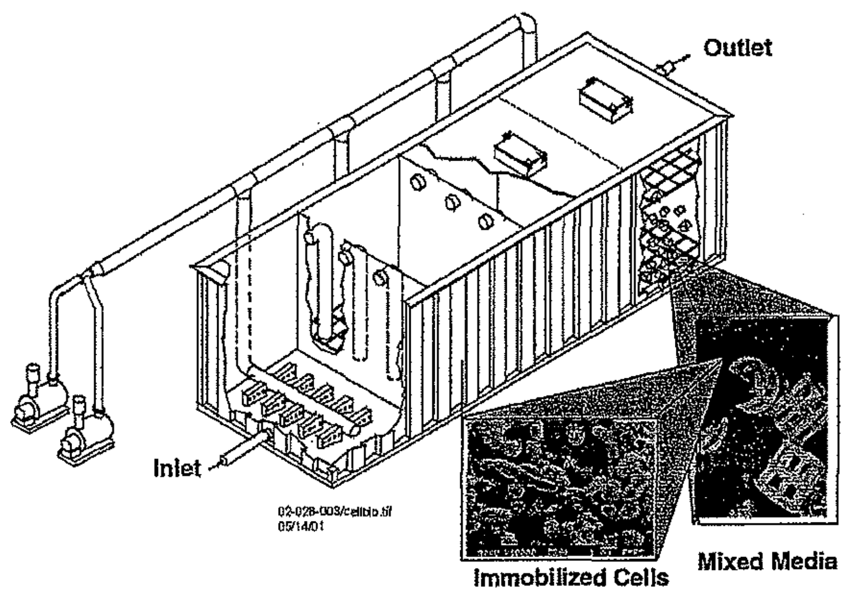
MDB = Munitions Demilitarization Building
PAB = Process Auxiliary Building

Table Attachment D-1-1. Ventilation Categories

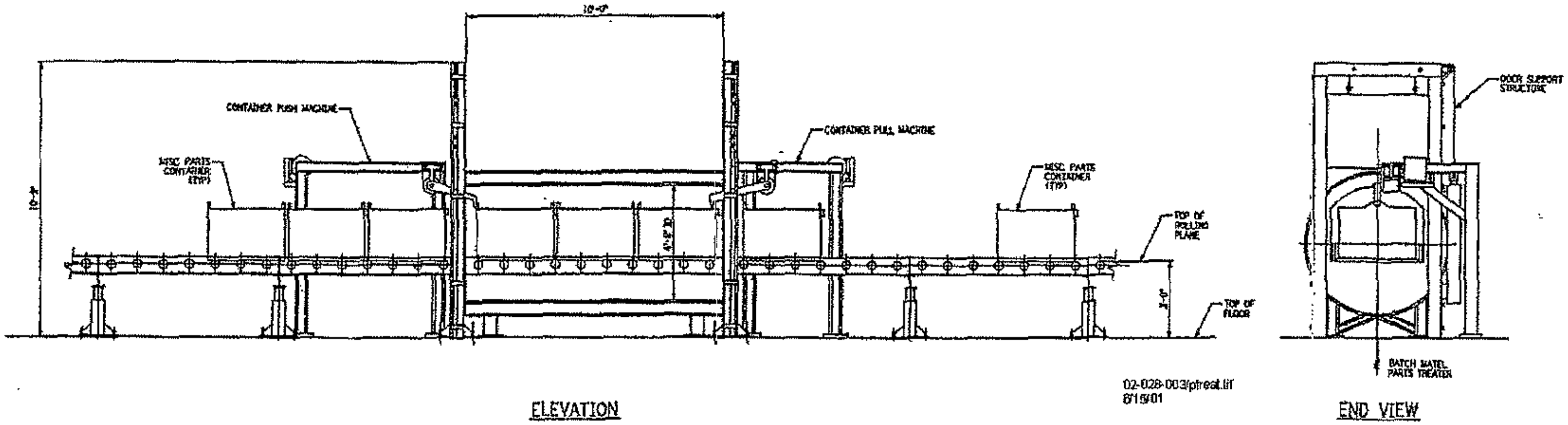
Description	Tag Number	Location		Ventilation Category
		Building	Room	
Unpack Area	--	MDB	UPA	C
Propellant and Primer Removal	--	MDB	PRR	C
WHEAT Projectile/Mortar Disassembly Machine	010-WPMD-101/102	MDB	ECR-1/2	A/B
Energetics Rotary Deactivator	010-ERD-101/102	MDB	ECR-1/2	A/B
Burster Washout Machine	010-WASH-101/102	MDB	ECR-1/2	A/B
Energetics Shredder	010-CRSH-101/102	MDB	ECR-1/2	A/B
Energetics Neutralization Reactors	050-RCTR-101 to 103	MDB	ENR	C
WHEAT Multipurpose Demilitarization Machine	020-WMDM-101/102	MDB	MDMR	A
Rotary Washout Machine	020-RW-101/102	MDB	MDMR	A
Agent Hydrolysers	040-RCTR-101 to 106	MDB	ANR	A
Rotary Metal Parts Treater	070-MPT-101	MDB	MPTR	B
Batch Metal Parts Treater	076-MPT-101	MDB	MPTR	B
MPT Quench Tower	070-TOWR-101	MDB	OTR	C
Plastic Material Shredder	120-SHRD-101	MDB	WSR	B
Wood Material Shredder	120-SHRD-102	MDB	WSR	B
Continuous Steam Treater	075-CST-121	MDB	CST	C
CST Quench Tower	075-TOWR-121	MDB	CST	C
MPT CATOX Treater	080-CATX-101	MDB	OTR	C
CST Offgas CATOX Treater	085-CATX-101	MDB	CST	C
ICB Offgas CATOX Treater	087-CATX-101/102/103/104	BTA	A, B, C, D	
Brine Reduction Package	100-PKG-101	PAB	All	D

Notes:

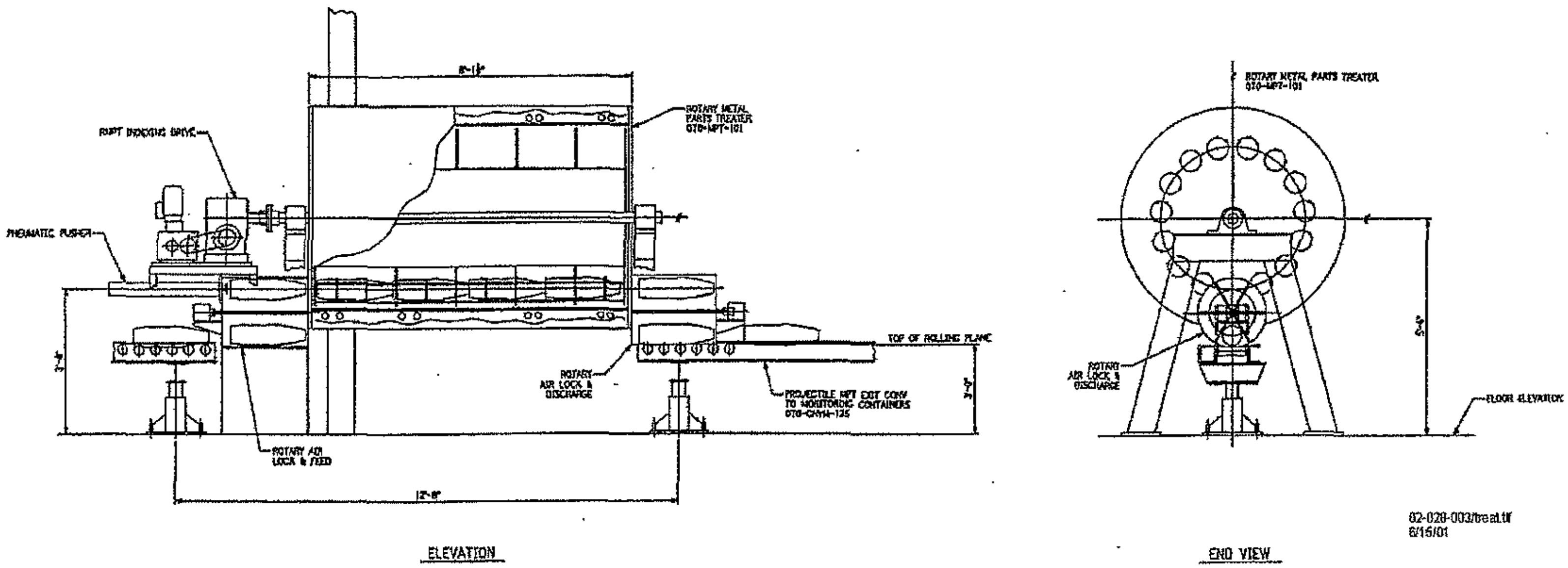
ANR	=	Agent Neutralization Room	MPTR	=	Metal Parts Treater Room
BTA	=	BioTreatment Area	OTR	=	Offgas Treatment Room
CATOX	=	catalytic oxidation	PAB	=	Process Auxiliary Building
CST	=	Continuous Steam Treater	PRR	=	Projectile Reconfiguration Room
ECR	=	Explosive Containment Room	UPA	=	Unpack Area
ENR	=	Energetics Neutralization Room	WHEAT	=	Water Hydrolysis of Energetics and Agent Technologies
MDB	=	Munitions Demilitarization Building			
MDMR	=	Munitions Demilitarization Machine Room	WSR	=	Waste Shredding Room
MPT	=	Metal Parts Treater			



1 Figure Attachment D-1-8. Immobilized Cell Bioreactor ICB™



1 Figure Attachment D-1-7. Batch Metal Parts Treater



1 Figure Attachment D-1-6. Rotary Metal Parts Treater

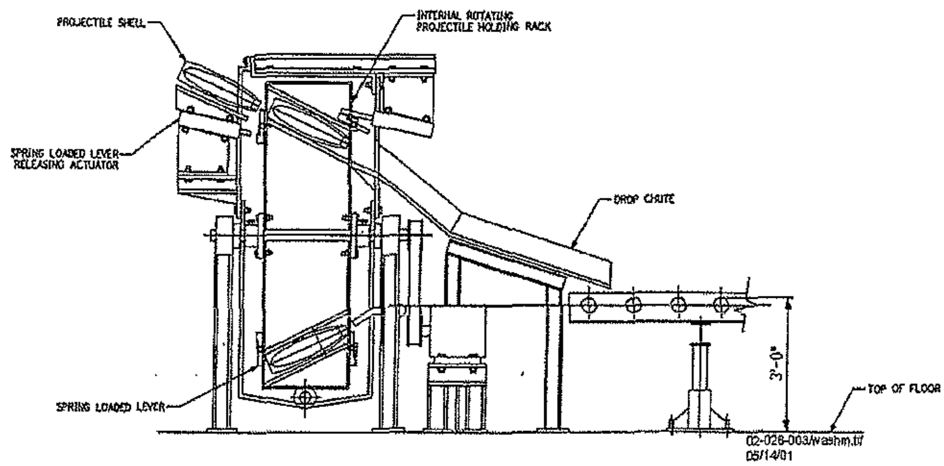
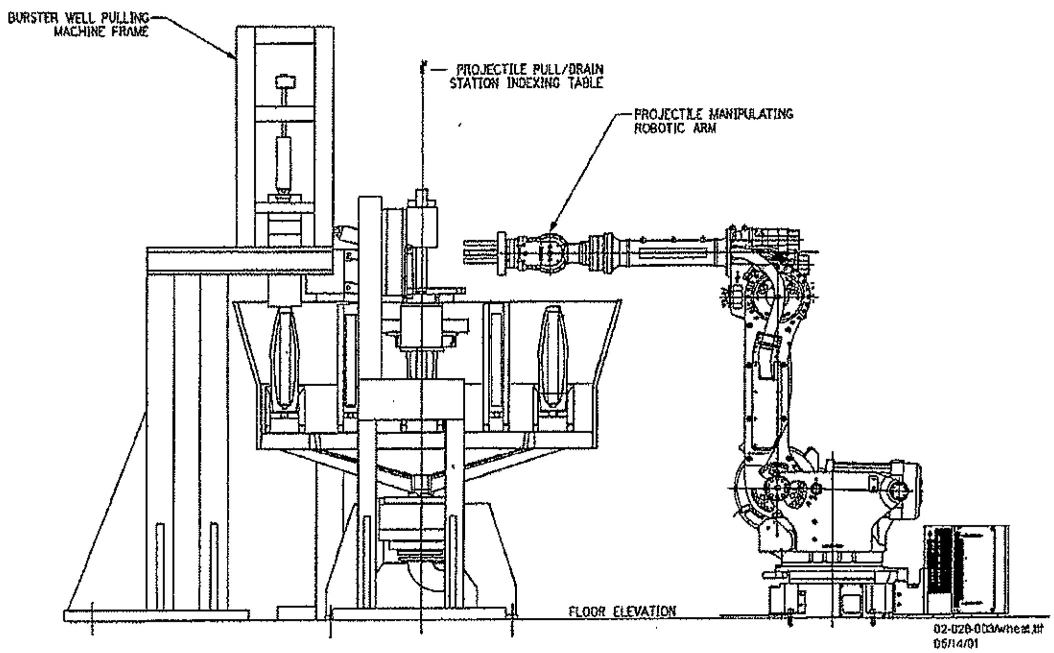
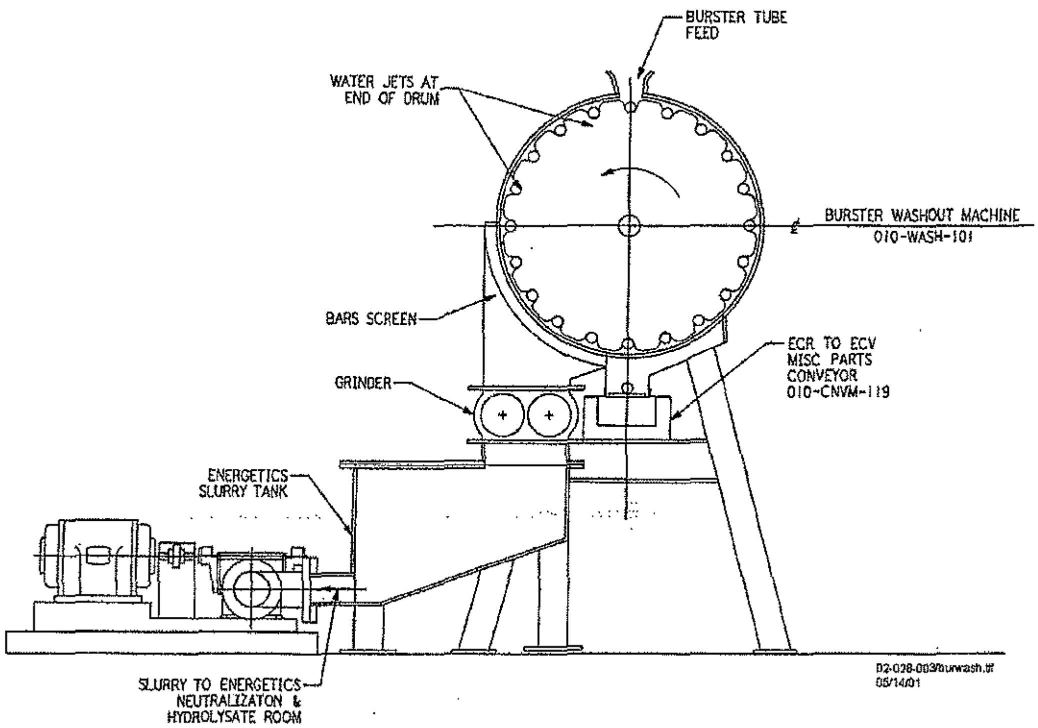


Figure Attachment D-1-5. Projectile (Rotary) Washout Machine



1 Figure Attachment D-1-4. ACWA WHEAT Munition Demilitarization Machine



1 Figure Attachment D-1-3. Burster Washout Machine

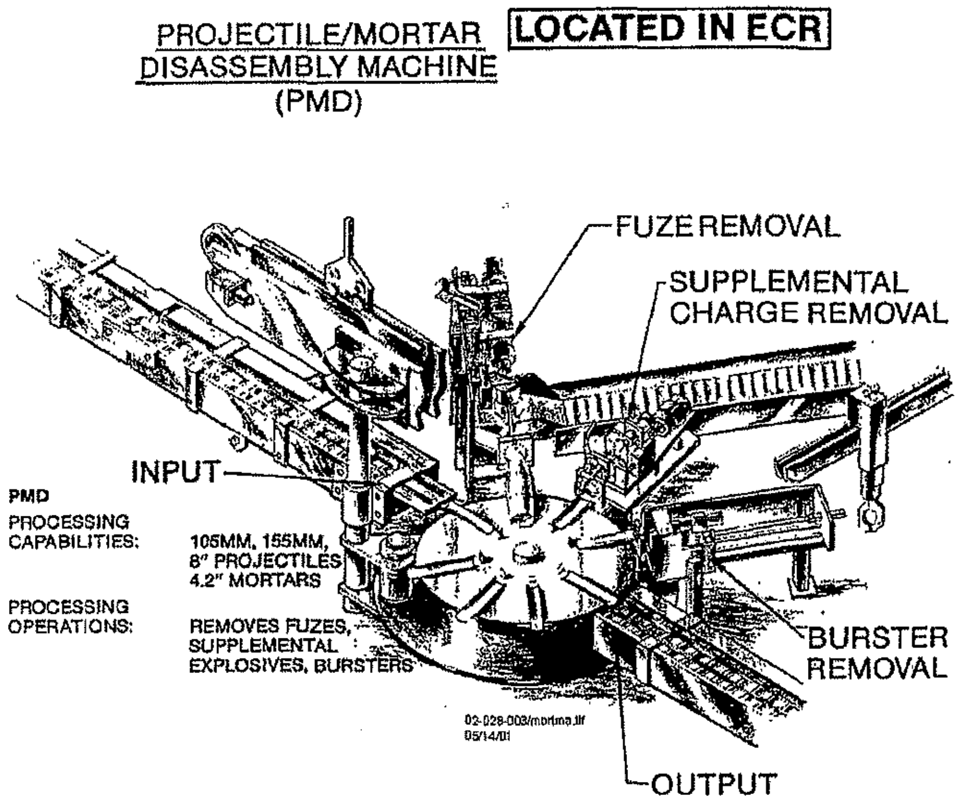


Figure Attachment D-1-2. WHEAT Projectile/Mortar Disassembly Machine

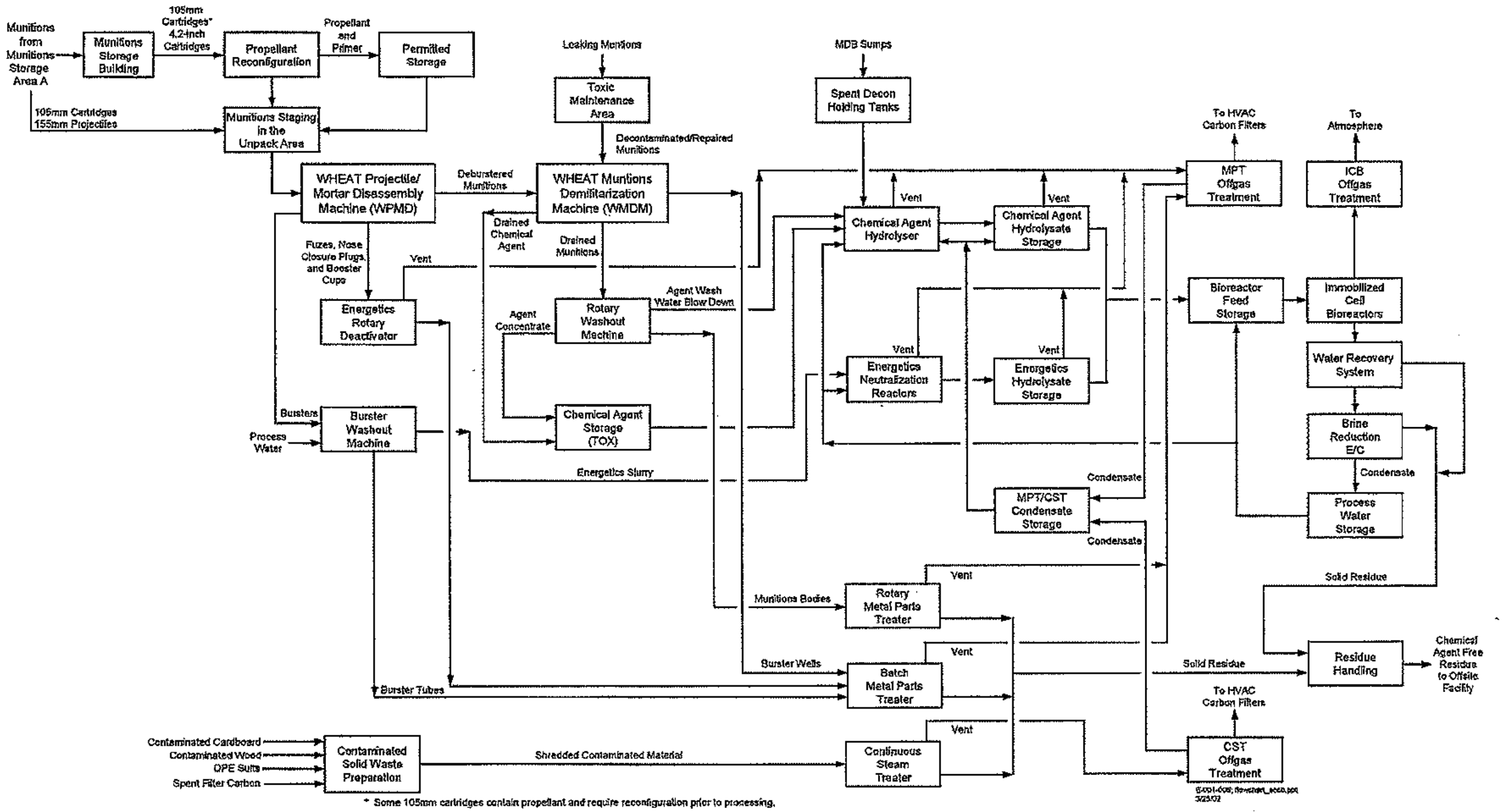


Figure Attachment D-1-1. Pueblo Chemical Agent Pilot Plant Process Flow Diagram

9.0 WASTE STREAMS

For a description of waste streams from the PCAPP system, refer to Section C-1, Waste Characteristics.

through the plant on a closed loop system, with boiler blowdown fed to the Evaporator Feed Tank (090-TANK-101) to be reclaimed in the Brine Reduction Package.

8.0 BULK CHEMICAL STORAGE

Bulk chemical storage will be designed for a minimum of 2 weeks storage capacity for the chemical consumption, based on operation at 80 percent of maximum rate or slightly over 11 days of storage. The Decon Supply Tank will be sized for the full 14 days. Bulk chemical storage will be located in the PAB, and each tank will have a vent that discharges inside the building.

8.1 Sodium Hydroxide

The 50% Sodium Hydroxide Tank (110-TANK-101) will require a working capacity of 10,000 gallons with a design capacity of 12,600 gallons. The tank will be made of stress-relieved carbon steel with design conditions of 3 inches of water column at 225°F.

The 18% Sodium Hydroxide Tank (110-TANK-102) will require a working capacity of 5,600 gallons with a design capacity of 7,050 gallons. The tank will be made of carbon steel with a 5,600-gallon working capacity and design conditions of 3 inches of water column at 225°F. The 18 wt.% solution will be 50 wt.% solution that has been diluted with process water in the Bulk Chemical Storage Area.

8.2 Sodium Hypochlorite

The 12% Sodium Hypochlorite Tank (110-TANK-103) will require a working capacity of 8,000 gallons with a design capacity of 10,000 gallons. The tank will be made of HDPE or fiberglass reinforced plastic with design conditions of 3 inches of water column at 125°F.

8.3 Central Decontamination Supply

The Decontamination Tank (110-TANK-105) [5.5 wt.% sodium hypochlorite (NaOCl)] will require a working capacity of 5,600 gallons with a design capacity of 7,050 gallons. The tank will be made of HDPE with design conditions of 3 inches of water column at 125°F. The 5.5 wt.% NaOCl solution will be 12 wt.% solution that has been diluted with process water in the Bulk Chemical Storage Area.

coils. The Demineralized Water Air Coolers will be designed to supply 900 gpm cooling water on a closed loop system with a supply temperature of 90°F and return temperature of 100°F.

6.0 PROCESS WATER

Demineralized water will be used as initial fill and makeup water for the Process Water Tanks. During normal operation, the Process Water Tanks will receive water recovered by the Brine Reduction Unit. The two Process Water Tanks will have a capacity of 72,000 nominal gallons each. Process Water will be supplied to:

- Polymer Preconditioning
- Bulk Chemical Storage
- Demineralized Water Air Cooler
- Boiler Feed and Makeup
- Hot Process Water
- Utility Stations
- Decon Hose Stations
- Decon Showers
- Pump Seals
- Gloveboxes.

6.1 Hot Process Water

Process water will be supplied to the Hot Process Water Tank. This 15,650 nominal gallon tank will be equipped with an internal heating coil. The coil will be heated with plant steam. The tank will supply 194°F to the Agent Hydrolysers and the Energetics Neutralization Reactors.

7.0 STEAM SYSTEMS

Two steam boilers will supply saturated steam at 50 psig to the plant. Each boiler will be rated for 16.0 MMBTU/hr duty. They may run simultaneously, depending on plant steam demand. Normally they will be fed natural gas as fuel, with liquefied petroleum gas/air mixture as backup. The boilers will be fed process water, combined with condensate return. The boiler water will be chemically treated with phosphate, sulfite, and amine to control corrosion and scaling. Steam and condensate will circulate

Prefilters and HEPA filters will be changed when the pressure drop across the filter element exceeds a 10-inch water column. Carbon filters will be changed according to the following pattern:

- When chemical agent is detected at the allowable stack concentration between the second and third carbon banks, the first and second carbon banks will be changed within 3 months.

- When chemical agent is detected at the allowable stack concentration between the third and fourth carbon banks, the first three carbon banks will be changed immediately.

5.0 COOLING WATER SYSTEMS

5.1 Process Cooling Water

City water will be used to initially fill the Combinaire Cooling Tower basin and provide makeup water to the cooling tower as needed. The cooling water system will be closed loop through the process, with losses on evaporation. Cooling water will be recirculated from the cooling tower basin to process users and back to the cooling tower at 1,100 gallons per minute (gpm) during normal operation. Cooling water will be supplied to the plant at 60°F and returned to the cooling tower at 101°F.

5.2 Chilled Water

The composition of chilled water will be 40-volume % glycol, balance water. Two chillers will be provided, which will be housed in the PAB. Each chiller will have a heat duty of 0.44 MM BTU/hr. One chiller will be online at a time. During normal operation, 220 gpm of glycol solution will be circulated through the plant users and chiller in a closed loop system. The chillers will be designed to supply 35°F chilled water to the plant with a 45°F return temperature.

5.3 Demineralized Cooling Water System

City water will be demineralized in a package water treatment unit. The demineralized water will be pumped to the two Process Water Tanks for the initial fill and as makeup later on. Among other users, the Process Water Tanks will supply initial fill and makeup water to the Demineralized Water Air Coolers. These cooling towers will supply cooling water to the ERD, BMPT, RMPT, and CST induction

4.0 FILTRATION SYSTEM

Specific areas of the MDB and PAB will be kept under negative pressure in such a way that the areas of the highest potential contamination will be at a greater negative pressure that the lower contamination level area. Thus, the air will always flow from cleaner areas to the more contaminated areas. Finally, the air will be collected from the more contaminated areas and pass through a ventilation filter system before being exhausted to the atmosphere via a stack that will be common to all ventilation filter units. The ventilation filter system will use a series of filter units, with each unit containing a filter train and a motor/blower. The filter train will consist of prefilters; HEPA filters; six banks of activated carbon filters; and finally, a second bank of HEPA filters. Each filter bank will be provided with gauges to indicate pressure drop across the filters. Chemical agent sampling ports will be provided between certain banks of carbon filters and before the exhaust stack. Category E areas will be positive pressure with carbon-filtered supply air. Category D areas will be provided with standard industrial ventilation.

Ventilation flow requirements will vary with each process area. The filter units specified will be a common type for all areas. Air exhausted from the MDB process areas will be collected in a common exhaust duct and will be routed to a bank of parallel filters. The basic filter unit will be a skid-mounted design with welded housing, access doors, interior lighting, and observation and sample ports. This basic unit will be designed to handle a nominal 156,500 acfm at a 5-inch water column pressure drop across each element.

Carbon adsorption has been the historical method of choice for treating air-contaminated chemical agent vapors. The reason for choosing carbon is its high capacity to adsorb and retain the chemical agent vapors.

Pressure drop across each prefilter and HEPA filter element will be measured continuously and inspected daily. Chemical agent monitoring will be performed between the second and third carbon banks, the third and fourth carbon banks, and the fourth and fifth carbon banks. Chemical agent monitoring will be conducted by a single Automatic Continuous Air Monitoring System, connected to a manifold that will sample each location between carbon banks sequentially. The sample locations will be designed to sample the space between carbon banks at 16 points spaced around the frame of the filter housing. This will provide a representative sample of the entire gas stream.

backup to avoid agent breakthrough in the event the first carbon bank becomes saturated. The final bank will be a HEPA filter to collect any fine particles that erode from the carbon filters.

Prefilters and HEPA filters will be changed when the pressure drop across the filter element exceeds 10 inches of water column. Automatic Continuous Air Monitoring System (ACAMS) will sample for agent between the first and second banks of carbon filters in each train. When the ACAMS alarm, the carbon filters are changed. Redundant analyzers will be provided at the second, third, fourth, and fifth banks of carbon filters, as well as at the common exhaust discharge stack to warn of agent breakthrough in the event that a filter unit mounted analyzer fails. The MDB ventilation stack will be designed to handle a nominal 156,500 acfm at 5 inches of water column pressure drop across each filtration train.

Category D areas will be provided with independent standard industrial HVAC systems.

Category E area HVAC systems will provide positive pressure to the room or building they service. The air supply will be filtered with activated carbon.

Engineering drawings for the MDB ventilation systems are provided in **Attachment D-3**, Engineering Drawings.

3.2 Chemical Laboratory Ventilation Systems

The Chemical Laboratory (LAB) ventilation air supply and exhaust systems will be similar to the systems provided for the MDB. The MDB process area routinely will be exposed to chemical agents during operations. The carbon filter system for LAB exhausts will undergo only intermittent exposure to low concentrations of chemical agents. The LAB will be an insignificant source of air emissions.

3.3 Personnel and Maintenance Building Ventilation Systems

The Personnel and Maintenance Building will be equipped with particulate and carbon filtration of air supply and exhaust. This filtration will be in place for personnel protection in the event of an agent leak. This building will not be a source of air emissions.

- Provide a negative pressure within the work areas to eliminate escape of chemical agent vapors.

Carbon adsorption has been the historical method of choice for treating air-contaminated chemical agent vapors. Carbon has a high capacity to adsorb and retain the chemical agent vapors.

3.1 MDB Ventilation Systems

The MDB will have areas ranging from hazard Category A to E. Category A-C areas of the MDB will be kept under negative pressure in such a way that the areas of the highest potential contamination will be at a greater negative pressure than the lower contamination level area. Thus, the air always will flow from cleaner areas (hazard Category C) to the more contaminated areas (hazard Category A). Finally, the air will be collected from the more contaminated areas and pass through a ventilation filter system before being exhausted to the atmosphere. The MPT and CST Offgas Treatment Systems will discharge to rooms that are filtered through the MDB ventilation filtration system. This exhaust stack will be a source of significant emissions.

The walls, floors, and ceilings of the MDB will be sealed to prevent migration of vapor or liquid agent. Contamination spread through doorways will be prevented by the use of airlocks. Category A-C areas will have special coatings applied to building surfaces for protection from agent and subsequent decontamination solution. Area layout will conform to the human factors engineering requirement for personnel in DPE.

MDB hazard Category A-C areas will have air supply and exhaust HVAC systems. Air supply will be taken directly from the outside through an air-tempering hot water coil. The air then will be passed through two particulate filters. Next, the air will be heated by a hot water coil or cooled by chilled water to the temperature desired for discharge to the Mechanical Equipment Room. Air will be supplied to other areas via ductwork.

The exhaust HVAC system will have twelve filtration trains in parallel, 10 in operation at any given time, one assumed to be undergoing maintenance, and one spare on standby. Exhaust air will be ducted from the MDB through a manifold, then to the exhaust filter trains. The first bank of each filter train will remove any gross particulates. The second bank will be a high efficiency particulate air (HEPA) filter. An activated carbon filter bed will be third. The second through sixth activated carbon banks will be

The MDB and PAB will be divided into areas defined by hazard categories based on the anticipated type and degree of contamination as follows:

Category A: Areas that have a high probability of contamination, either liquid or vapor agent, negative pressure relative to atmosphere.

Category A/B: Areas with a high probability of agent vapor contamination and under certain process operating conditions assumed to be contaminated with liquid agent, negative pressure relative to atmosphere.

Category B: Areas with a high probability of agent vapor contamination resulting from routine operations, negative pressure relative to atmosphere.

Category C: Areas with a low probability of agent vapor contamination, negative pressure relative to atmosphere.

Category D: Areas that are unlikely to ever have agent contamination, atmospheric pressure.

Category E: Areas kept free from any chance of agent contamination barring a major event, air supply to the building or room is filtered through activated carbon to protect workers in the event of an accidental release of chemical agent, positive pressure relative to atmosphere.

Buildings with areas defined as hazard Category A-C will have ventilation systems for air supply and exhaust. In addition to controlling room temperature, room pressure and air flow, these HVAC systems will confine contaminants to specific areas and minimize contamination spread due to agent leak. These ventilation systems will:

- Collect, treat, and monitor ventilation from the work area that may contain chemical agent vapors prior to being exhausted to the ambient air

- Provide mixing of air that is essential for monitoring work areas with chemical agent detection devices

2.2.21 Spent Decon Holding Tank System (030-TANK-105/106/107); Drawings APU-01-D-534 and APU-01-D-535

The Spent Decon Holding Tank System consists of three Spent Decon Holding Tanks (030-TANK-105/106/107), three Spent Decon Holding Tank Agitators (030-AGIT-105/106/107), and six Spent Decon Feed Pumps (030-PUMP-105/106/107/115/116/117).

The sumps used to collect the spent decontamination solution will be located in the equipment decontamination/access airlocks, Toxic Room, ANRs, hydrolysate tank room, Munitions Demilitarization Machine area, TMA, ECR, ECR Vestibule (ECV), ENR, MDB Laboratory area, MPT room, MPT Offgas Treatment System, CST room, CST Offgas Treatment System, PRR, UPA, [Hydraulic Equipment Room and compressor], and MPT/CST condensate tank room. Each sump will have an actual capacity of 200 gallons. The spent decontamination solution will be pumped from these sumps by the corresponding sump pumps to the ANR Spent Decon Holding Tanks. In the Toxic Room, the sump also will be pumped to the Agent Surge Tank in case of a chemical agent spillage. The spent decontamination solution will be processed through the chemical agent hydrolysis reactors, as needed.

The Spent Decon Holding Tanks will be aboveground tanks constructed of high density polyethylene (HDPE) plastic and lined with carbon steel. One Spent Decon Holding Tank will be located in each of the three ANRs of the MDB.

3.0 VENTILATION SYSTEM

Each building at the PCAPP will have an HVAC system. Personnel buildings will have standard rooftop or central HVAC units. The design of each HVAC system servicing a process building or room will depend on the hazard category of the building or room. **Table Attachment D-1-1**[2] depicts each PCAPP unit or area discussed in this attachment, its location, and corresponding ventilation category. **Table Attachment D-1-2** depicts the MDB and PAB, their corresponding rooms, and the rooms' ventilation categories.

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[2] All tables are located at the end of this attachment.

brine is discharged into the Evaporator/Crystallizer (EVP-101) steam will flash off. The steam will be withdrawn from the top of the Evaporator/Crystallizer by the Vapor Compressor (COMP-101). Note that a mist eliminator (or valve tray) will be provided in the top of the Evaporator/Crystallizer to prevent solid salt carryover to the compressor. The Vapor Compressor compresses the steam to approximately 15 psig, superheating it. The superheated steam will be used as the heat transfer medium in the Evaporator Regenerative Heat Exchanger (EXCH-102). In this exchanger the steam will lose its superheat, condense, and through a collecting pipe will be transferred to the Condensate Tank (TANK-101). The tank will be connected to the Vent Condenser (COND-101) that will condense most of the vapor released from the tank and return it to the tank. The remaining vapor that will consist of mainly noncondensable gases will be discharged to the ICB™ CATOX® system.

Once steam flashes off forming the Evaporator/Crystallizer (EVP-101) top product, the salt concentration in the remaining brine is high enough to form salt crystals. This brine slurry falls to the bottom of the Evaporator/Crystallizer (EVP-101). From there it is pumped to the Slurry Tank (TANK-105), where it is stored as feed for the Solids Dewatering Unit (FILT-101/102).

Organics present in the ICB™ effluent will be high boiling point components that are expected to end up in the solid cake produced in the unit. However, the combined vent stream from the Evaporator/Crystallizer unit will be directed to the suction of one of the ICB™ CATOX® units. So that any trace of noncondensable organic compounds present in this stream will be destroyed by the CATOX® prior to discharge to the atmosphere.

2.2.20.3 Solids Dewatering Unit (FILT-101/102); Drawing AAC-44-F-100, Sheet 2

The solid separation unit considered for this process at this stage will be a pressure filter. The Oberlin or an equivalent pressure filter is common in the industry for separation of solids in water treatment facilities. The system will consist of a Slurry Tank (TANK-105), the Solids Dewatering Unit (FILT-101/102), a Filtrate Tank (TANK-102), Filtrate Pump (PUMP-103), and roll-off bin or dump truck for collecting the solids. The slurry will flow from the Slurry Tank (TANK-105) to the filter (FILT-101/102) via the Slurry Pump (PUMP-106). The recovered liquid will be collected and drained out to the Filtrate Tank (TANK-102) and returned to the evaporator column via the Filtrate Pump (PUMP-103). The solids will contain about 30 wt.% moisture as they leave the filter. The solid cake will be conveyed to a roll-off container and stored at the RHA, pending shipment offsite to a permitted TSDF.

condenser, shell side. The salt solution will fall downward through the vertical tubes, absorbing heat from the steam condensing on the tube walls. The hot solution will pass through the demister entering the flash drum.

The condensed steam will flow down the outside of the vertical tubes to the bottom of the tube sheet. The steam condensate will flow to the Condensate Drum exiting the Brine Concentrator.

The flash drum will contain brine. It will be heated by the hot solution flowing down from condenser tubes. This will produce steam inside the flash drum. The steam will rise to the vapor space of the flash drum, past the demister. A compressor will draw steam from the flash drum vapor space. The steam will be discharged from the compressor into the top of the condenser, shell side, where it will join fresh plant steam in heating the solution in the tubes.

The hot water in the Condensate Drum will be a combination of recovered water from the brine and fresh plant steam condensate. The hot water will be pumped from the Condensate Drum through the Feed Preheater, where it will be cooled by the brine feed. This recovered water will continue to the Process Water Tank.

The flash drum will contain brine with a much higher salt concentration than the original Brine Concentrator feed. The flash drum bottoms will be pumped either to the condenser tubes or to the Evaporator/Crystallizer Feed Tank.

2.2.20.2 Evaporator/Crystallizer; Evaporator Feed Heat Exchanger (EXCH-101), **Evaporator/Crystallizer** (EVP-101), **Evaporator Regenerative Heat Exchanger** (EXCH-102); Drawing AAC-44-F-100, Sheet 2

The concentrated brine from the Brine Concentrator unit will be fed to the Evaporator/Crystallizer (EVP-101) via the Evaporator/Crystallizer Feed Tank (TANK-108) to recover the remaining water in the brine and to crystallize the solids for dewatering. Feed to the Evaporator/Crystallizer will be pumped through the Evaporator Feed Heat Exchanger (EXCH-101) to the suction of the Recycle Pump (PUMP-101). In addition to the feed stream from the Brine Concentrator, the filtrate from the Solids Dewatering Unit (FILT-101/102) also will be pumped to the suction of the Recycle Pump (PUMP-101). The Recycle Pump (PUMP-101) will circulate the evaporator bottoms through the Evaporator Regenerative Heat Exchanger (EXCH-102) to exchange heat with the compressed vapors from the Vapor Compressor (COMP-101). The brine will reach the flashpoint of water in the heat exchanger. When the to the Clarifiers. The solids that build up on the filter press will be collected in roll-off containers, stored in the RHA, and sent offsite as solid waste.

2.2.20 Brine Reduction Package (100-PKG-101); Drawing AAC-44-F-100, Sheets 1 and 2

There will be one Brine Reduction Package (100-PKG-101) located in the Process Auxiliary Building (PAB). The Brine Reduction Package will consist of a Brine Concentrator Flash Drum (EVAP-102), an Evaporator/Crystallizer (EVP-101), a Solids Dewatering Unit (FILT-101/102), and related tankage. The Brine Reduction Package will accept the clear effluent from the top of each Clarifier. It will desalinate the water and recycle it to the Process Water Tank. Solids crystallized in the Brine Reduction Package will be dewatered, stored in the RHA, and sent offsite to a permitted TSDF. Dewatered solids leaving the Brine Reduction Package have approximately 30 percent water content and no free liquid. The designed system will produce water with a salt content of less than 250 parts per million (ppm).

To aid in description of the Brine Reduction Package, the package is divided into the Brine Concentrator, Evaporator/Crystallizer, and the Solids Dewatering Unit.

2.2.20.1 Brine Concentrator; Feed Preheater (EXCH-103), **Deaerator** (DEAT-101), **Brine Concentrator Condenser** (COND-102), **Brine Concentrator Flash Drum** (EVAP-102), **Vapor Compressor** (COMP-102); Drawing AAC-44-F-100, Sheet 1

The brine first will be fed to a Caustic Mixing Tank. Caustic (18% NaOH) will be added to adjust the pH of the solution to the neutral range. The solution will pass through a Feed Preheater, where it is heated to 210°F. The heating medium will be hot water recovered from the Brine Concentrator. The feed will pass through a Deaerator, which will be heated by the vent gases from the Condensate Drum. The Deaerator will vent to one of the ICB™ Offgas Treatment Systems. The salt solution will be gravity fed to the Brine Concentrator.

The Brine Concentrator will recover 80 percent of the water from the salt solution. It will consist of a falling film shell and tube condenser called the Brine Concentrator Condenser. The condenser will be mounted on top of a tank called the Brine Concentrator Flash Drum. A demister will be provided between the condenser and flash drum to prevent salt carryover to the Vapor Compressor.

The salt solution will be pumped into the flash drum. A portion of the flash drum bottoms will be pumped to the top of the condenser and discharged into the tubes. Steam will be fed to the top of the

2.2.18 BioTreatment System (Drawing AAC-40-F-060)

The BioTreatment System will consist of 16 Immobilized Cell Bioreactors (060-ICBR-101 to 116) arranged in 4 modules. Each module will be compromised of 4 ICB™ bioreactors, an ICB™ feed tank, an ICB™ Effluent Pump Tank, and an Offgas Treatment System. Each ICB™ bioreactor will have a 40,000-gallon liquid capacity and a residence time of 5 days. Each ICB™ will be fed 1,600 scfm of aeration air from an air blower common to the 4 ICB™ bioreactors in a module. Hydrolysate will be fed to an ICB™ bioreactor, along with nutrients and water. Air will be sparged through the bottom of the ICB™ bioreactor. Microbes in the ICB™ bioreactor will metabolize the organics in the hydrolysate, including the TDG. The waste produced by the microbes will consist of carbon dioxide, water, biomass, and sulfuric acid. Caustic (18 wt.% NaOH) will be added on a control loop to neutralize the sulfuric acid maintaining the pH in the neutral range. The products of the neutralization will be sodium sulfate and water. The ICB™ bioreactor is depicted in **Figure Attachment D-1-8**.

The ICB™ Modules will be located in the BioTreatment Area outside the MDB. Each module will vent excess air, carbon dioxide, and water vapor to the ICB™ Offgas Treatment System.

2.2.19 Water Recovery System (Drawing AAC-44-F-060)

A liquid effluent with dissolved salts (brine) and suspended solids will be produced by each ICB™ bioreactor. Normally in a water treatment process, the next step will be the water recovery. The Water Recovery System will separate the suspended solids from the brine. Testing has shown that the low concentration of suspended solids in the ICB™ bioreactor effluent will allow the water recovery step to be bypassed. The decision to delete the Water Recovery System will be made at a later date, so it is included in this process description.

A conditioning polymer will be injected into the effluent. The stream will pass through a static mixer and will be fed to one of two Clarifiers (060-CLAR-101/102). A clear liquid effluent will be withdrawn from the top of each Clarifier and pumped to the Evaporator Feed Tank (090-TANK-101), where it will be processed in the Brine Reduction Package. The suspended solids will settle to the bottom of the Clarifier. This sludge will be pumped through a static mixer to one of two Thickening Tanks. A preconditioning polymer will be injected into the sludge upstream of the mixer. The sludge/polymer mixture will be pumped through another static mixer to a filter press. A dewatering chemical will be injected into the sludge/polymer upstream of the mixer. The entire mixture will be processed through the Dewatering Filter Press (090-FILT-101/102). The liquid filtrate that will pass through the filter press will be recycled

The ICB™ Offgas CATOX® Treaters (087-CATX-101/102/103/104) will receive the heated gases from the ICB™ Offgas Reheater, and through the proprietary catalytic matrix, destroy residual VOCs and SVOCs. Four CATOX® Treaters will be required; each unit having a capacity of 6,400 scfm, 25-inch water column pressure drop, and dimensions of 4 feet 6 inch diameter by 4 feet 0 inch F/F.

Four ICB™ Offgas Blowers (087-BLOW-101/102/103/104) will transfer the cooled CATOX® exhaust and transfer the gas to the HVAC carbon filters. The exhaust blowers will provide enough flow and draw to keep the complete system at a pressure slightly less than ambient. Four blowers will be required; each will have a capacity of 6,400 scfm and be sized for 200 BHP, 250 HP.

Four CATOX® Offgas Economizers (087-EXCH-101/102/103/104) will be gas-to-gas heat exchangers used to heat the CATOX® feed with CATOX® effluent. Four exchangers will be required, each rated for 4.3 MMBtu/hr with design conditions of 75 psig at 1,000°F, and constructed of 1-1/4 chromium - 1/2 molybdenum carbon steel exposed.

2.2.17 **Agent Holding Tank** (030-TANK-101), **Agent Surge Tank** (030-TANK-102), **and Agent Concentrate Tank** (030-TANK-110); Drawing AAC-01-F-030

The Agent Holding Tank, Agent Concentrate Tank, and Agent Surge Tank will be located in the Toxic Room of the MDB. These three tanks will vent past a common carbon filter before discharging their vent streams into the Toxic Room.

The Agent Holding Tank will receive drained chemical agent from the WMDM after it passes through the Particle Reducer-Drained Agent. Chemical agent will be stored in this tank for destruction in the Agent Hydrolysers.

The Agent Concentrate Tank will receive chemical agent concentrate that has been separated out in the Agent Settling Tanks after it has passed through the Particle Reducer-Agent Concentrate. Chemical agent concentrate will be stored in this tank for destruction in the Agent Hydrolysers.

The Agent Surge Tank normally will not be used. It will provide overflow capacity for the Agent Holding Tank and Agent Concentrate Tank. It also will provide emergency storage in the event of Toxic Room tank failure. This tank will discharge to the Agent Hydrolysers.

The MPT Offgas Blower (080-BLOW-106) will transfer the cooled CATOX® exhaust and transfer the gas to the HVAC carbon filters. The exhaust blower will provide enough flow and draw to keep the complete system at a pressure slightly less than ambient. The blower will have a capacity of 1,260 scfm and be sized for 72 brake horsepower (BHP), 100 horsepower (HP).

2.2.16.2 CST Offgas Treatment: CST Offgas CATOX Treater (085-CATX-101); Drawing AAC-50-F-085

The CST Offgas Reheater (085-HEAT-106) will take incoming gases from the CST Condensate Surge Tank and heat the stream electrically to reduce moisture content and condition the gas streams to the CATOX® operating temperature. The unit will be a manufacturer's standard unit sized for 450 kW with a capacity of 1.0 MMBtu/hr and design conditions of 15 psig/full vacuum at 1,000°F.

The CST Offgas CATOX® Treaters (085-CATX-101) will receive the heated gases from the CST Offgas Reheater (085-HEAT-106), and through the proprietary catalytic matrix, will destroy residual VOCs and SVOCs. The unit will have a capacity of 1,040 scfm, 25-inch water column pressure drop and dimensions of 2 feet 0 inch diameter by 4 feet 0 inch F/F.

The CST Offgas Cooler (085-EXCH-102) will receive the heated air stream from the CATOX® Treaters and cool the stream prior to entering the HVAC carbon filters. The cooler will be rated for a duty of 1.0 MMBtu/hr with design conditions of 15 psig/full vacuum at 925°F (tubes). The tubes of the cooler will be constructed of 1-1/4 chromium - 1/2 molybdenum with a carbon steel shell.

The CST Offgas Blower (085-BLOW-106) will transfer the cooled CATOX® exhaust and transfer the gas to the HVAC carbon filters. The exhaust blower will provide enough flow and draw to keep the complete system at a pressure slightly less than ambient. The blower will have a capacity of 1,040 scfm and be sized for 60 BHP, 75 HP.

2.2.16.3 ICB™ Offgas Treatment: ICB™ Offgas CATOX Treater (087-CATX-101/102/103/104; Drawing AAC-40-F-087

The ICB™ Offgas Reheaters (087-HEAT-101/102/103/104) will take incoming gases from the ICB™ modules and Brine Reduction Package vents, and heat the stream electrically to reduce moisture content and condition the gas streams to the CATOX® operating temperature. Each of the four heaters will be 2.4 MMBtu/hr, with design conditions of 15 psig at 1,000°F.

generated by the biota in the reactor. Each bioreactor module (comprising four ICB™ units) will be equipped with a dedicated CATOX® offgas treatment system.

The three CATOX® systems will operate in the same manner. Incoming air streams will be heated electrically to about 800° to 840°F to bring the gas streams within the CATOX® catalyst active temperature. This active temperature can be lowered to about 700°F, if upstream process conditions impose a heavier than anticipated organic (or oxidation) load on the CATOX® unit. The maximum sustained operating temperature at the discharge of the catalyst bed will be 1,050°F. Operation at temperatures above this will result in gradual loss of catalyst activity, a situation that is to be avoided. Process control systems will be in place to maintain the system within the operating limits. The proprietary catalytic matrix will destroy the organic materials.

The bioreactor CATOX® units will discharge directly to the atmosphere. The MPT and CST system will vent CATOX® unit(s) discharge to the MDB Ventilation Filtration System as a precaution. The MDB Ventilation Filtration System will discharge to the atmosphere. The MPT Offgas Reheater (080-HEAT-106) will take incoming gases from the MPT chemical agent condensate surge tank vent, the Agent Hydrolysers, and the chemical agent hydrolysate tank vents and heat the mixed stream electrically (by using electric induction coils) to reduce moisture content and condition the gas streams to the CATOX® operating temperature. The unit will be a manufacturer's standard unit sized for 450 kW with a capacity of 1.2 million British thermal units per hour (MMBtu/hr) and design conditions of 15 psig/full vacuum at 1,000°F.

2.2.16.1 MPT Offgas Treatment: MPT Offgas CATOX Treater (080-CATX-101); Drawing AAC-01-F-080

The MPT Offgas CATOX® Treater (080-CATX-101) will receive the heated gases from the MPT Offgas Reheater (080-HEAT-106) and through the proprietary catalytic matrix, destroying residual VOCs and semivolatile organic compounds (SVOCs). The unit will have a capacity of 1,260 standard cubic feet per minute (scfm), 25-inch water column pressure drop, and dimensions of 2 feet 0 inch diameter by 4 feet 0 inch flange-flange (F/F).

The MPT Offgas Cooler (080-EXCH-102) will receive the heated air stream from the MPT CATOX® Treater (080-EXCH-102) and cools the stream prior to entering the HVAC carbon filters. The cooler will be rated for a duty of 1.2 MMBtu/hr with design conditions of 15 psig/full vacuum at 925°F (tubes). The tubes of the cooler will be constructed of Alloy 20 with a carbon steel shell.

Trace pollutants in the process vent streams from the MPTs, the CST, reactors and hydrolysate tank vents, the ERD, and the ICB™ Module will be removed by catalytic oxidation. In theory, the reactant molecules [for example, volatile organic compounds (VOCs) and oxygen] will diffuse to the catalyst surface and will be adsorbed onto the catalyst. On the catalyst surface, the reactants will dissociate into fragments and atoms. Following surface reactions, the end products then will desorb from the surface back into the flow stream. Thus, the catalyst will facilitate the reaction by providing a low energy pathway for the reaction to occur (in other words, it will lower the activation energy).

The catalyst will be supported on straight channel, ceramic monolith substrates that provide higher catalytic efficiencies with minimum pressure drop. Typically, the monolith channels will be coated with a high-surface-area inorganic oxide (for example, aluminum oxide) "washcoat" to improve the dispersion and durability of the active component. The active component will be loaded onto the washcoat in an impregnation step.

The catalytic reactor will be designed to operate under external mass transfer rate control. That is, the rate of destruction will be determined by the rate the reactant molecules diffuse from the bulk flow stream to the surface of the catalyst. The actual surface reaction will occur much faster than the diffusion step. In this way, standard mass transport equations and fluid dynamics can be used to design the catalytic reactor to give a desired conversion and pressure drop for given inlet conditions.

In typical operations, the flow inlet will be brought to the desired temperature by heating. This heated air will be brought into the catalytic reactor where the trace pollutants will be destroyed. The reactor will be composed of a series of monolithic catalyst segments to improve mass transfer properties. The outlet air can then be passed through a heat exchanger to recover some of the energy and exhausted to the MDB Ventilation Filtration System.

The proprietary Honeywell catalyst formulation to be used was developed specifically for its resistance to common catalyst poisons such as halogens, sulfur, and phosphorus. This catalyst has been tested extensively against compounds containing common catalyst poisons and chemical agents and has shown high destruction efficiencies and durable performance. (ACWA Engineering Design Study CATOX® chemical agent challenge testing at 10 to 30 milligrams chemical agent per cubic meter of air was concluded successfully in October 2000. The test results and lessons learned will be incorporated in full-scale design pending publication of the test report and recommendations.) The bioreactors will be equipped with their own CATOX® systems. These are not anticipated to ever see chemical agent and are provided solely to deal with any VOCs stripped from the ICB™ feed by the bioreactor aeration or

2.2.15 CST Quench Tower (075-TOWR-121); Drawing AAC-50-F-075

The CST Quench Tower will receive the hot vent streams exiting the CST. This vent stream will be fed to the CST Quench Tower through a lower nozzle. The stream will pass through a sparger upon entering the column. Cool water will be sprayed down the column, contacting the hot vapor stream moving up the column. There will be three rows of spray nozzles in the top of the column. The top row of spray nozzles will receive fresh process water. The lower two rows will receive condensate from the CST Condensate Surge Tank (075-TANK-121).

Condensable vapor such as steam will liquefy and fall to the bottom of the column along with the water. The water that will be collected in the bottom of the column is called condensate. Non-condensable gases will continue to flow up the column. They will leave the top of the column, passing through the CST Condenser (075-EXCH-122) on their way to the CST Condensate Surge Tank. The condensate that will collect in the bottom of the column will flow by gravity to the CST Condensate Surge Tank.

The vent stream will be introduced into the top of the Condensate Surge Tank just under a demister. It will pass through the demister and continue on to the CST Offgas Treatment System.

The condensate in the CST Condensate Surge Tank will be neutralized with 18 wt.% NaOH. The condensate will be recycled to the lower two rows of CST Quench Tower spray nozzles after passing through the CST Quench Recirculation Cooler (075-EXCH-123). A condensate purge stream will be transferred to the MPT/CST Condensate Holding Tanks (030-TANK-103/104).

The MPT/CST Condensate Holding Tanks will provide storage capacity for condensate purged from the MPT and CST Condensate Surge Tanks. Each batch of the combined condensate will be collected and sampled for presence of chemical agent. If chemical agent is not detected, the condensate will be blended with material in the Agent Hydrolysate Tank. If chemical agent is detected, the condensate will be processed in the Agent Hydrolysers.

2.2.16 Offgas Treatment; Drawing AAC-01F-080

The PCAPP will use catalytic oxidation as a localized method of process offgas treatment, which involves six systems. These systems will be the offgas treatment systems for the MPTs, CST, and four ICB™ Module process vent gases. The ICB™ units are discussed further in Section 2.2.18.

- DPE Feed Case:

  Reaction 1:

  $C_2H_3Cl + 4H_2O \rightarrow 2CO_2 + HCl + 5H_2$

  Reaction 2:

  $C_2H_3Cl + 2H_2O \rightarrow 2CO + HCl + 3H_2$

The heat and material balance will be based on 1 percent conversion (or gasification) of the carbon fed to the CST, and 85 percent conversion for wood and DPE. In all three cases, it will be assumed that two-thirds of the gasified product will form carbon dioxide and hydrogen chloride, while the balance will be products of incomplete oxidation (in particular, carbon monoxide). These criteria will be verified upon completion of the CST testing.

The CST will be a horizontal cylinder. The dimensions of the CST will be 4 feet 8 inches ID by 11 feet 0 inch, with design conditions of 15 psig/full vacuum at 1,500°F. The CST will be constructed of Hastelloy® C-276. The shell is heated to 1,250°F by electrical induction with a heat load of 300 kW. Contained in the shell will be a rotating multibladed auger shaft. The solid feed will be fed into the CST through an airlock on top of the shell at the inlet end. Superheated steam (1,000°F) from the CST Steam Superheater (075-HEAT-122) will be fed at the opposite end of the heater. Note that prior to heating the CST, the process will be purged with nitrogen to remove oxygen. This will prevent thermal formation of NO_x and N_2O in the high temperature environment. The steam will act as a reactant and carrier gas, and will be fed at 50 percent excess of stoichiometric reaction needs. The solid feed will transit the length of the heater in approximately 1 hour (set by auger shaft rotation speed and blade pitch). Residual solids will exit the heater through a discharge airlock. The solids will fall out of the airlock into a screw conveyor. The screw conveyor will elevate the solids and drops them into the CST Discharge Classifier (075-CLAS-101). The solids will be a mixture of ash and intact aggregate. The ash will be a mixture of degraded dunnage pulp and disintegrated aggregate. The intact aggregate will be recycled as part of the feedstock. The ash will be containerized in 55-gallon drums and stored in the Residue Handling Area (RHA), pending offsite shipment to a permitted treatment, storage, and disposal facility (TSDF).

Steam and non-condensable gasses will be vented from the CST to CST Effluent Heater (075-HEAT-121). The CST Effluent Heater will heat the vent gas to 1,250°F, destroying any residual chemical agent. A chemical agent analyzer on the discharge of the heater will be used to confirm chemical agent destruction. Effluent heater discharge vent gases will continue on to the CST Quench Tower (075-TOWR-121).

2.2.14 Continuous Steam Treater (075-CST-121); Drawing AAC-50-F-075

Continuous steam treatment will be performed in the CST Room of the MDB.

The CST (075-CST-121) will be designed to achieve 5X decontamination for chemical-agent-contaminated plant non-process wastes and dunnage. Shredded wood pallets, cardboard boxes, spent activated carbon from the heating, ventilation, and air conditioning (HVAC) carbon filters, and shredded plastic (DPE with boots and gloves) will be decontaminated in the CST unit. The shredded dunnage will have the consistency of a pulp. Feed aggregate/carrier material (crushed tabular alumina or other suitable material) will be needed to provide bulk to shredded feedstock such as wood or plastic (DPE). The CST will operate in a continuous feed mode.

The CST design will be based on hourly feed ratios of 100 pounds wood:200 pounds aggregate; 15 pounds DPE:285 pounds aggregate; mixed feed at 15 pounds DPE:85 pounds wood:200 pounds aggregate. Aggregate attrition rate will be assumed to be 10 percent of the feed aggregate. This quantity will be recalculated based on CST testing results. Spent carbon will be fed alone (no aggregate) at 300 pounds per hour.

The following summary describes the decomposition reactions expected to occur in the CST system. Please refer to Section D-2.2.10 of this attachment for chemical agent destruction chemistry.

- Carbon Feed Case:

  Reaction 1:

  $C + 2H_2O \rightarrow CO_2 + H_2$

  Reaction 2:

  $C + H_2O \rightarrow CO + H_2$

- Wood Feed Case:

  Reaction 1:

  $CH_2O + H_2O \rightarrow CO_2 + 2H_2$

  Reaction 2:

  $CH_2O \rightarrow CO + H_2$

2.2.13 Contaminated Solid Waste Preparation: Plastic Material Shredder (120-SHRD-101) and Wood Material Shredder (120-SHRD-102); Drawing AAC-50-F-120

There will be two contaminated solid waste preparation lines, one for plastic material and the other for wood material. The lines will be located in the Waste Shredding Room (WSR) of the MDB. The area classification of the WSR will be B.

A typical operating scenario for contaminated solid waste preparation will consist of receiving contaminated wood pallets/boxes and demilitarization protective ensemble (DPE) suits by forklift/pallet trucks. The plastic suits and wood will be introduced into the shredding room through dedicated airlocks located on the west wall of the CST Room. The two dedicated shredders, one for wood and the other for DPE suits, will be located in the shredding room. Flexible screw conveyors will transfer the shredded material from the respective shredders to an enclosed belt conveyor through a surge bin/loss in weight feeder system.

All material being shredded will drop down to the bottom compartment of the shredder, along with any minor dust/small particles that may have been generated in this operation. The enclosed screw conveyor will transfer shredded material, along with settled dust/small particles, through a closed conveyor system to the CST (075-CST-121). A dedicated dust collection system will not be necessary for this type of system as very minimal dust will be generated in the shredding, and the dust that is generated will settle, along with the larger particles, at the bottom of the shredder.

Any metal, such as nails, generated from the wood shredding operation will be collected and placed in a miscellaneous parts container for transfer to the BMPT for treatment. The flex screw conveyor will transfer alumina as aggregate from the CST Alumina Storage Bin (075-STOR-101) onto the enclosed belt conveyor carrying shredded wood and plastic suits to the CST. The crushed tabular alumina will add bulk to the shredded material and act as a scouring agent for the CST shell. At the CST the material will be dropped through a double flap gate airlock valve into the CST and be thermally treated as it moves through the CST. The discharged mixture in the form of ash and alumina will be transferred to the CST Discharge Classifier (075-CLAS-101) for separation by a water-cooled screw conveyor. The CST Discharge Classifier (075-CLAS-101) will separate the ash form the alumina. The ash will be collected in bins through a gravity chute and the alumina will be fed directly back to the CST Alumina Storage Bin (075-STOR-101) for reuse.

2.2.12 MPT Quench Tower (070-TOWR-101); Drawing AAC-01-F-070

There will be one MPT Quench Tower (070-TOWR-101). It will be located in the Offgas Treatment Room (OTR) of the MDB. The quench tower will be made of Hastelloy® C-276 and designed for a vapor feed rate of 8,000 actual cubic feet per minute (acfm) [1,200°F, 12 pounds per square inch absolute (psia)], 15 psig/full vacuum at 175°F with tower dimensions of 1 foot 6 inches ID by 12 feet 0 inch tangent to tangent.

The MPT Quench Tower will receive the hot vent streams exiting the RMPT Effluent Heater, BMPT Effluent Heater, ERD, ENR, and Energetics Hydrolysate Tank. These vent streams will be combined and fed to the MPT Quench Tower through a common lower nozzle. The stream will pass through a sparger upon entering the column. Cool water will be sprayed down the column, contacting the hot vapor stream moving up the column. There will be three rows of spray nozzles in the top of the column. The top row of spray nozzles will receive fresh process water. The lower two rows will receive condensate from the MPT Condensate Surge Tank (070-TANK-101).

Condensable vapor such as steam will liquefy and fall to the bottom of the column along with the water. The water that will be collected in the bottom of the column is called condensate. The condensate that will collect in the bottom of the column will flow by gravity to the MPT Condensate Surge Tank. Non-condensable gases will continue to flow up the column. They will leave the top of the column, passing through the MPT Condenser (070-EXCH-102) on their way to the MPT Condensate Surge Tank.

The vent stream will be introduced into the top of the Condensate Surge Tank just under a demister. It will pass through the demister and continue on to the MPT Offgas Treatment System.

The condensate in the MPT Condensate Surge Tank will be neutralized with 18 wt.% NaOH. The condensate will be recycled to the lower two rows of MPT Quench Tower spray nozzles after passing through the MPT Quench Recirculation Cooler (070-EXCH-103). A condensate purge stream will be transferred to the MPT/CST Condensate Holding Tanks.

The MPT/CST Condensate Holding Tanks will provide storage capacity for condensate purged from the MPT and CST Condensate Surge Tanks. Each batch of the combined condensate will be collected and sampled for presence of chemical agent. If chemical agent is not detected, the condensate will be blended with material in the Agent Hydrolysate Tank. If chemical agent is detected, the condensate will be processed in the Agent Hydrolysers.

reforming of any residual chemical agent. There will be a chemical agent analyzer downstream of the effluent heater confirming that the chemical agent has been destroyed. The RMPT Effluent Heater will vent to the MPT Quench Tower (070-TOWR-101).

The design throughput for the RMPT will be 120 rounds/hour for 105mm and 4.2-inch munitions and 60 rounds/hour for 155mm munitions. The RMPT will use external induction coils as the primary heat source, with a process heat load of 250 kilowatt (kW) (installed duty 450 kW). The dimensions of the RMPT will be 4 feet 8 inches internal diameter (ID) by 15 feet 7 inches, with design conditions of 15 pounds per square inch gauge (psig)/full vacuum at 1,500°F. The RMPT will be constructed of Hastelloy® C-276.

The 5X munition bodies will continue on to be deformed and sent offsite as scrap metal. The RMPT is depicted in **Figure Attachment D-1-6**.

2.2.11 Batch Metal Parts Treater (076-MPT-101); Drawing AAC-50-076

Metal strapping from the UPA, burster wells from the WMDM, and miscellaneous parts discharged from the ERD and BWM collected in Energetics Parts Containers will be fed to the BMPT for 5X decontamination. The BMPT will be a horizontal cylindrical heater with an internal conveyor. There will be sealed doors on each end. Each batch will process three Energetics Parts Containers, each measuring 3 feet by 3 feet by 2 feet. The parts containers will be placed on a conveyor and positioned up against the inlet door of the BMPT. A push machine will feed the three containers into the heater. The BMPT will be heated to 1,250°F by electrical inductance coils. Superheated steam at 1,000°F will be fed to the BMPT. The materials will be heated for a prescribed time (15 minute minimum) under continuous superheated steam feed. Then, the BMPT will be purged with nitrogen. Sensors on the vent line will confirm chemical agent is not detected. The 5X metal parts will be removed from the BMPT and sent offsite as scrap metal.

The BMPT will vent to the BMPT Effluent Heater (076-HEAT-101), where the vent gas will be heated by electrical inductance to 1,250°F, causing steam reforming of any residual chemical agent. The BMPT Effluent Heaters, in turn, will vent to the MPT Quench Tower. The BMPT is depicted in **Figure Attachment D-1-7**.

The inner basket will continue to rotate, indexing the pusher to the next cage. Again, a round will be pushed into the cage at the inlet end of the RMPT, discharging a round from the same cage at the outlet end of the RMPT. The RMPT will be fed continuously in this manner.

Munitions leaving the RMPT will pass through one of the Munitions Monitoring Containers (070-MMC-101/102/103) where they will be monitored to verify 5X decontamination. After 5X decontamination has been verified, the munitions will be fed by conveyer to a press to be deformed before being deposited into a roll-off container for transportation to offsite waste disposal.

A nitrogen purge will remove oxygen from the RMPT system. This will prevent thermal formation of NO_x and N_2O in the high temperature environment. The shell of the RMPT will be heated to 1,250°F. Superheated steam at 1,000°F from the RMPT Steam Superheater (070-HEAT-103) will be fed countercurrently to the munition bodies. There will be an interlock preventing munitions discharge if the minimum required temperature (1,000°F) is not met. Two types of chemical agent destruction reactions are expected to occur in the RMPT system: hydrolysis and steam reforming. The hydrolysis reaction will form TDG and HCl, while the steam reforming reaction will form carbon dioxide, hydrogen chloride, and sulfur dioxide according to the following reaction equations:

- Hydrolysis:
  $C_4H_8Cl_2S + 2H_2O \rightarrow C_4H_{10}O_2S + 2HCl$

- Steam Reforming:
  Subreaction 1:
  $C_4H_8Cl_2S + 10H_2O \rightarrow 4CO_2 + 2HCl + 13H_2 + SO_2$
  Subreaction 2:
  $C_4H_8Cl_2S + 6H_2O \rightarrow 4CO + 2HCl + 9H_2 + SO_2$

The heat and material balance will be based on the criteria of hydrolyzing one-third of the MPT feed; the balance will be reformed. This will be achieved by maintaining high temperatures with excess steam inside the RMPT. This will result in an overall HD destruction and removal efficiency of 99.9999 percent. The Heat and Material Balances are located in **Attachment D-2.**

The steam also will act as a carrier gas. The RMPT will vent to the RMPT Effluent Heater (070-HEAT-101), where the vent gas will be heated by electrical inductance to 1,250°F, causing steam

The product leaving the reactor is called chemical agent hydrolysate, an aqueous solution of TDG and salts. The product will be stored in the Agent Hydrolysate Holding Tank (040-TANK-107), which will be common to all six reactors. From this tank, the hydrolysate will be pumped to the ICB™ Feed Tank, where it will be mixed with energetics hydrolysate and diluted with process water.

Each Agent Hydrolyser will be kept under a nitrogen blanket, and have a pressure indicator controller to control reactor pressure. A vent valve will be expected to open only during filling and water heating operations. The Agent Hydrolysate Holding Tank also will be equipped with a pressure indicator controller and vent value to control its pressure. The vents from all six reactors and the holding tank will be treated in the MPT Offgas Treatment System. This system is discussed in further detail in Section 2.2.16.1.

Heating and cooling water will be provided on a closed loop as part of the Agent Hydrolyser Heat Transfer Fluid System.

2.2.10 Rotary Metal Parts Treater (070-MPT-101); Drawing AAC-01-F-070

There will be one RMPT (070-MPT-101) located in the MPTR of the MDB. The RMPT will receive drained and washed munition bodies from the Rotary Washout Machine (020-RW-101/2). These munition bodies may be contaminated with residual chemical agent. The RMPT will be designed to meet the Army definition of 5X decontamination (for a minimum of 15 minutes at or above 1,000°F) for the munition bodies.

The RMPT will be a horizontal cylindrical heater with an outer shell heated by electric inductance coils and an inner rotating basket. The inner basket will hold 15 cages, evenly distributed around a 36-inch outer diameter. There will be three cage designs, one for each type of munition. Cages for the 4.2-inch cartridges and 105mm cartridges will be long enough to hold ten rounds. Cages for the 155mm projectiles will be long enough to hold seven rounds.

Drained and washed munitions from the Projectile (Rotary) Washout Machine (020-RW-101) will be transported by a conveyor system and loaded into the RMPT on a unit feed basis. Each round will pass through an airlock and be positioned in front of a pneumatic pusher. The pusher will feed the round into a cage, displacing another round from the opposite end of the same cage.

The water-washed munitions will be fed to the Rotary Metal Parts Treater (RMPT) (070-MPT-101) for 5X decontamination.

2.2.9 **Agent Hydrolysers** (040-RCTR-101 to 106); Drawing AAC-01-F-040

There will be six batch reactors in parallel, nominally 2,520 gallons each, which will be located in the Agent Neutralization Room (ANR) of the MDB.

The Agent Hydrolysers will receive drained chemical agent from the Agent Holding Tank, chemical agent concentrate from the Agent Concentrate Holding Tank, and spent decontamination solution from the Spent Decon Holding Tanks. They also will receive chemical-agent-contaminated condensate from the MPT/CST Condensate Holding Tanks.

Hydrolysis is the first step in the treatment process. In each batch, hot process water will be added to a reactor. This water charge will include a wash water purge from the Projectile (Rotary) Washout Machine. The reactor will be agitated and recirculated through an external heat exchanger and static mixer. The jacket and external heat exchanger will be used to heat the process water to approximately 194°F. Over a 30-minute period, chemical agent will be added to the reactor upstream of the static mixer. Once the exothermic reaction between chemical agent and water begins, the jacket and external heat exchanger will be switched to cooling water. The cooling water flows will be controlled to maintain an isothermal reaction temperature of approximately 194°F. The hydrolysis is represented by the following equation:

$$\text{Chemical Agent} + 2\ H_2O_{(excess)} \rightarrow \text{Thiodiglycol} + 2\ HCl$$

When the chemical agent charge is complete, the reactor will be recirculated and agitated for 75 minutes. Then, the reactor contents will be sampled. If the chemical agent concentration is greater than 20 parts per billion (ppb) by weight, the reactor will continue mixing at approximately 194°F for resample at a later prescribed time. If the chemical agent concentration is less than 20 ppb by weight, the process will be forwarded to the next step, neutralization.

In this step, 18 wt.% NaOH will be added to adjust the pH of the reactor contents to just under 12, neutralizing the HCl produced in the hydrolysis step. The caustic will be pumped from the Sodium Hydroxide (18% NaOH) Storage Tank into the vapor space of the reactor.

The two WMDMs will be aligned so that one receives the munitions coming from ECR-1 and the other receives munitions from ECR-2. The area category for the MDMR will be A. The WMDM will remove the burster well from the munition body, exposing the chemical agent. The round will be tilted, draining the chemical agent. Chemical agent will be collected in a basin under the WMDM and transferred via pipeline through a Particle Reducer-Drained Agent. The drained chemical agent then will be pumped to the Agent Holding Tank located in the Toxic Room. Burster wells will be placed in the Energetics Parts Containers for 5X decontamination in the BMPT. The BMPT is discussed further in Section 2.2.11. The WMDM will have a cutting station to counter the eventuality of a failed pull operation by cutting through the munition casing wall. Munition bodies continue on to the Projectile (Rotary) Washout Machine.

2.2.8 **Projectile (Rotary) Washout Machine** (020-RW-101); Drawing AAC-01-F-020

Any sludge or heel remaining in the munition after WMDM processing will be washed out in one of two Rotary Washout Machines (020-RW-101/2), which is depicted in **Figure Attachment D-1-5**. The resulting chemical agent/water mixture will be transferred to one of the two Agent Settling Tanks (020-TANK-102/104) via the Washed Agent and Booster Pump (020-PUMP-108/109/118/119). Once inside the Agent Settling Tank, the slurry will be allowed to settle into a heavier chemical agent phase and a lighter wash water phase.

The heavier phase will be agent concentrate. Chemical agent concentrate will be stored in the Agent Concentrate Holding Tank (030-TANK-110) located in the Toxic Room of the MDB. The Agent Concentrate Pump (020-PUMP-104/105/114/115) will transfer the chemical agent to the holding tank after passing it through the Particle Reducer-Agent Concentrate (020-CRSH-102/104). The composition of the chemical agent concentrate will be set at 90 percent (by weight) of chemical agent as a performance specification for the phase separation step of the washout operation. This performance specification serves the current design effort and is to be verified by testing the chemical agent washout system and the process design modified accordingly.

The lighter phase will be wash water that contains dissolved thiodiglycol (TDG), hydrochloric acid (HCl), and entrained chemical agent. Since chemical agent is only slightly soluble in water and the hydrolysis reaction will be slow below 194°F, the concentration of chemical agent, HCl, and TDG in the wash water will be expected to be low. The wash water will be recycled to the Projectile (Rotary) Washout Machines via the Wash Water Recirculation Pump (020-PUMP-102/103/112/113), Wash Water Recirculation Heat Exchanger (020-EXCH-101/102), and the Agent Water Jet High Pressure Pump (020-PKG-101/102/103). A wash water purge will be fed to the Agent Hydrolysers (040-RCTR-101/102/103/104/105/106).

Empty burster tubes, although not considered contaminated with chemical agent, will be deposited on a conveyor and placed in an Energetics Parts Container for subsequent 5X decontamination (15 minutes at or above at least 1,000°F) in the BMPT. The BMPT is discussed further in Section 2.2.11.

2.2.6 **Energetics Neutralization Reactors** (050-RCTR-101/2/3); Drawing AAC-50-F-050

There will be three Energetics Neutralization Reactors (050-RCTR-101/2/3) in the ENR of the MDB. They will be in parallel, nominally 300 gallons each. Two of the three reactors will be in operation, either receiving energetics feed or in process. The third reactor will be on standby, waiting to receive feed.

The energetics to be processed are tetrytol and tetryl. A propellant campaign will be run once the chemical agent campaigns are complete.

Water and antifoam will be initially charged to the reactor. Then 50 wt.% NaOH will be charged. The amount of NaOH added to the reactor will be a 4.5:1 molar ratio dry caustic to tetrytol or tetryl. The agitator and recirculation loop will be started. The temperature in the reactor will rise due to heat of dissolution. The caustic solution in the reactor will be heated to 194°F. The energetics slurry will be charged into the side of the reactor above the normal liquid level. The batch will be isothermally mixed at 194°F for 3 hours and then sampled for the presence of energetics. If the sample is within specification for energetics concentration, it will be pumped to the Energetics Hydrolysate Holding Tank (050-TANK-104), common to all three reactors. The energetics hydrolysate will be pumped to one of the ICB™ Feed Tanks (60-TANK-101/102/103/104), where it will be mixed with chemical agent hydrolysate and diluted with process water. Heating and cooling will be provided to the vessel jackets by the closed loop Energetics Heat Transfer Fluid System.

All three reactors and the Energetics Hydrolysate Holding Tank will vent to the MPT Quench Tower. The MPT Quench Tower is discussed further in Section 2.2.12.

2.2.7 **WHEAT Munitions Demilitarization Machine** (020-WMDM-101/102); Drawing AAC-01-F-020

The WMDM will receive munitions from the WPMD after all energetic components are removed. This machine is depicted in **Figure Attachment D-1-4**. There will be two Munitions Demilitarization Machines (020-WMDM-101/102) located in the Munitions Demilitarization Machine Room (MDMR) of the MDB. Each WMDM will have an associated Particle Reducer-Drained Agent (020-CRSH-101/103).

2.2.5 Burster Washout Machine (010-WASH-101/2) and Energetics Shredder (010-CRSH-101/102); Drawing AAC-50-F-010

There will be two BWMs (010-WASH-101/102) and two Energetics Shredders (010-CRSH-101/102), one in each of the two ECRs.

Bursters removed from the 4.2-inch cartridge, the 105mm cartridge, and the 155mm projectile will be processed through the BWM (010-WASH-101/102) to remove the explosive content. Bursters will be fed into the BWM at a minimum rate of one per minute for 105mm cartridges or 4.2-inch cartridges and one per 2 minutes for 155mm projectiles by a pick-and-place machine from the burster discharge conveyor of the WPMD. Except for the 4.2-inch cartridge bursters, the explosive charges will be encased in metal tubes whose fuze end provides direct access to the explosive. The 4.2-inch burster tubes will be attached to the fuzes, which when taken apart by the WPMD, also will provide direct access to the explosives. The end opposite the fuze will be the metal sealed end of the tube in all cases.

The BWM will have a rotary carousel with multiple burster holding receptacles. Bursters will be aligned with a multi-nozzle waterjet washout probe so that the jet will cut into the explosive charge axially from the open end. The width of the jet will be adjusted to obtain maximum coverage of the interior of the burster tube, ensuring that the walls will be thoroughly cleaned of explosive. The washout probe will be aligned with the open end of the burster and waterjet flow will be initiated at approximately 12,000 psi. The washout water will entrain the explosive particles and chunks and wash them clear of the burster casing and washout station spray. Upon reaching the metal end of the burster tube, the waterjet washout probe will be withdrawn.

The resulting energetics slurry then will pass through an Energetics Shredder (010-CRSH-101/102), which will reduce all particles to less than 1/8-inch diameter to facilitate transport and the hydrolysis reaction. The slurry will discharge from the shredder to the Energetics Slurry Tank (010-TANK-101/102), where process water will be added, diluting energetics concentration in the slurry to 20 wt.%. This will minimize explosion risk. Then, it will be pumped to the Energetics Neutralization Reactors using air driven double diaphragm pumps. The shredder and collection tank are expected to be physically integrated into the BWM. Energetics slurry volume will be kept to a minimum and will not be allowed to accumulate within the system. **Figure Attachment D-1-3** depicts the BWM.

Note: If a leaking round is detected during WPMD operation, munitions feeding into the ECR from the UPA will be stopped. Munitions already present in the ECR will continue to be processed. The contents of the Energetics Neutralization Reactor receiving the potentially chemical-agent-contaminated energetics will be tested for chemical agent destruction prior to discharge to the Energetics Hydrolysate Holding Tank. The WPMD machine and other equipment inside the ECR will be decontaminated with 18 weight percent (wt.%) sodium hydroxide (NaOH) prior to restarting the munitions processing line. The caustic decontamination solution will be collected in a sump and pumped to the Spent Decon Holding Tanks. Spent decontamination solution will be processed in the Agent Hydrolysers, and fed to the BioTreatment System following the normal chemical agent hydrolysate path. The Agent Hydrolysers and BioTreatment System are discussed further in Sections 2.2.9 and 2.2.18, respectively. The Energetics Neutralization Room (ENR) and Energetics Hydrolysate Holding Tank are discussed further in Section 2.2.6.

Fuzes, booster cups, and other miscellaneous energetic parts removed by the WPMD machine will be sent to the ERD (010-ERD-101/102), which will deactivate the energetic component in a nitrogen atmosphere.

The BWM will receive burster tubes from the WPMD. It will wash the solid energetics from the burster tube using a high pressure water spray.

The munition bodies will be transferred to the WMDM. The WMDM is discussed further in Section 2.2.7.

2.2.4 **Energetics Rotary Deactivator** (010-ERD-101/2); Drawing AAC-50-F-010

The two ERD machines—one in each of the two ECRs within the MDB—will receive parts removed by the WPMD machine. The ERD will be a horizontal cylindrical heater 2 feet 6 inches in diameter by 6 feet 0 inches long. A feed conveyor will carry the parts to the top of the ERD at the inlet end. The parts will be fed through an airlock, dropping into the ERD. These parts will be de-energized in the ERD via electric induction heating to approximately 650°F. The process will be performed under an inert (N_2) atmosphere to prevent thermal formation of nitrogen oxides (NO_x) and nitrous oxide (N_2O). After treatment, the de-energized parts leaving the ERD will be sent to the Metal Parts Treater (MPT) Room of the MDB for 5X decontamination in the BMPT (076-MPT-101). During the 155mm projectile campaign, the ERD will act as materials handling equipment to transfer the lifting lugs to the Energetics Parts Containers. The induction heating coils will not be activated. The BMPT is discussed in further detail in Section 2.2.11. Each ERD vents to the MPT Quench Tower, which is discussed in further detail in Section 2.2.12.

Within the ECRs will be the WHEAT Projectile Mortar Disassembly (WPMD) machine, the Energetic Rotary Deactivator (ERD), the Burster Washout Machine (BWM), the Energetics Shredder, and the Energetics Slurry Tank. These items are discussed in the subsequent paragraphs. The ECRs will be reinforced concrete enclosures designed to totally contain the effects of an accidental explosion.

2.2.3 WHEAT Projectile/Mortar Disassembly Machine (010-WPMD-101/2); Drawing AAC-50-F-010

The unpacked munitions first will be fed to one of two WPMD machines, each located in one of the ECRs. **Figure Attachment D-1-2** depicts a WPMD machine. The WPMD machine will remove all the explosive components from all calibers of munitions. The WPMD machine will be an eight-position, rotating-table machine with five main stations remotely controlled by a programmable logic controller (PLC). The main components of the WPMD machine will include the following:

- In-feed transfer station
- Nose closure removal station
- Miscellaneous parts removal station
- Burster removal station
- Discharge/output station.

The WPMD machines will perform four basic functions:

- Remove nose plugs or nose fuzes from projectiles. Fuzes with booster cups will be removed and punched to expose the explosive.

- Remove fuze cups, miscellaneous parts, and/or supplementary charges from projectiles.

- Remove burster tubes from projectiles.

- Feed bursters to the BWM for energetics removal.

If any of the functions cannot be completed, the round will be rejected and returned to the ECR vestibule. Burster tubes filled with solid energetics will be removed and sent to the BWM by conveyor.

After confirmation of correct lot number and quantity, the munitions will be moved to the UPA. The UPA will be sized to provide a maximum of 4 hours staging capability.

2.2.2 Munitions Reconfiguration: Propellant and Primer Removal (010-DIPR-101); Drawing AAC-01-A-005

The majority of the munitions have been reconfigured, which means that their propellant and primers were already removed. Approximately 16 percent of munitions that have not been reconfigured (all of the 4.2-inch cartridges and 28,375 of the 105mm cartridges) will be moved to the Propellant Reconfiguration Room (PRR), adjacent to the UPA in the MDB. The PRR will consist of three Glove Box Tube Opening/Agent Sniff Stations, four Propellant Removal/Tail Disassembly Workstations, and two Munition Unload Stations. All of the work will be performed manually except for removal of flash tubes from the 105mm cartridges, which will be removed using the Ignition Cartridge Removal Machine (010-DIPR-101). This machine will be located in one of the Propellant Removal/Tail Disassembly Workstations. Before the munition is removed from its fiberglass container, it will be monitored and checked to ensure that it is leak free. This monitoring function will be performed inside one of the Glovebox Tube Opening/Agent Sniff Stations. If a leaking round is found, it will be isolated and overpacked. The overpacked round will be transferred to the TMA for further treatment. The munitions will be unpacked by cutting the steel strapping, removing the fiberglass tubes containing the projectiles/mortars from their wooden boxes, and loading the fiberglass container onto a transfer cart. The propellant and ignition cartridges are removed. A cabinet will be provided in the Propellant Staging Room for holding ignition cartridges and primer containers. Propellant and ignition cartridge containers will be placed on a pallet and sent for storage in an empty munitions storage igloo at the PCD for later processing during the propellant campaign. After reconfiguration, munitions will be moved back to the UPA.

The munitions will be placed on conveyers by the UPA operator to be moved to the Explosive Containment Rooms (ECRs) in the MDB.

All steel strapping will be collected in waste collection boxes for later treatment in the Batch Metal Parts Treater (BMPT). The BMPT is discussed further in Section 2.2.11. Chemical-agent-contaminated pallets and boxes will be placed in dunnage containers and moved to the Continuous Steam Treater (CST) Room in the MDB. The CST is discussed further in Section 2.2.14.

and fed onto the process lines in the UPA. The lot number and quantity of munitions received (unloaded from the MAV) will be recorded on either DD-Form 1348-1, "Single Line Item Release/Receipt Document," or DA Form 4408, "Ammunition Transfer Record." Once the process line is ready (has been initialized) to receive munitions and the munition receipt paperwork has been completed, demilitarization operations will start.

Maintenance panels will be located at the processing equipment to allow maintenance personnel to operate the equipment locally. A hand-held pendant control until will be attached to the local panel to allow the maintenance personnel to operate the equipment. When the switch on the local panel is in the LOCAL position, control from the central process controller will be locked out, except for emergency stops. When the switch is in the REMOTE position, the system can only be controlled from the central process controller/Control Room.

A hardwire backup system will be used to handle critical functions in extraordinary situations. In monitoring critical functions, the control system will issue advance warning of alarms indicating that an alarm condition is developing so that an operator may take corrective action.

2.2 Munitions Processing

Munitions of each caliber will be processed in individual campaigns due to equipment tooling requirements.

2.2.1 Unpack Area

Pallets of munitions are stored in igloos at the PCD. They will be transported to the PCAPP by MAVs during daylight hours. Munitions will be off loaded at the MSB, a temporary storage area within the PCAPP. The MSB will hold a maximum of 24 hours worth of munitions processing.

The palletized munitions will be transported via MAVs from the MSB to the loading/unloading area of the Munitions Demilitarization Building (MDB). The munitions will be off loaded with forklifts and moved into the vestibule area of the MDB. Inventory check and inspection will be performed prior to moving them into the UPA. If a leaking munition is discovered, it will be isolated and overpacked. The overpacked round will be transferred to the Toxic Maintenance Area (TMA) for further treatment.

interlock occurs, the system will allow completion of a process step but will not allow a new function to be initiated.

Once programmed and started, the system will operate automatically without intervention of an operator, unless an abnormal condition arises. Sequencing of operations will be controlled automatically based on munition feed into the system from the Unpack Area (UPA) and completion of operations by the demilitarization machines.

The presence of a munition at locations throughout the process will be displayed on the automated graphic displays. In addition, the number of munitions into and out of processing areas will be totaled and the total displayed on the automated graphic displays. Cross-checks will be made to determine discrepancies in these counts. The total number of munitions processed will be determined and recorded.

Each programmed step will be monitored continuously for completion. If the system fails to complete a required step within a specified period of time, the system will halt that step and halt all process steps "upstream" of that function. The halt will continue until a continuation signal is given either by the operator or by the system upon eventual completion of the function that caused the halt. When a halt occurs, the operator will be informed in the Control Room. The operator will have three choices: (1) to initiate the function again through the keyboard and, if successful, continue the process; (2) to visually inspect by means of the closed-circuit television or by observing the machine itself to determine whether the function actually occurred and, if it actually occurred, continue operation by an entry into the keyboard; or (3) to halt further processing by entering a halt command through the keyboard.

A Process Data Acquisition and Recording System will be provided for acquiring operational data for analysis and historical recordkeeping. Data concerning measurements, sequence of operations, total munitions processed, process alarms, environmental data, chemical agent levels and alarms, and equipment run times will be acquired for generation of daily, weekly, and monthly reports. Reports generated and printed will include production totals, alarm shutdown summaries, Automatic Continuous Air Monitoring System alarms, preventive maintenance, filter operations, environmental reports, utilities status, and sequential events. In addition, selected data on alarms and operations will be collected on electronic media for historical data.

Following initialization of the process line equipment (proper valve line-up and interlock verification), munitions will be delivered from the Munitions Storage Building (MSB), then munitions will be unloaded from the Modified Ammunition Van (MAV), reconfigured in the Propellant Removal Room, if required, Each chemical agent/munition combination represents a processing run referred to as a campaign. Campaigns will be run serially, beginning January 2007. The design peak throughput rates will be as follows:

- 155mm projectiles 60 per hour
- 105mm cartridges 120 per hour
- 4.2-inch cartridges 120 per hour.

2.0 DESTRUCTION SYSTEMS AND DEMILITARIZATION OPERATIONS

The ACWA WHEAT process uses hydrolysis/neutralization, followed by biodegradation, to destroy the chemical agent and energetics contained within the weapons. This section provides an overview of demilitarization operations (decontamination of metal parts and dunnage), as well as an overview of chemical agent destruction operations. **Figure Attachment D-1-1**[1] depicts a block flow diagram of the ACWA WHEAT processing system.

Munitions destined for demilitarization, as designated by the Department of the Army, will be removed from the PCD's Chemical Surety Materiel Exclusion Area at a rate compatible with the operating schedule of the PCAPP. The movement of munitions within the PCD's Chemical Surety Materiel Exclusion Area will be observed by guards, and emergency response vehicles will be available on site.

The following description presents the overall flow of the demilitarization process for projectiles and mortars.

2.1 Automatic Control System

The processing steps, which are specific to projectiles and mortars, will be fully automated and computer driven.

Interlocks will be checked before starting and will be monitored continuously during munition processing by the program in the control system. Should any interlock fail, appropriate action will be taken, such as immediate shutdown, programmed shutdown, or operator-assisted shutdown. Two types of interlocks will be used. If a shutdown interlock occurs, the system will take immediate action. If a permissive

[1] All figures are located at the end of this section.

ATTACHMENT D-1
PROCESS DESCRIPTION

The objective of the Chemical Stockpile Disposal Program is to demilitarize the entire United States' stockpile of unitary chemical agents and munitions in a safe and environmentally acceptable manner. Although the United States ended its chemical weapons program in 1969, inventories of chemical-agent-filled weapons still are stockpiled at eight locations within the continental United States. One of these locations is the Pueblo Chemical Depot (PCD), located in Pueblo, Colorado.

The method proposed to destroy the chemical weapons stockpile is called the Assembled Chemical Weapons Assessment (ACWA) Water Hydrolysis of Energetics and Agent Technologies (WHEAT) process. The Pueblo Chemical Agent Pilot Plant (PCAPP), to be located within the PCD, is being designed and constructed to remove the chemical agent from mortars and projectiles; destroy the chemical agent and explosives; and decontaminate emptied munition bodies.

This attachment provides a general overview of the demilitarization process planned for the PCAPP and the associated support systems and facilities. Section 1.0 provides a description of munitions to be processed at the PCAPP. Section 2.0 describes the operations and process of the PCAPP. Section 3.0 gives an overview of the ventilation system; Section 4.0 gives an overview of the filtration system; Section 5.0 gives an overview of the Cooling Water System; Section 6.0 gives an overview of the Process Water System; Section 7.0 gives an overview of the Steam System; and Section 8.0 gives an overview of Bulk Chemical Storage.

1.0 CHEMICAL WEAPONS

The Army has initial plans to destroy the following stockpiled munitions located at the PCD:

- M60 (105mm) cartridges containing chemical agent
- M110/M104 (155mm) projectiles containing chemical agent
- M2/M2A1 (4.2-inch) cartridges containing chemical agent.

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ATTACHMENT D-1
PROCESS DESCRIPTION

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Conclusion

- Safety and environmental protection are paramount
- Mustard stockpile destroyed as much as 4 years earlier than originally scheduled
- Destruction process will use neutralization rather than incineration
- Complies with context of all safety and environmental regulations

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Preparatory Activities and Public Outreach Strategy

D-Date	Activity
D-41	Meet with OR Environmental Office to Begin Preparation of Consent Agreement
D-34	Press Release, Information for Members of Congress (IMC) and Draft Cable Submitted for Interagency Approval
D-20	Cable Sent to The Hague
D-18	Technical Secretariat of the Organization for the Prohibition of Chemical Weapons (OPCW) Briefed
D-17	OR Congressional Delegation Briefed and IMC Issued
D-16	Workforce/CAC/CSEPP WIPT Briefed and Press Release Issued
D-15	Press Release Printed and Public Service Announcements Begin Running
D-08	Public Meeting Held
D-07	Consent Agreement & Record of Environmental Consideration (REC) Signed
D	FY02 Supplemental Funding Received
D+01	Issue Contract for PSN-OR Facility

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Oregon Environmental Regulatory Support

Proposed Environmental Compliance Strategy

- Working Integrated Product Team (WIPT) to develop Record of Environmental Consideration and Phased Consent Agreement:
  - Phase 1: Construction of Proposed Facility
  - Phase 2: Operations and Closure
- Army requests expedited hydrolysate delisting

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NRC Assessment of Accelerated Destruction

- **Briefed National Research Council (NRC) working group on Monday, 26 November 2001**
- **Letter report issued on 21 December 2001, supporting Army's proposed concept for expediting destruction of bulk mustard stockpile at Aberdeen Proving Ground**
- **Day-long site visit and facility tour by NRC working group, 27 February 2002 - complete satisfaction with program expressed**

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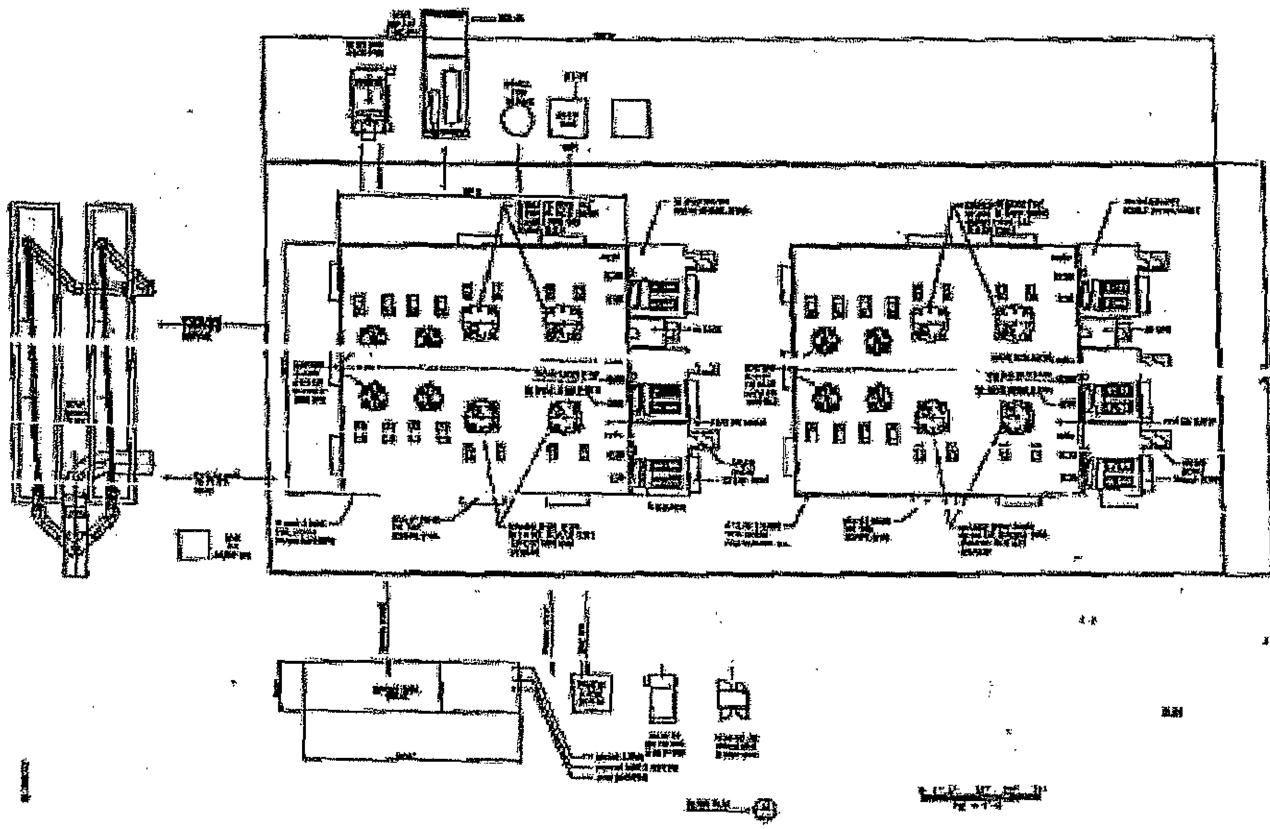
PSN-OR Neutralization Facility Conceptual Design



Ton Containers	2,635
Gallons of Agent	403,155
Reactors	8
Drain Stations	6
Days of Operations	122
Gallons of Hydrolysate	7,284,189

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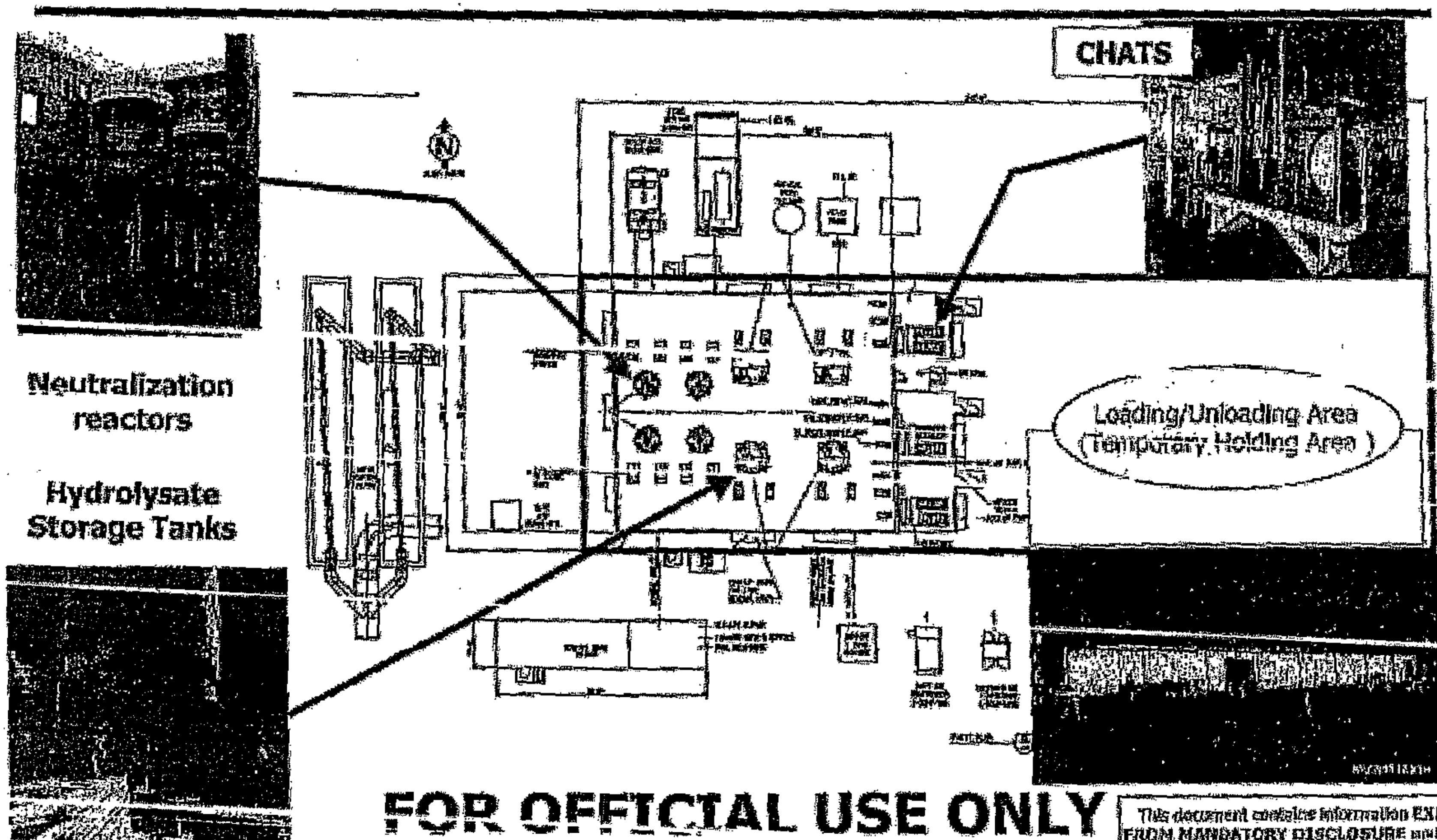
PSN-MD Destruction Facility Conceptual Design



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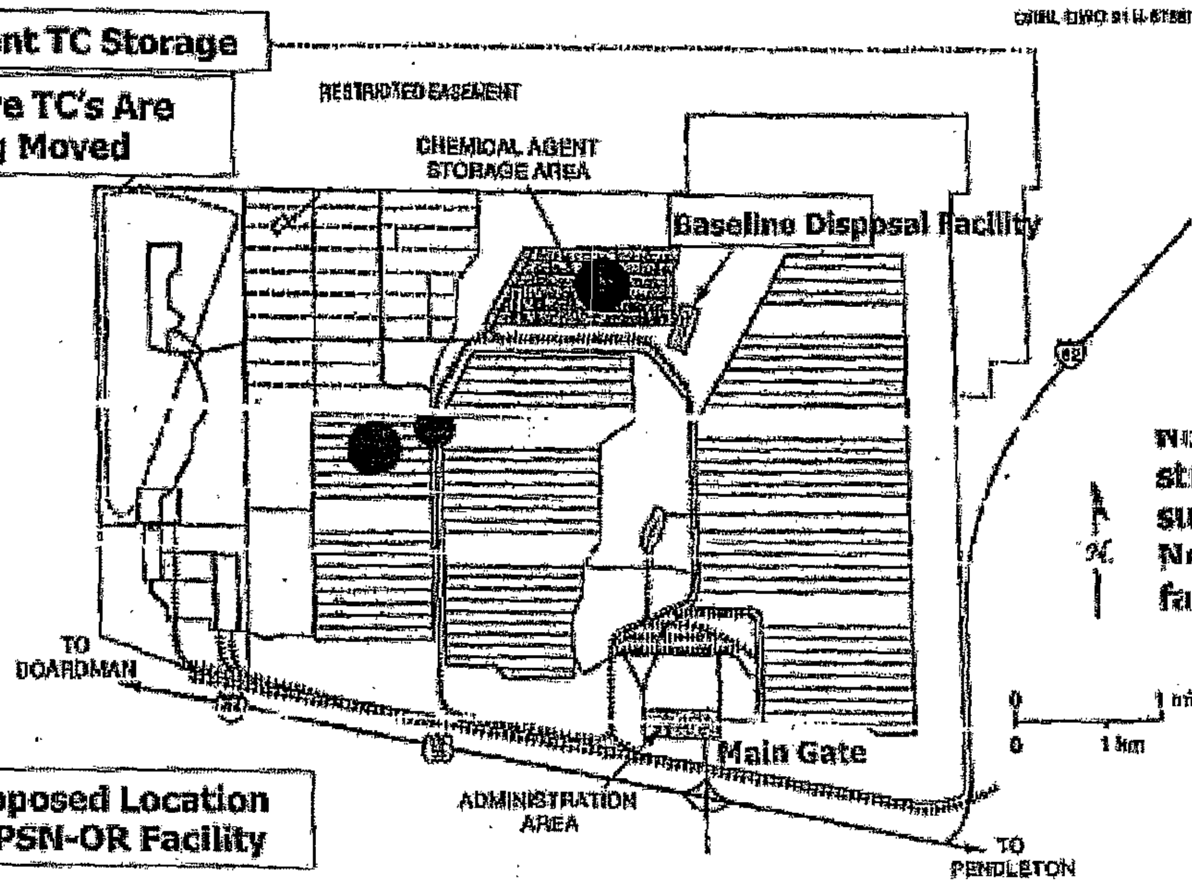
PSN-OR
Proposed Location

Current TC Storage

Where TC's Are Being Moved



Note: no existing structure is suitable for Speedy Neut destruction facility

Proposed Location of PSN-OR Facility

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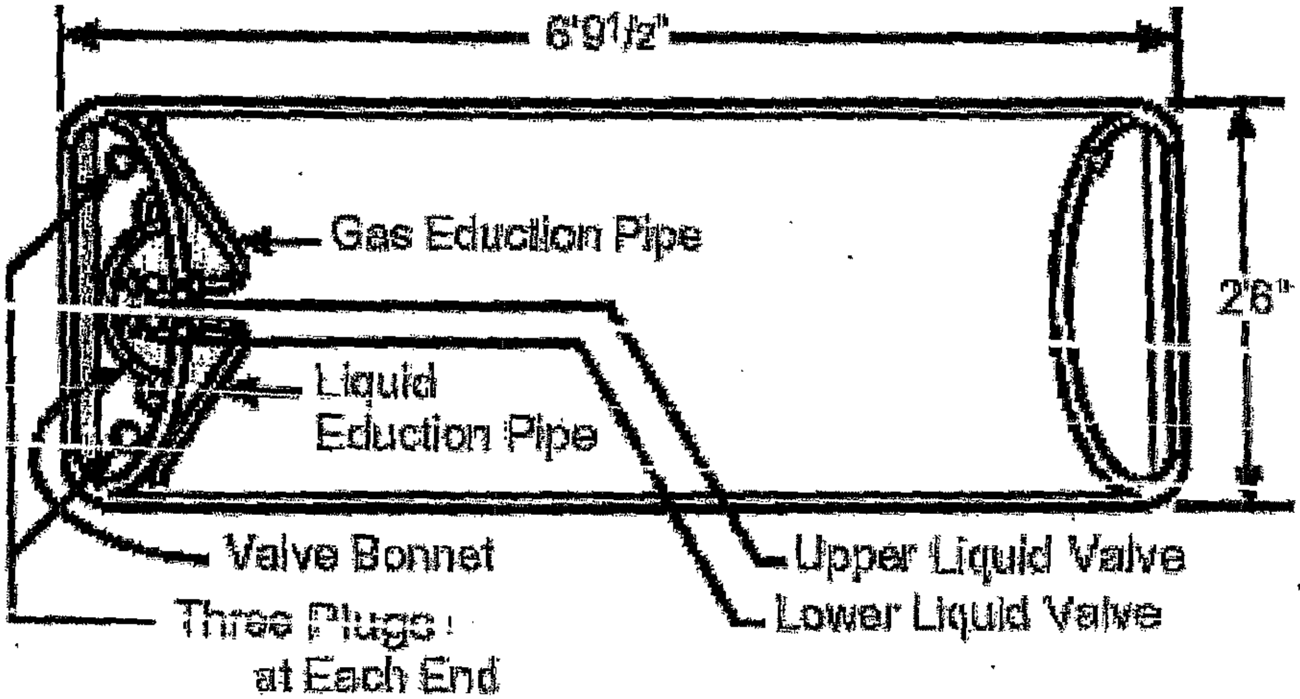
Ton Container Diagram



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PSN-OR: Gas Brief_29-May-02

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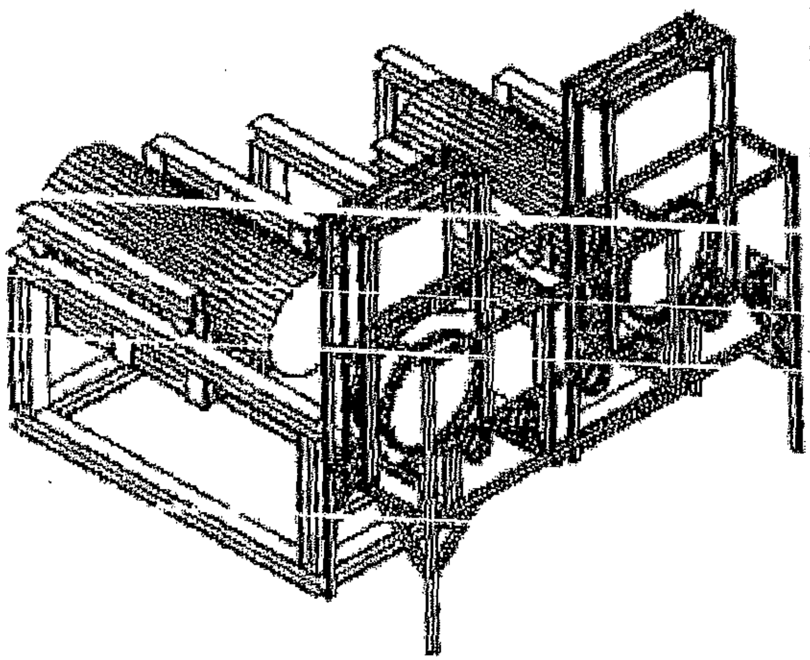
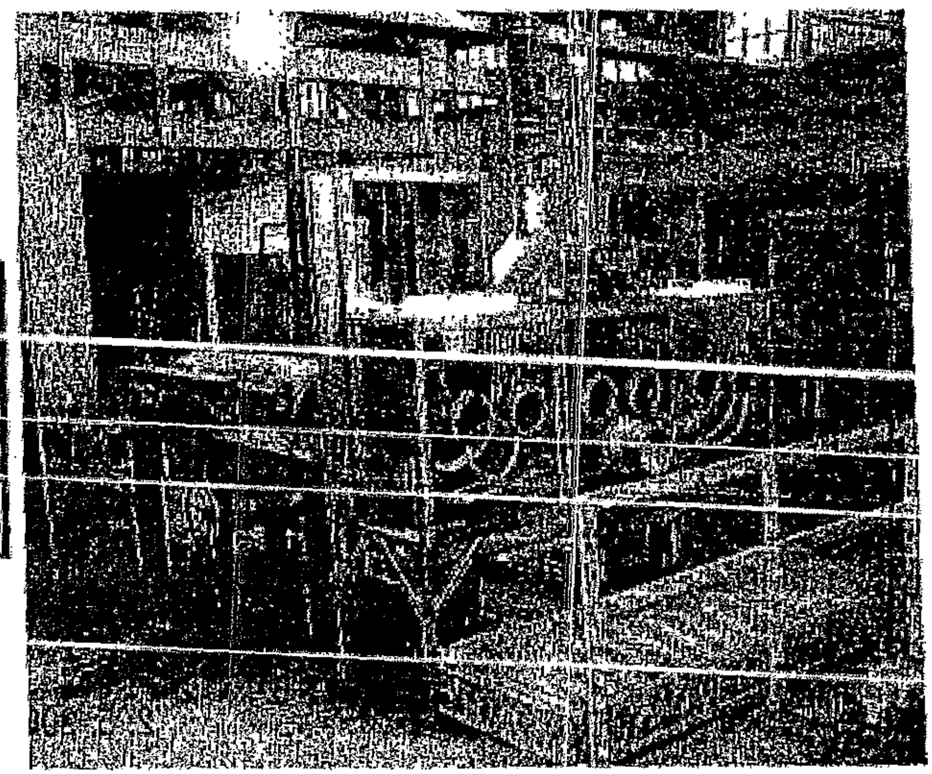
Chemical Agent Transfer System (CHATS)





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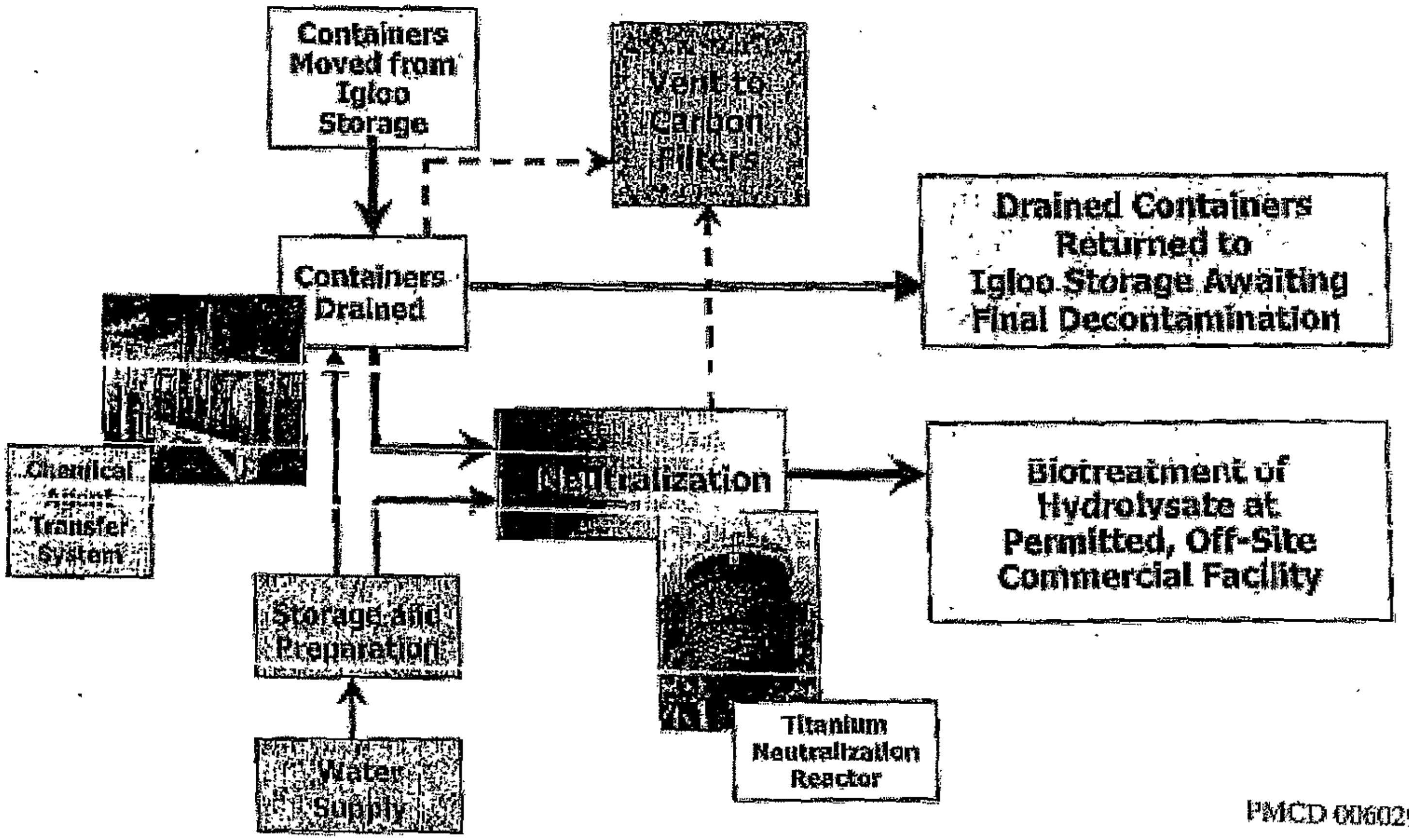
Neutralization Process



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Accelerated Destruction Operations Concept

- **Non-destructive draining of ton container**
  - Agent drained manually from ton container using Chemical Agent Transfer System (CHATS)
  - Ton container "triple-rinsed" & returned to storage
- **Destruction of chemical agent by on-site neutralization**
- **Hydrolysate disposal through off-site commercial post treatment**
- **Ton container disposal:**
  - Drained & rinsed Ton Containers processed through the Pine Bluff Chemical Agent Disposal Facility (PBCDF) Metal Parts Furnace

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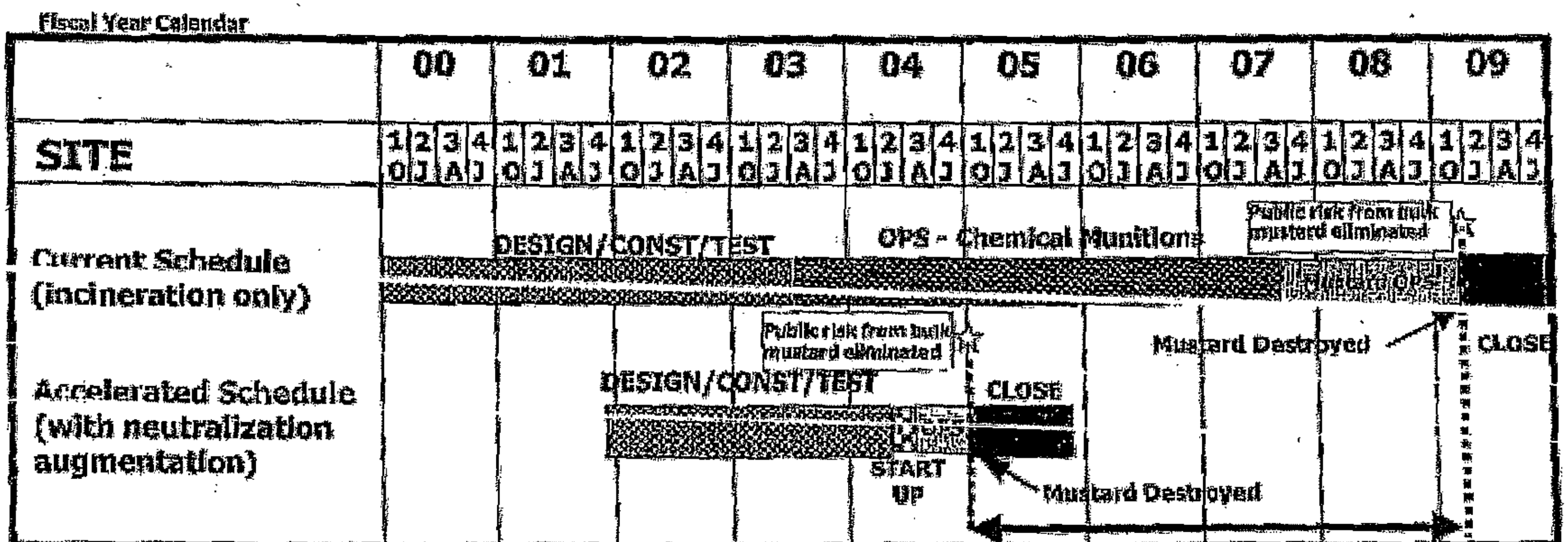
PSN-OR
Schedule Comparison



4 Year+ Acceleration in Bulk Mustard Destruction

Basis: Obtaining Supplemental Funding 1 Oct 2002

PMCD 006027

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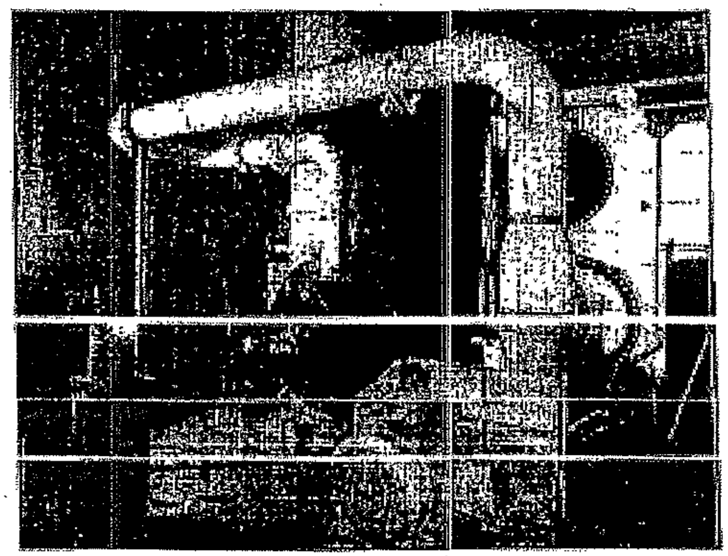
The Challenge

- **Bulk Mustard, chemical warfare blistering agent, known as "HD"**
- **2,340 Tons/2,635 steel containers**
- **Current Disposal Plan: Incineration**
- **Incineration Facility Status (as of February 2002):**
  - **Design/Engineering/ Construction - complete**
  - **Systemization - in progress**
  - **Testing - mid 2002**
  - **Mustard agent disposal operations scheduled to begin June 2006 and end May 2008**



Liquid Agent Incinerator

PMCD 006026

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Bottom Line

- Safety and environmental protection are paramount
- Mustard stockpile destroyed as much as 4 years earlier than originally scheduled
- Destruction process will use neutralization rather than incineration
- Complies with context of all safety and environmental regulations

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Purpose

- Describe the plan for accelerating destruction of the mustard agent (HD) stored at Umatilla Chemical Depot
- Describe proposed regulatory path forward
- Describe proposed plan to inform the public

Goal: To obtain understanding and support for proposed plan

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Project Speedy Neut - Oregon

Briefing for:
John Kitzhaber
Governor, State of Oregon

28 March 2002

Presented by:
Mr. Kevin J. Flamm
Project Manager
Alternative Technologies and Approaches
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4. In the PFS BAT Staff report, the DEQ states: "Basically, the EQC's order, based on Department recommendation (Reference 17), identified inclusion of the PFS in the UMCDF incineration process to be the best available technology without making a new, formal best available technology determination." Report at 8. How was the public notified that the EQC was going to determine the PFS filter system as BAT? Please provide evidence indicating proper notice and opportunity to comment on this important issue.

5. How many times has the bypass around the PFS been used during UMCDF operations? What were the types and quantities of emissions during those events?

6. In the PFS BAT Staff report, the DEQ mentions the concern about the release of cadmium during the M55 rocket incineration campaigns. How much cadmium was captured during the burning of the M55 rockets? How much was released? How much PCB was captured during the M55 campaigns? How much was released? What data supports your response?

7. If a fire occurs in the PFS carbon filter beds during the final days of the incineration of mercury-contaminated HD ton containers, how much mercury is likely to be emitted into the environment? What quantities of other contaminates will likely be released? Has such a scenario been considered in DEQ's BAT analysis?

8. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

9. We are requesting an extension of the comment period and point out that the EQC should not be making a determination that the PFS with sulfur-impregnated carbon is BAT for HD with high mercury until such time that Tooele completes construction of its PFS and demonstrates that it will work.

22. In addition to the May14th incident, how many other significant incidents have occurred during the testing and operation of UMCDF? Are these incidents described and analyzed in writing and will they be provided to the EQC?

23. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

24. In light of the success of the neutralization of the HD ton container stockpile in Aberdeen, Maryland, will DEQ and EQC reconsider the BAT determination for HD ton containers that are purported to not contain high levels of mercury? If not, why not?

25. What can concerned citizens due to insure that the DEQ and EQC reconsider BAT for HD ton containers that are purported to not contain high levels of mercury? Please be specific.

BAT FOR PFS CARBON FILTERS

1. Has DEQ performed a mass balance analysis (*i.e.*, measuring the total amount of a chemical of concern going in and measuring what amount is captured in the filter system) to determine how efficiently the PFS carbon filters are capturing agent and other hazardous wastes? If so, please provide the data. If not, why not?

2. Before allowing the incineration of HD from the ton containers will DEQ require tests to determine through testing with actual waste from a mercury-contaminated HD ton container whether mercury is captured at a sufficiently high rate in the sulfur-impregnated carbon filters? If not, why not?

3. Has the metals removal efficiency (MRE) noted in the staff report for trial burn conditions been tested or verified during actual operating conditions at UMCDF? If not, why not?

14. Do you know what specific neutralization approach (there are several) was studied in determining the $117 million cost for the small-scale neutralization system? Do you know if there are proven systems that would be less costly?

15. Do you know why it is that TOCDF's sulfur-impregnated carbon system to capture mercury is projected to cost $57 million and Umatilla' is project to cost $47 million? What information or references support your response?

16. Is it not true that a modified sulfur-impregnated carbon filtration system targets one specific heavy metal at the cost of reducing the capture capability of other heavy metals and toxics? What data does DEQ have regarding this issue?

17. What studies have been done to determine the ramifications of such a trade-off on public health and the environment?

18. Are you aware that there are proven treatment options for neutralized mustard secondary waste (hydrolysate) that would meet the LDR requirements?

19. The Court has noted "Petitioners were also able to adduce evidence that neutralization technologies have by now demonstrated their practical utility to the extent that the Army has used or plans to use neutralization technologies to destroy agent at Aberdeen, Blue Grass and Pueblo chemical weapons sites, and that the Army estimates a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration." *G.A.S.P., et al v. EQC, et al.*, Case No. 0009 09349 (Opinion & Order July 26, 2004) at 27.

Question: Has the DEQ taken into account the fact that (as the Army has admitted) there will be a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration?

20. Is it true that on May 14. 2008, an incident occurred that resulted in serious damage to and the shut down of the: liquid incinerator at UMCDF? What happened? How has DEQ investigated this incident? Has DEQ been on-site and witnessed the damage? Are there pictures or video of the damage? Will pictures and video of the damage be released to the public?

21. How has the May 14th incident been factored into DEQ's BAT analysis? Can you point out where it is referenced in any of DEQ written reports or other information released to the public?

8. It is a fact each mustard ton container will have a different heel to liquid ratio and contain different chemical/heavy metals compositions. Do you honestly believe that a trial burn using a specific ton container or a few specific ton containers with different heel amounts and different chemical/heavy metal compositions can be relied upon to accurately predict emissions for all mustard ton containers? If so, please explain your justification.

9. Are you aware that TOCDF spokesperson Alaine Grieser was quoted in the Deseret News on March 31, 2008 as saying, "Technicians conducting tests on the stockpile have found no patterns to help explain why some of the weapons and bulk containers are tainted with mercury and others are not."? Would you not agree, based on that statement, that it is ludicrous to rely on TOCDF results to determine Umatilla's mercury-contaminated mustard tons?

10. Does it not follow, that to get an accurate determination of the percentage of mercury contamination in each ton container at Umatilla, each ton container must be analyzed as is being done at TOCDF? Wouldn't such an analysis be costly and time-consuming and then it wouldn't even give you an accurate analysis of the mercury in the heels anyway, would it? Have those cost and schedule estimates been determined?

11. Are you aware that if Umatilla's mustard tons were to be neutralized, such an analysis would be unnecessary and it would be assured that no mercury would be released into the environment?

12. Why is the term "higher than expected levels of mercury" applied to the U.S. stockpile of mustard when the 2000 Operations Schedule Task Force Final Report noted (p. 27) that an SAIC study "MACT Rule: Impact Assessment and Programmatic Compliance Strategy, 10/09/00" indicated two areas of potential concern from a compliance perspective: semi-volatile metals and mercury. The Task Force Report then goes on to say "...several data points exist which indicate that higher mercury feeds should be anticipated, at least for some lots or sublots of munitions or containers." And then recommends "[G[iven the potential ramifications, this issue needs to be more intensively managed so that future sites (ANCDF, UMCDF and PBCDF) are prepared to address this issue in a consistent manner."

13. The report also noted the heel problems with the potential for through put rate ramifications that could be significant and recommended a more comprehensive understanding of the condition of the mustard ton containers. It even raised the possibility of an alternative process. Have you read this report?

<u>Comments for DEQ hearing in Hermiston 24 July 08</u>

The following comments and questions are submitted on behalf of G.A.S.P., Oregon Wildlife Federation (OWF), Government Accountability Project (GAP), Sierra Club, Karyn Jones, Debbie McCoy Burns, Susan Lee Jones, Robert Palzer, Jan Lohman, and Judy Brown.

BAT FOR DESTRUCTION OF MERCURY CONTAMINATED HD TON CONTAINERS

1. Will the BAT determination be based on pollutants discharged into the environment and their potential effects on human health and the environment as required by law?

2. If the answer to that question is yes, then why are we here? It is a universally known fact that neutralization releases orders of magnitude less pollutants into the environment than incineration releases. In light of the significant difference in emissions, how does DEQ justify utilizing incineration for HD ton containers contaminated with mercury?

3. Isn't it true that incinerators have a direct pathway to the environment and when incinerating mustard, toxics will be chronically discharged into the environment and that during upset/mechanical breakdown conditions even more toxics and agent will be released through this direct pathway?

4. Are you aware that the neutralization of Aberdeen's stockpile of Mustard tons was successfully completed without mercury releases into the environment?

5. Has a comparison been done between TOCDF operations (incineration) and Aberdeen operations (neutralization) at full rate processing of Mustard tons? If so, what were the results?

6. Are you aware of a 2002 White Paper presented to Oregon's Governor, which showed that, based on official regulatory documents, the average daily water usage for incineration is 260,000 gallons compared to 27,000 gallons per day water usage for neutralization?

7. Are you aware that there are a number of scientists who have determined that the amount of mercury in a gelled mustard heel can not be accurately predicted based on measuring the mercury found to be present in the liquid mustard? How will DEQ account for the amounts of mercury contained in the heels in the ton containers?

benefits as residents of Maryland, Indiana, Colorado, and Kentucky. There is no reason why Oregonians and Washingtonians should be subjected to many tons of hazardous wastes released from the stacks at UMCDF.

The DEQ's analysis generally asserts that non-incineration alternatives (neutralization and controlled-detonation) will take too long to construct and operate. However, no data is cited in support of this proposition and certainly no data independent of the Army is referenced that would support DEQ's position. Further, DEQ fails to discuss the Army's 2002 "Speedy Neut" approach which was proposed for UCD. Under this approach the Army argued that the entire mustard stockpile could be destroyed as much as four years earlier than would be the case using incineration. See, Army's Project Speedy Neut briefing document for then Governor Kitzhaber (Exhibit 2).

Moreover, the DEQ's analysis fails to discuss in any detail another proven alternative to incineration. The Davinch™ system is a controlled detonation system. The Davinch controlled detonation system process reportedly destroys chemical agent, such as HD, in a chamber with the energy of 10 GPa and 3,000 degrees K temperature and can achieve the high destruction efficiency more than 99.9999%. This system uses "cold plasma" to process the off-gas products of detonation which can also destroy agent if there were any residual amounts after detonation. The cold plasma is used as an oxidizer is to destroy the CO and H2 which are the product gases of the detonation chamber. This controlled detonation process is reportedly being successfully used for the destruction of chemical warfare agents in Japan and Belgium.

IV. CONCLUSION

In light of the referenced deficiencies, G.A.S.P. urges the DEQ and EQC to more fully analyze the alternatives to incineration and consider them fully before making a decision on the BAT to destroy mercury-contaminated mustard agent as well as the entire mustard agent stockpile at the Umatilla Chemical Depot.[6]

Respectfully submitted,

/s/ Richard E. Condit

Richard E. Condit
Counsel for G.A.S.P., *et al.*
richardc@whistleblower.org

[6] G.A.S.P. raised numerous questions/issues with DEQ that have not been addressed. These issues should be formally addressed by the EQC. See, Exhibit 5.

the subsistence farm child, resident child, as well as Native American adults and children.

Finally, the combination of the failure to complete a sufficiently protective risk assessment and the admitted cancer and non-cancer impacts of the incineration technology make clear that a BAT determination that favors baseline incineration is not supported by the record.

III. FLAWED ALTERNATIVES ASSESSMENT

The DEQ's alternatives assessment is also fatally deficient. In particular, the DEQ fails to compare the obvious and significant difference in quantity of the uncontrolled emissions of agent and hazardous chemicals from neutralization, controlled-detonation and incineration facilities. This is a significant omission because incineration produces far greater emissions[3] that will impact human health and the environment. This flaw is a rather obvious effort to artificially minimize the risks of incineration in order to continue to support that technology.

Neutralization has now been successfully used by the Army in Newport, Indiana[4] and Aberdeen, Maryland. Neutralization followed by a protective secondary process has been fully studied by the Army and has been utilized at Aberdeen and has been selected by the Army for the stockpiles in Kentucky and Colorado.[5]

At Aberdeen the Army began neutralization activities in April 2003. See, Exhibit 3 – Army Press Release. Just four years later, the Army not only completed neutralization of the mustard ton containers at Aberdeen, but it completed closure of the facility.

"Today marks a significant achievement in the global chemical weapons disarmament effort. ABCDF is the first chemical weapons disposal facility in the continental U.S. to destroy its stockpile and decontaminate and demolish its plant," said Dale Ormond, Army Chemical Materials Agency acting director. "It is a model for all the other facilities that will follow suit."

See, Exhibit 4 - Army News Report. There is no legitimate reason why Oregon and Washington State residents should not have the same environmental and public health

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[3] The Air Contaminant Discharge Report reflects that UMCDF incinerators will emit tons of hazardous wastes.

[4] While the neutralization of the agent at Newport was successful, the secondary treatment which relied upon incineration at a facility in Texas was not adequately protective of human health and the environment and would not meet Oregon environmental standards.

[5] For example, see, 1999 ACWA Supplemental report to Congress available at http://www.pmacwa.army.mil/ip/archive/publication/rtc/1999_supplemental_rtc.pdf

See, also, ACWA Neut Bio description, April 2002 (Exhibit 1).

Fifth, one of the additional problems with the PTBRA is the treatment of a large number of chemicals that were not specifically identified, termed the Total Organic Emissions or TOE. The work plan for the PTBRA calls for taking the total mass of these emissions, the TOE, and adjusting upwards the emissions of specific "surrogate" compounds to insert the TOE compounds into the emissions profiles. When this procedure is done, the emissions result in risks that exceed the regulatory benchmarks. Unfortunately, the risk assessment does not uniformly include the TOE in any fashion in all the risk estimates. The TOE must be included and if the surrogate method is not used, then an alternative one must be employed, but these emissions must be included in order for the assessment of risk to account for unidentified chemical emissions.

Sixth, the risk estimates for workers and wildlife on the site, labeled on-site receptors, are the highest risks for short term and long term exposure conditions, as expected. This result indicates that the land occupied by the UCD site will not be usable or habitable for many decades, if ever, due to the releases of a variety of compounds that either do not break down at all (metals) or breakdown so slowly as to be almost non-degradable (dioxins). The agent HD (sulfur mustard) is persistent and may remain active for years, depending on how it is released (NRC, 1999).

Seventh, a number of chemicals released from UMCDF cause permanent damage – they exert effects on physiological systems that do not compensate or recover from damage. Neurotoxicants (lead, mercury, PCB's) frequently cause permanent damage, especially to the fetus, neonate or young child. In addition, the effects are cumulative on the target organ, and such cumulative effects are particularly true for the neurological system. These effects are only give cursory consideration in the PTBRA via adding the hazard indices for the individual chemicals. The risk assessment does not consider that the effects of lead, mercury, and related chemicals on the developing brain will be permanent – *i.e.*, the child with elevated lead exposures will always have neurological effects, for the rest of their life.

Even with these shortcomings, the PTBRA indicates that the risks to human health and the environment will be exceeded. The Executive Summary acknowledges that cancer and non-cancer risks exceed the risk-based thresholds established for protection of human health. The hazard indices for ecological receptors exceeded the standards for environmental protection. These standards, 1 in 100,000 excess cancers and a non-cancer hazard ratio greater than 0.25, are the risk benchmarks that are used to protect the public and the environment. The first risk benchmark 1/100,000 is set by Oregon regulation and the latter, 0.25 hazard index (HI), is standard for use in hazardous waste risk assessments. The HI is set at 0.25 in order to account for uncertainty and exposures from sources in addition to the one under investigation.

Specifically, the PTBRA documents unacceptable levels of total excess lifetime cancer risks for certain populations, including off-site subsistence farmers and their children and Native American adults. Unacceptable non-cancer health risks are documented for

II. RISK ASSESSMENT DEFICIENCIES AND CONFIRMED HAZARDS[2]

The DEQ's BAT assessments did not utilize reliable and adequately protective calculations in assessing the risks to human health and wildlife associated with incineration of the mustard agent. For example, the analysis provided in the PTBRA clearly indicates that the UMCDF assessment has many deficiencies that likely underestimate or fail to estimate the risks to human health, wildlife and the environment.

First, the PTBRA does not deal with mixtures, has no evaluation of increased sensitivity of groups such as children, and provides no estimate of risks for people with elevated background risks. The problem with only estimating "incremental risks" is that people or animals already exposed to environmental pollutants or stresses often have a lower threshold for response. Thus, for already exposed individuals, a given exposure will cause a greater effect because their system has already compensated for existing stress conditions. The PTBRA does not consider the fact that local residents are already exposed to radiation from the Hanford facility, from pesticides or from emissions form the nearby coal-fired power plant. All these sources of chemicals add to the exposure burden that the population in the vicinity of UMCDF faces and to the resulting disease burden.

Second, the PTBRA fails to deal with combinations of exposures (multiple exposures) to all the chemicals at once. The risk assessment limits such evaluations to adding up the HI's for individual chemicals. Chemicals have interactions that are not perfectly captured by making the simple assumption that all effects are additive.

Third, the other group of conditions that were not considered in the PTBRA are those that the population faces as a result of the location and other activities. These factors all contribute to the cumulative risk in the local community. This cumulative risk includes exposure to the Hanford facility emissions, exposure to agricultural chemicals and exposure to already elevated dioxins and furans. All of these exposures create a long term cumulative risk that is greater than "average" for the U.S. population. These elevated exposures are not considered in the risk assessment.

Fourth, the risk assessment does not address operating conditions that would be described as upsets or non-normal events, such as occurred in May 2008 when the LIC operated improperly. Such upsets or accidents release chemicals that can be included in a risk assessment as an exposure in addition to the normal operations. Such additional exposures from upsets and accidents should be included because these events happen, as demonstrated in the operating record of the facility. Without adding these operating upsets as another exposure, the risk assessment will underestimate risk even more.

[2] Much of the analysis in this section was provided by Peter deFur, Ph.D.

GOVERNMENT•ACCOUNTABILITY•PROJECT

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Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program
256 E. Hurlburt Avenue
Hermiston, OR 97838

RE: Comments regarding UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers[1]

Dear Mr. Duval:

These comments are submitted on behalf of G.A.S.P., Oregon Wildlife Federation (OWF), Government Accountability Project (GAP), Sierra Club, Karyn Jones, Debbie McCoy Burns, Susan Lee Jones, Robert Palzer, Jan Lohman, and Judy Brown (collectively referred to for convenience as G.A.S.P.). In short, G.A.S.P. strongly disagrees with the DEQ's suggestion that baseline incineration and the proposed modified carbon filtration system (CFS) would be the best available technology (BAT) for the destruction of either mercury-contaminated mustard ton containers or any of the mustard ton containers. The bases for G.A.S.P.'s objections are stated in the passages that follow.

I. DATA PROBLEMS

The DEQ has not tested or required thorough testing of the ton containers to determine the actual number that have "high" levels or mercury or the actual number that have high levels of solid heels. In addition, no testing has been done of the heels in the ton containers to determine whether the heels contain high levels of mercury. Processing containers of uncharacterized or improperly characterized wastes would violate federal and state law.

No is evidence or independent documentation is offered to prove that the sulfur-impregnated carbon (SIC) filters will perform as described in real world conditions and during upsets and malfunctions. No analysis was done to determine the impact on human health and the environment from a filter fire.

[1] G.A.S.P., *et al.* agree with many of the comments offered by Morrow County and incorporate them in these comments by reference.

08-0869

RAY Shilo

From: Richard Condit [richardc@whistleblower.org]
Sent: Monday, August 11, 2008 4:59 PM
To: Duval.Richard@deq.state.or.us
Cc: Karyn Jones; RAY Shilo
Subject: GASP comments
Importance: High

Attached are GASP's comments and exhibits. Please contact me if you have any questions.

Richard Condit

Senior Counsel

GAP

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Tel. 202.457.0034 x. 142

08-0868

RAY Shilo

From: Allison Cornett Cook [acornett@eotnet.net]
Sent: Wednesday, August 06, 2008 9:56 PM
To: CDP
Subject: Public Comment

Dear Richard Duval,

I would like to comment in favor of "best available technology" determinations for the Pollution Abatement System Carbon Filter System and for incineration of mustard ton containers at the Umatilla Chemical Agent Disposal Facility at Hermiston, Ore.

None of the alternatives outlined in the Department of Environmental Quality staff report appear to be ready to replace incineration as the preferred technology for mustard agent disposal. Continuing to study the use of sulphur-impregnated carbon filters to capture mercury is the best path forward at this point. Should it not prove to be effective, we can explore other options at that point.

As a former Hermiston resident who has family living near the Umatilla Chemical Depot, it is of utmost importance to me that we move this project forward to a conclusion as quickly and safely as possible.

Sincerely,

Allison R. Cook
Olympia, Wash.

08-0861

RAY Shilo

From: Russ dorran [rdorran@hermiston.or.us]
Sent: Saturday, August 02, 2008 10:54 AM
To: CDP
Subject: UMCDF Best available Technology determination

8/2/08

Richard C. Duval, Administrator
Chemical Demilitarization Program

Dear Richard ;

Please be advised that I support the UMCDF proposal for administrating the pollution abatement system carbon filter system and mustard- filled ton containers as the best disposal program.

Russell Dorran
960 S. W. 7th St.
Hermiston, OR 97838

Based on the Department's memorandum, while a modification to the existing incineration process might be considered for both the contaminated and non-contaminated mustard agent, and the cost seemingly reasonable (but still quite expensive) – the filters with the sulfur-impregnated carbon, are nonetheless problematic. Although of a different nature, in the past the Army found itself with a similar problem at their Newport, Indiana Facility in its disposal of the hydrolysate derived from an alternative technology process used to treat the chemical agent at that location. As also indicated in the Department's memorandum, other concerns are still evident with the Brine Reduction Area (BRA).

Consideration of "Neutralization," while once under considered for the UMCDF, carries with it local-area concerns for the amount of water that would be necessary to accommodate such processing and the concomitant waste, complex permitting considerations, and its extraordinary costs. Given the permitting considerations, generation of additional wastes, delays to processing and program costs, "neutralization" is not a logical path to follow.

The final method to be considered in the Department's memorandum, the "DAVINCH™ process," appears to have considerable merit as a demonstrated technology; although, not currently identified as a BAT, with consideration for mercury-contaminated mustard agent. In its favor is the enclosed treatment system, thus providing complete and assured containment of the mercury contaminant. Given that opportunities for technology transfer have been an important consideration of the Army's demil process, the portability of the DAVINCH™ process system would seem to fit well into the paradigm, as the system could find later use at the Army's remaining demil sites. This would not only be useful for processing of similarly contaminated munitions, but also for munitions that might somehow prove problematic for other abnormalities (leaker/overpacks, resistant to reverse assembly, etc.).

Given what the National Institutes of Health (NIH) now acknowledges as the risks of even low-level of exposures to mercury, it is reasonable and prudent that we should take all measures necessary (possible) actions to reduce or eliminate possible exposure to mercury in the environment for protection of public health. With that in mind, the reasonable and prudent course for the Department to take would seem to be to have the Army and it contractor to move toward a thorough and rapid investigation of the DAVINCH™ process system for application at the UMCDF. With the endorsement of the National Research Council (NRC) as a demonstrated technology in other countries and the Army's own non-stockpile program, the benefits for technology transfer to the remaining Continental U.S. (CONUS) demil sites would seem to be many. Also, utilization of this technology, in conjunction with existing incineration for non-contaminated mustard agent, would seem to allow for an increase in the rate of processing of mustard agent munitions, given that the two processes could be used simultaneously – thus, providing an even greater level of assurance that the Army might meet its Treaty date for destruction of all chemical weapons.

Thank you for consideration of my comments.

Sincerely,

David P. Trott (Dave), Mayor
City of Umatilla, Oregon.

08-0860

RAY Shilo

From: David P. Trott [dptrott92@hotmail.com]

Sent: Tuesday, August 05, 2008 4:05 PM

To: CDP

Cc: Larry Clucas; Meyers, Steve F.; Chris Brown

Subject: PUBLIC COMMENT : UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Containers;" Hazardous Waste Permit Number ORQ 000 009 431

Importance: High

05 August 2008

To: Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program
256 E. Hurlburt Avenue
Hermiston, OR 97838
Phone: (541) 567-8297 or
(800) 452-4011 (toll-free in Oregon)
Fax: (541) 567-4741
E-mail: cdp@deq.state.or.us

From: David P. Trott, Mayor
City of Umatilla
PO Box 130
Umatilla, OR 97882
Dptrott92@hotmail.com

Cc: Larry Clucas, City Manager
City of Umatilla

Re: "Public Notice : Request for Comments, UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Containers;" Hazardous Waste Permit Number ORQ 000 009 431"

Dear Mr. Duval:

First, it is important to recognize the achievement of the Umatilla Chemical Agent Disposal Facility (UMCDF), which is almost four (4) years of safe operation in its the mission to destroy the munitions stockpile containing chemical nerve agent at the Umatilla Chemical Depot. Clearly, the Army and Washington Group International (now division of URS/EG&G), have been both protective of human health (the public) and the environment, and of the stockpile and demilitarization workers. The destructive process for the chemical weapons (incineration) has proven to be both safe and effective to date.

As the Army and its contractor move forward toward the International Treaty date for destruction of the chemical weapons, the information contained in the memorandum documenting the department's (DEQ's) analysis of best available technology as it pertains to treatment of high mercury mustard ton containers at the UMCD/UMCDF, does give reason to pause in consideration of other technologies that either have been considered and used at other demilitarization sites, and to technology not previously available for consideration at the time when the original Hazardous Waste Permit was first considered and subsequently approved. In view of the mercury contaminant, and what is presently known about the human health hazards of mercury, a more cautious approach to the final destruction of the mercury-contaminated mustard agent appears to be a very reasonable and prudent course of inquiry.

RAY Shilo

08-0859

From: Tim Mabry [tmabry@creditsinc.com]
Sent: Tuesday, August 05, 2008 5:29 PM
To: CDP
Subject: UMCDF BAT Determination

To Whom It May Concern:

As a "red zone resident" I cannot too strongly urge you to let the incineration process continue to completion.

I appreciate your diligence but the prudent course is to keep going.

Tim Mabry
78891 Doherty Rd.
Hermiston, OR 97838

Page 40, Paragraph 2, Text Stating: "*...the disposal of PAS brines may strain the ability of TSDFs in the region to manage such wastes...*"

Comment: The site is proposing to generate wastes that far exceed the regions capacity. The solution is to ship the material to other regions. The HD brine shipment transportation risk assessment must be updated to include this option.

Requested Action: The HD brine off-site shipment risk assessment must be updated with the new projections for destination of brine shipments.

Requested Action: The Army cannot rely on these uncertain values to determine Hg levels at the UMCDF. TC sampling at the UMCD fir both liquids and solids must be completed to better estimate the quantity of solids and Hg (and other co-contaminants) in the UMCD HD TC stockpile. Once an accurate value is determined this EA can be revised to reflect the actual levels of Hg to be processed.

Page 32, Paragraph 3, Text Stating: "*...If a 99% mercury removal efficiency is assumed...*"

Comment: See comments above on the removal efficiency and full-scale design.

Requested Action: The Army must prove the removal efficiency in pilot-scale testing with actual HD incineration before they can definitively claim a projected removal efficiency.

Page 33, Section 3.1.4: General comment.

Comment: The claims of meeting emission limits are premature as the Army does not know their feed composition nor the actual performance of the PFS filters with SIC under real processing conditions.

Requested Action: Re-do this analysis once proper processing and feed data has been collected.

Page 33, Paragraph 2, Text Stating: "*...shows the UMCDF's mercury emission limits in the RCRA Permit...*"

Comment: Based emissions for the LIC projected on Page 33 of the EA (12 lb over 1.5 years), the LIC will be in violation of the current RCRA permit limit of 3.1E-05 (g/s).

Requested Action: Install the SIC PFS on both LICs for HD processing.

Page 36, Paragraph 3, Text Stating: "*...the average concentration of mercury in those liquid brines would be 4.3 mg/kg...*"

Comment: The HD brine off-site shipment risk assessment only evaluated Hg at 0.0522 mg/kg. The risk of shipping HD brines with these higher concentrations has not been evaluated. This comment also applies to EA Section 3.2.3

Requested Action: The HD brine off-site shipment risk assessment must be updated with the new projections for the concentrations of Hg, As, and any other co-contaminant identified in TC sampling efforts.

3. Of the 99 lots stored at the UMCD, only 32 are in common with the DCD. This means that TCs from 67 lots stored at the UMCD have never been sampled. The Army is making the assumption that these lots are statistically similar to adjacent lots. This assumption is untested and unproven and so adds additional uncertainty to the mercury estimate.
4. No indication is given by the Army on the heterogeneity of the composition of the solids within a given TC. It appears from the 2004 sampling report that a single solids sample was pulled from each TC and they are making the assumption that this single sample represents the chemical composition of all the solids in the TC. Given the uncertain history of the formation of the heel, and its heterogeneous appearance, it is unlikely that the heel has a uniform chemical composition. For example, what if Hg were introduced from processing instruments in a free phase (See DEQ Item number 07-1100) and this material settled as free mercury in the bottom of the TC and slowly dissolved with time. If soils were forming at the same time, it is possible to envision Hg hot spots in the TC heel as the solid settled around the free phase mercury. The assumption of homogeneous solids composition adds uncertainty to the mercury estimate.
5. The Army has assumed that TCs with liquid levels of mercury below the PQL also have negligible amounts of Hg in the solids. Assuming a PQL of 0.55[10] ppm, and applying a linear regression for the high Hg data that showed liquid Hg between 1 and 4 ppm, this reviewer has estimated that there is an additional 230 lbs of Hg contained the "low-Hg, high-heel" TCs. The assumption of no Hg in containers with low liquid concentrations, but high-heels, adds uncertainty to the mercury estimate.

In conclusion, the army has generated this estimate from uncertain volumes of solids with uncertain concentrations in an uncertain number of TC. These three unknowns are then multiplied together to get the result. The total uncertainty of the result can be estimated by the following equation[11]:

$$Q = (\Delta TC)(C)(W) + (\Delta C)(TC)(W) + (\Delta W)(TC)(C)$$

Where Q represents the error in the estimated total mass of Hg in the ton containers at the UMCD, TC represents the estimate number of ton containers with high mercury (430), C represents the average Hg concentration in the solids (0.00244 lb/lb_{solids}), W represents the average weight of the solids in the ton containers (318 lb_{solids}). The delta (Δ) quantities represent the estimated error in each parameter. Assuming an error of just 10% in each parameter results in an overall error of 100 lbs Hg. Note this analysis ignores the error introduced by item 5 in the above list which already has introduced an error of 69% (230 lbs more than the estimated 335 lb Hg in TC solids) in the Hg estimate.

[10] There is some inconsistency in the PQL level in Army's reports on this issue. The value may be as low as 0.24 ppm for Hg in liquids. The value of 0.55 ppm was selected to be consistent with CMA projections found in "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*"

[11] H.S. Mickley, T.K. Sheerwood, and C.E. Reed, 1957. Applied Mathematics in Chemical Engineering, McGraw Hill, New York, New York, pg 53.

should evaluate these additional mercury, arsenic, and any other co-contaminants in light of current mercury levels in the Columbia and Umatilla River basins and in conjunction with other emission sources in the area.

Requested Action: Please reevaluate the Human health and ecological risks of the proposed action as outlined in several place within these comments.

Page 30, Paragraph 4, Text Stating: "*This quantity of mercury therefore establishes the threshold at which any additional mercury introduced into the environment around the UMCDF would warrant further, detailed evaluation. The threshold value of 33.5 pounds is used in the following bounding analysis.*"

Comment: This analysis is based on the fact that this new addition of 33.5 pounds of mercury (and an unspecified quantity of arsenic and other compounds) is acceptable to the surrounds populations. It is not acceptable to the CTUIR who are currently dealing with mercury contamination in their Treaty reserved fish resources.

Requested Action: The Army must work with the CTUIR to apply the ALARA[9] principal to the processing strategy for incineration of mustard filled TC.

Page 32, Paragraph 2, Text Stating: "*By using the observed average value for the mercury in the TC sampled at DCD, the total quantity of mercury in the inventory of mustard agent at the UMCD has been estimated to be about 350 pounds.*"

Comment: The CTUIR has serious doubts about the accuracy of this estimate for the following reasons:

1. The estimate of the total quantity of solids in the TCs was developed based on depth sampling by inserting a stick into the TCs. The army is assuming they have accurately characterized the volume of the solids using this method. However, this method will not be very accurate given the irregular shape of the heels. The inaccuracy of the method has been verified by observation at TOCDF (Personal communication with UMCDF environmental staff). The assumption of a well defined volume adds uncertainty to the mercury estimate.
2. The average solids concentration has been estimated from samples taken from 98 out of the over 13,000 TC produced at the RMA. The Army is assuming these 98 TC accurately represent all TC in the stockpile. It is highly unlikely that this is a representative data set for the full population of the TCs since it does not even span all lots that are the most likely to contain high mercury (Lots 91 through 297, DEQ Item Number 07-1100). This assumption adds additional uncertainty to the mercury estimate.

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[9] As Low As Reasonably Achievable.

Requested Action: The CTUIR does not agree that the desire to meet a schedule is a valid reason to increase the environmental contamination our homeland. The Army's HD TCs have been in existence for more than 60 years, and have been at Umatilla for 40 years. An additional one to five years in their destruction is small in comparison to the many generations that will bear the continual burden of mercury contamination in our lands. This EA should focus on evaluating alternatives based on the long-term environmental impacts of the alternatives.

Page 26, Section 3, Section Titled: HUMAN HEALTH AND ECOLOGICAL RESOURCES

Comment: This section is based on the 1997 HHRA which does not adequately represent UMCDF operations. The evaluation in this section should be redone using the 2008 CTUIR HHRA and ERA as its basis. In addition, this analysis should re-evaluate both the human health and ecological risks using the estimated new emissions for the common stack and BRA stack while the other modeling parameters are kept consistent with the values used by the CTUIR in their 2008 report. Finally, an evaluation should be completed that takes into account the cumulative impacts of mercury on the Umatilla River and Columbia River watersheds. This cumulative assessment must include background mercury levels along with other major mercury emission sources[8].

Requested Action: Please reevaluate the Human health and ecological risks as outlined above.

Page 30, Paragraph 4, Text Stating: "*This quantity of mercury therefore establishes the threshold at which any additional mercury introduced into the environment around the UMCDF would warrant further, detailed evaluation. The threshold value of 33.5 pounds is used in the following bounding analysis.*"
Comment: As stated previously, the 1997 HHRA was not site specific and is not the document that should be used as the basis for this analysis. The 2008 HHRA and ERA evaluation was based on a total mercury emission of 4.9E-06 g/s (sum of common stack and BRA stack). This emission rate is equal to a total mercury emission of <u>3.4 lb</u> for the full projected 10 years of operation which is <u>10 times lower</u> that the quantity quoted above. Applying this value to the analysis contained in this ERA would indicate that the proposed action will clearly surpass the levels shown safe by the risk assessment process. It should be remembered that the 2008 risk assessment predicted higher levels of risk at the UMCDF than the 1997 risk assessment because of differences in the modeled exposure patterns and because the 2008 analysis evaluate a larger suite of contaminants that have been measured at chemical demilitarization facilities. The combined effects of the full suite of emissions from the UMCDF, along with the new exposure scenarios and pathways established in the 2004 Risk Assessment Work Plan (RAWP) must be evaluated in this EA before any conclusions can be reached. In addition, the Army

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[8] For example, the PGE coal fired power plant near Boardman, OR which releases approximately 200 lb/year of mercury.

laboratory data show that significant desorption can occur. Give that feed conditions are variable for both the MPF and the LIC, it is not apparent to this reviewer that mercury adsorbed to the SIC under agent feeding conditions will remain on the SIC and not desorb and propagate through the furnace when only natural gas is being burned. Furthermore, the SIC has only been tested in laboratory scale tests. The tests to date used columns that are are approximately 1/4000th the scale of the PFS units[6] and were operated under very controlled conditions. Directly applying these results to the full-scale filters under the highly variable process conditions that occur at the UMCDF may not be appropriate. Standard engineering texts indicated that the maximum scale-up for packed columns is 100:1.[7]

Requested Action: The UMCDF should not serve as the pilot-plant for testing the SIC technology. The Army needs to evaluate this process in an approved pilot-test facility that is designed and instrumented properly and that can mimic actual operation of the MPF and LIC. Once true pilot testing has been completed the Army can re-evaluate this EA using a proven removal efficiency.

Page 15, Paragraph 4, Text Stating: "*Additional equipment would be installed at the BDS to break up and mobilize the solid heel in those TCs with a heel content greater than about 600 lbs.*"

Comment: The basis for this 600 lb cut-off is not clear to this reviewer. The current RCRA permit only allows heels of up to 85 lbs.

Requested Action: Please substantiate the proposed heel cut-off of 600 lbs.

Page 20, Table 2, Text Stating: "*Volumetric Flow at Exit Temperature (m^3/s) 14.70.*"

Comment: This flow rate seems high. The 2008 HHRA used a total common stack flow rate of 6.3 m^3/s. The RCRA permit material and energy balances show flow rates of approximately 3 m^3/s for both the MPF and LICs.

Requested Action: Please evaluate the validity of the flow rate.

Page 21, Section 2.3, Section Titled: ALTERNATIVES TO THE PROPOSED ACTION

Comment: The primary reason behind rejecting the actions in Sections 2.3.1. through 2.3.3 is the inability to meet a schedule requirement.

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[6] EERC, 2008. SAIC Mercury Control: Fixed-Bed Adsorption for Mercury Emission Control in the U.S. Army Chemical Demilitarization Incinerators, Phase 2B Draft Final Report, SAIC, Abingdon, MD.
[7] Peters, M.S. and K.D. Timmerhaus, 1991, Plant Design and Economics for Chemical Engineers, Fourth Edition, Mc Graw Hill, New York, New York.

Requested Action: Please reevaluate the indicated statement given that the TCs have higher than anticipated levels compounds other than mercury.

Page 13, Paragraph 5, Text Stating: "*Under the proposed action, SIC would only be installed in the PFSs for the MPF; the PFSs for the LICs are not expected to require SIC upgrades due to the plan to control the feed of mustard in the LICs so as to comply with applicable mercury emission limits and regulations.*"

Comment: The Army should be concerned with both feed limits and emission limits. This reviewer has the impression that the site intends to increase feed levels to the point that emissions are near the permit limits[5]. This is an unacceptable approach to the CTUIR since the emitted mercury will reside in our environment and contaminate our resources and our peoples. The Army will leave in a few years, but the peoples of the CTUIR will remain and bare the burden of the contamination for generations. As such, the Tribe desires the Army to be a good neighbor and pursue a policy that drives down emissions to the lowest level reasonably achievable. In this instance an ALARA (As Low As Reasonably Achievable) approach would result in installing SIC filters for both the MPF and LIC.

Requested Action: Please use SIC filters for both the MPF and LICs to reduce mercury emissions to levels as much as possible.

Page 13, Paragraph 3, Section Title: Upgrades for the existing PFSs

Comment: This section only discusses upgrades necessary to remove mercury. Why has the Army neglected other hazardous constituents with elevated levels?

Requested Action: Please indicate what other system upgrades are needed to remove the other contaminants with elevated concentrations.

Page 14, Paragraph 1, Text Stating: "*The proposed SIC filter media is expected to remove at least 99% of the mercury from the exhaust gas stream.*"

Comment: The analysis in this EA is based largely on the assumption of 99% removal. This removal efficiency has been demonstrated in laboratory experiments at the University of North Dakota Energy and Environmental Research Center. A review of the reports generated from this effort indicates that this research effort is both well planned and properly executed. The results, however, raises several outstanding questions associated with the stability of mercury removal. It is evident that acid gases have a large impact on the adsorption and desorption characteristics of SIC. Without these gases the

[5] Please note that this document states that feeds up to 32 ppm mercury are safe for the LICs. However, the current permit limits Hg feed to the LIC at an average of 0.78 ppm (calculated as [1.02E-03 lb-hg/hr]/[1305lb-HD/hr]).

Page 10, Paragraph 6, Text Stating: *"The preliminary findings of the in-progress HHRA indicate that there would be adverse human health impacts.... (USACHPPM, 2008)."*

Comment: The CTUIR is strongly opposed to the use of USACHPPM for any risk assessment work at the UMCDF. This organization was unreliable and unwilling to work collaboratively with the local community during the 2007-2008 risk assessment process. Their 2008 risk assessment report ignored the major risk driver (non-volatile TOE) and so presented erroneous conclusions.

Requested Action: Do not relay on USACHPPM to complete any risk assessment work associated with the UMCDF. This risk work should be based on the CTUIR/DEQ risk model and should involve the same collaborative team used to produce the 2008 HHRA and ERA.

Page 13, Paragraph 2, Text Stating: "*Baseline processing at the UMCDF is expected to be capable of destroying an estimated 60% of the TCs in storage at the UMCD (i.e. the TCs having both low-mercury and small solid heels).*"

Comment: Has the Army considered co-contaminants in the TC such as arsenic? Figure 6 indicates that there are many TC with heels less than 80 lbs that have low mercury, but high arsenic.

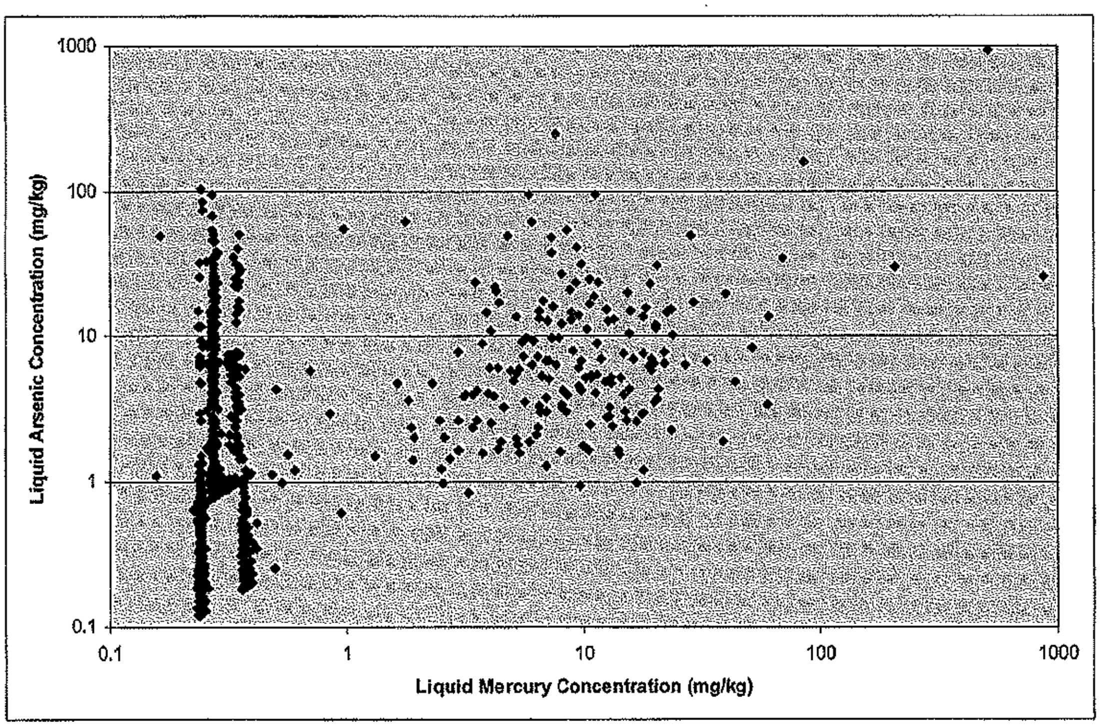

Figure 6: Liquid Arsenic concentration plotted against liquid mercury concentrations for individual TOCDF TCs with heels below an estimated 80 lbs (n=662).

Page 7, Paragraph 3, Text Stating: *"At this time, the TCs that appear suitable for baseline processing are those with little or no mercury contamination and with small heels (i.e...32 ppm mercury and 600 pounds of heel)."*

Comment: This statement is in conflict with the current RCRA permit which limits the heel to 85 lbs and the mercury concentration to 2.4 mg/kg (calculated as [2.06E-04lb-hg/TC]/[85lb-heel/TC]).

Requested Action: Please indicate why you are assuming these limits are suitable for processing when they far exceed the safe limit established in the RCRA permit.

Page 9, Paragraph 4, Text Stating: *"A human health risk assessment (HHRA) (Ecology and Environment 1997) was completed for the hypothetical atmospheric emissions..."*

Comment: The 1997 HHRA and Ecological Risk Assessment (ERA) were based on emissions estimates from the Johnston Atoll facility (JACADS) and did not include many site specific characteristics and exposure pathways. Both the HHRA and ERA have subsequently been updated to reflect measured emissions data at the UMCDF and site-specific exposure scenarios such as the Native American scenario. Results from the new risk assessments were very different from the 1997 evaluation and this EA should base evolutions on the 2008 HHRA and ERA. It is the opinion of the CTUIR that any risk assessment involving mercury emissions in our ceded lands, especially near the Columbia and Umatilla rivers, must include a cumulative analysis where background mercury levels are included along with other major emission sources (for example the PGE coal fired power plant near Boardman, Oregon which releases approximately 200 lb/year of mercury). At present, fish within the area already are showing elevated mercury levels (Columbia River Basin Fish Contaminant Survey [EPA-910-R-02-006], 1998).

Requested Action: Please use the <u>2008 CTUIR HHRA and ERA</u> for the UMCDF as the basis for this EA. Also include a cumulative risk analysis for mercury that incorporates background mercury levels along with other major emission sources. Both central tendency and upper bounds of potential mercury emission must be evaluated. Also, the analysis must include an upset evaluation with the new projected levels of mercury and arsenic (and any other compounds which are anticipated to increase). Note that the CTUIR is opposed to the use of USACHPPM for this work since this organization was unreliable and unwilling to work collaboratively with the local community during the 2007-2008 risk assessment process.

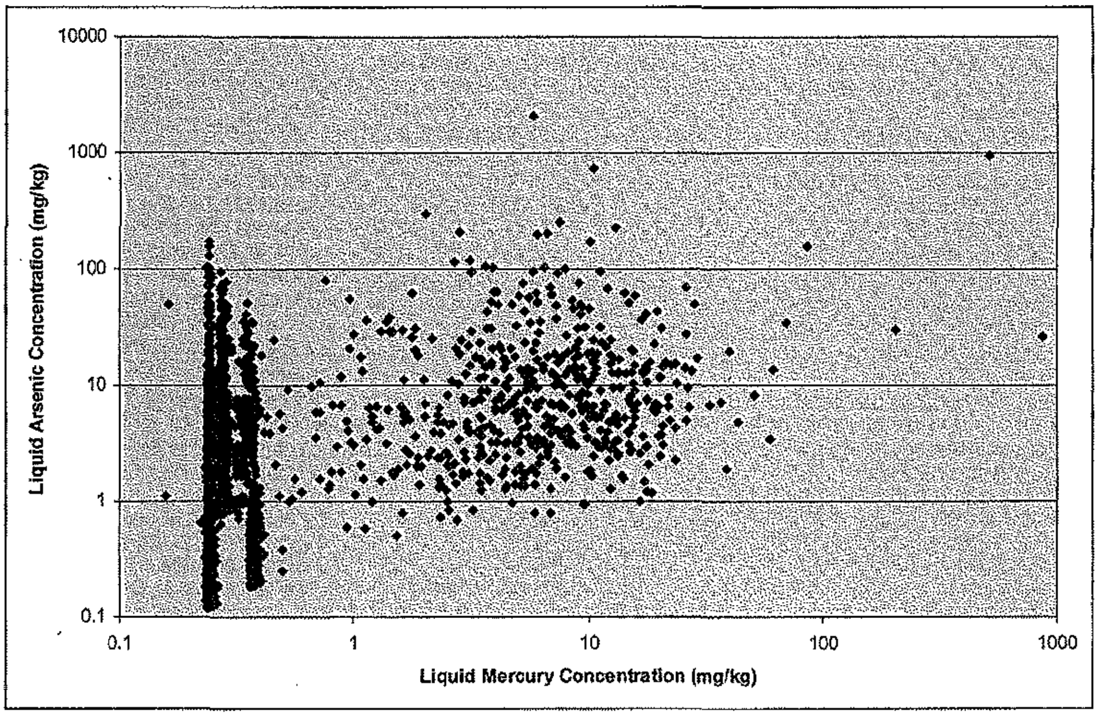

Figure 5: Liquid Arsenic concentration plotted against liquid mercury concentrations for individual TOCDF TCs.

Requested Action: Please identify ALL the compounds that will exceed current permit limits (feed or emissions limits) and include these in the Environmental Assessment.

Page 6, Last Bullet, Text Stating: *"Alternatives for management of liquid scrubber brines....would be shipped off site."*

Comment: The UMCDF currently has requested a modification to the site RCRA permit to allow off-site shipment of HD brines. This request is backed by a report from the CTUIR showing that off-site HD brine shipments do not pose a large risk to the environment. This report, however, was based on evaluating the spill of a shipment of brine which had an estimated metals concentration equal to that measured in TOCDF when processing low-mercury HD. This analysis should be expanded to include the anticipated concentrations of mercury, arsenic, and any other compound that is anticipated to be in brines from the high mercury and high arsenic TCs.

Requested Action: Please revise the transportation risk assessment for HD brines to incorporate the anticipated brine composition for high mercury and/or high arsenic TCs. This analysis should be included in the EA.

Page 4, Paragraph 5, Text Stating: *"Based on the DCD data, a statistical model has been developed to predict the anticipated mercury concentrations in TC by lot number and serial number."*

Comment: This reviewer was not able to find data to indicate the variability of metals concentrations that are observed for the solid component within a given TC. The supposed statistical model referred to in the EA appears to be based on a single measurement of liquid and solid concentrations within a given TC. However, this reviewer would expect the heel to be highly heterogeneous. Has the Army evaluated the heterogeneity that exists within the solid heel?

Requested Action: Please provide information on the heterogeneity within the solid heel and the justification why the solids data collected for the 98 TC can be considered to be representative of the whole heel within the TC.

Page 4, Paragraph 6, Text Stating : *"Based on the sampling of TCs at the DCD, up to 30% (i.e. about 790 TCs) of the UMCD inventory would be expected to contain high solid heels that could present a challenge to the processing of these TCs in the MPF."*

Comment: As stated in the above comment, the UMCDF has TC from 67 lots that are not stored at the DCD. Hence, no representatives of these lots have been sampled and these estimates are only educated guesses.

Requested Action: An accurate assessment of the quantity of solids that must be processed in UMCDF TC can only be determined by direct sampling of all 2635 TCs stored at the UMCD. Such sampling must be completed before an adequate analysis of the environmental impacts can be determined.

Page 4, Paragraph 6, Text Stating: ""*...information obtained at the TOCDF about the processing of low-mercury, low-heel TCs and regarding the sampling of incineration exhaust gases has confirmed that the TOCDF can safely process those TCs.*"

Comment: I assume from the context of the paragraph the writer meant to say "*...the processing of low-mercury, high-heel, TCs...*" It is not clear from the information available at the time of this review that TOCDF evaluated arsenic emissions during the processing of high-heel, low-Hg TC. As indicated in Figure 5, many TC that contain low mercury have high levels of arsenic (based on liquid concentrations). Assuming that high liquid levels of arsenic translate to higher levels of arsenic in heels, this would indicate that the case of high-heel, low-mercury, high-arsenic must be evaluated to ensure environmentally safe operations.

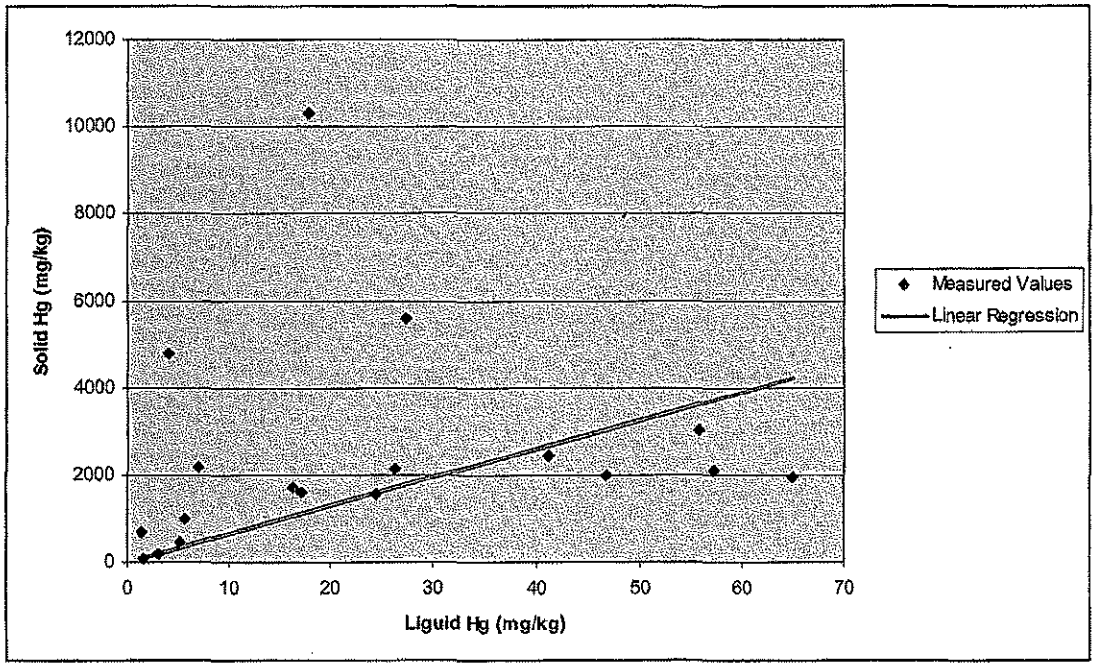

Figure 4: High Hg data from Figure 3 plotted on linear scale.

Again, it is evident from reviewing the data that it is impossible to obtain an accurate estimate of solid concentration of mercury from the liquid concentration. For example, a liquid value of near 5 mg/kg may correspond to a solids concentration of between approximately 400 and 4800 mg/kg. It should also be noted that, as with the low Hg data set, the highest solids concentration (10,300 mg/kg) was measured for a TC a relatively low Hg concentration in the liquid (17.8 mg/kg).

Requested Action: An accurate assessment of the quantity of mercury in TC (both in the liquids and solids) must be determined for the UMCD. This information can ONLY be accurately determined by directly sampling all 2635 TC stored at the UMCD. Without this data on individual TC it will be impossible to know the feed rate for mercury and other metals to the MPF. Not knowing these feed rate to the MPF means that the we can no longer apply the current regulatory strategy of establishing a maximum feed rate for individual compounds (under worst case emission conditions) and then verifying emission levels under these conditions in a trial burn. Furthermore, it is impossible to know if emissions will remain below levels determined safe through the risk assessment process.

associated with the *second lowest* liquid concentration (0.065 mg/kg). Finally, the high concentration data group is reproduced in the following table and graphed on a linear axis in Figure 4. A line indicated the best fit linear regression for this data is also provided on Figure 4 ($r^2 = 0.35$).

Table 1: Mercury Concentration for 18 TC with Hg above 1ppm (out of 98 Sampled for both solids and liquids). [a]

Data Point Number	Liquid ppmw)	Noncohesive Solids (ppmw)	Solid (ppmw)
1	24.5	2830	1580
2	41.1	1450	2440
3	17.8	861	10300
4	26.3	2120	2140
5	46.8	1560	2010
6	57.2	2580	2110
7	5.2	238	442
8	**1.47**	**101**	**694**
9	**1.62**	**343**	**95**
10	27.4	2910	5590
11	5.75	873	996
12	17.1	17.2	1600
13	16.3	1210	1740
14	65	1810	1960
15	6.96	621	2200
16	55.8	75.9	3020
17	**3.02**	**210**	**185**
18	4.06	1700	4780

[a] Bold values indicate liquid levels near 1 mg/kg

each TC without sampling each TC. Review of the data from the 98 TC in which both liquid and solid sampling was conducted reveals that there is no predictive correlation between liquid concentration and solid concentration. Figure 3 of "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*" has been reproduced here to illustrate this point.

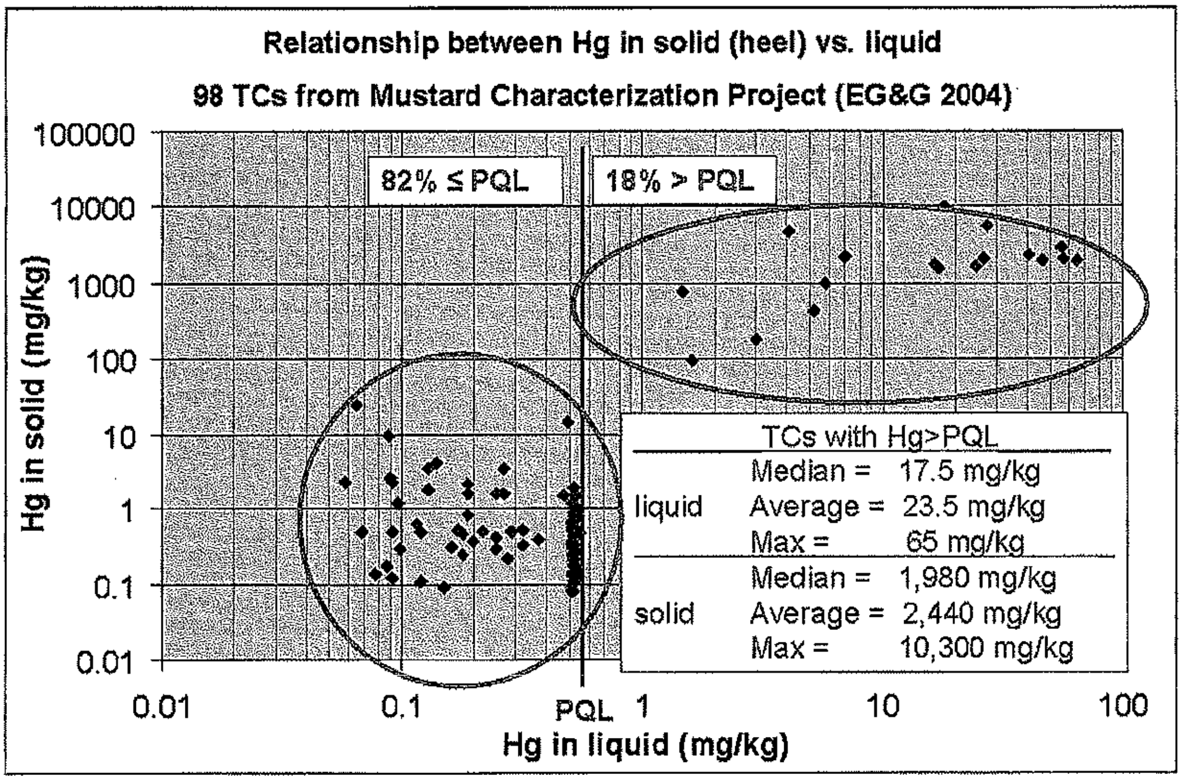

Figure 3: Reproduction of Figure 3 from DEQ Item Number 08-0594. Data is from 98 TC where both liquid and solid Hg levels were measured.

The Army used this figure to make the case that the data falls into two groups as indicated by the green and red circles. From the opinion of this reviewer, it is difficult to agree with this assertion given that only 98 out of 13,608 TC produced at RMA were sampled for both solids and liquids and that no data is reported for samples with liquid Hg levels between approximately 0.6 and 1.5 mg/kg (The full TOCDF HD liquid sampling identified at least 49 TC with Hg levels in this range (see Figure 2, above). Estimated heel weights for these 49 TC averaged 486 lbs (Range 0 to 875 lbs). Adding data in this range will likely close the visual gap between the two groups and remove the artificial distinction between "low" and "high" mercury TC.

The lack of a predictive correlation between the liquid and solid concentration is further indicated by the above figure where the cluster of values near 0.5 mg/kg (liquid) show solid concentrations ranging from approximately 0.09 mg/kg to 11 mg/kg. Also, consider that the highest solid concentration value in the "low" Hg (approximately 14 mg/kg) is

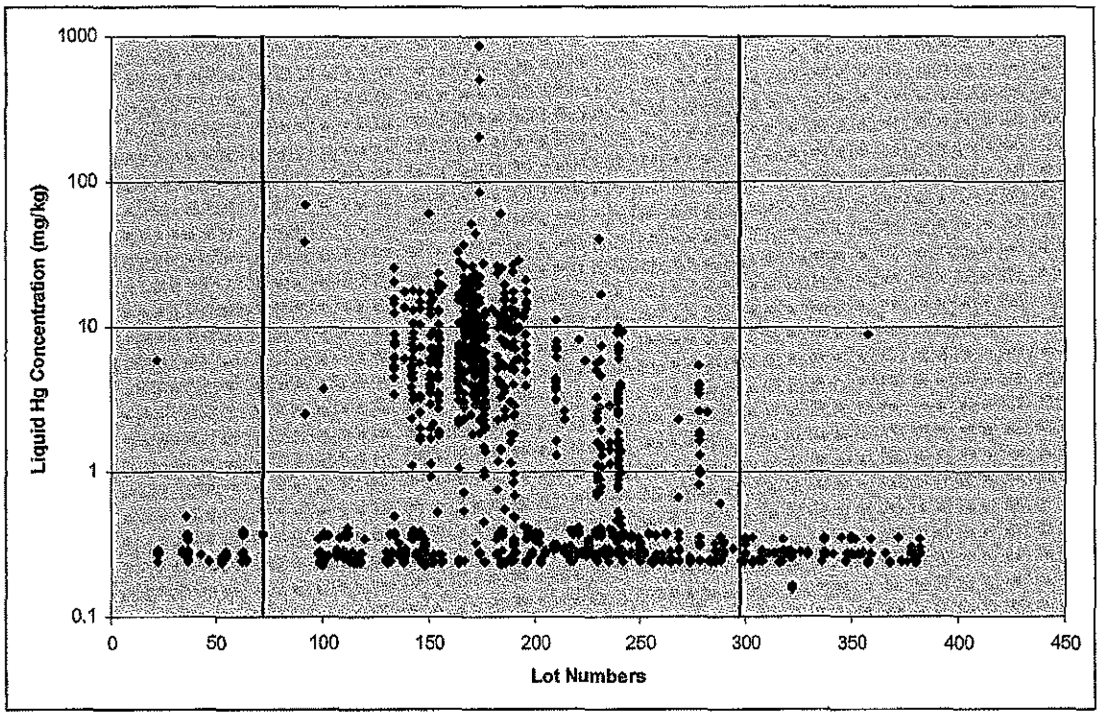

Figure 2: Mercury concentrations (mg/kg) in HD liquids in TOCDF TC.

Requested Action: Please identify ALL the compounds that will exceed current permit limits (feed or emissions limits) and include these in the Environmental Assessment.

Page 4, Paragraph 5, Text Stating: *"Based on the DCD data, a statistical model has been developed to predict the anticipated mercury concentrations in TC by lot number and serial number."*

Comment: The CTUIR reviewed the report titled "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*" (DEQ Item Number 08-0594) in conjunction with this EA and has concluded that it is not appropriate to base the UMCD processing strategy on the DCD (Deseret Chemical Depot) ton container data for several reasons. First, of the 99 lots present at the UMCD, only 32 are also part of the DCD stockpile. The other 67 lots are unique to the UMCD and so have not been sampled. The Army is basing their heel and mercury estimates on the assumption that these 67 lots are similar to adjacent lots. However, because each lot represents a distinct, single, large batch, (created over 60 years ago) there may be unreported differences in the manufacturing or storage process that has created unforeseen differences between lots. Hence, the projects used in the EA for the number of TC with high heel content and/or high mercury content may not be accurate, making the basis for the assessment and resulting FONSI uncertain.

Furthermore, even if specific lot numbers and/or TC numbers could be identified as suspect based on historical data from the RMA (See DEQ Item Number 07-1100), there is still no way to know the liquid concentration, solid concentration, and solid content of

Environmental Assessment

Page 4, Paragraph 5, Text Stating: *"Based on the on-going sampling of TCs at the DCD, approximately 14% of the DCD inventory of TCs is expected to contain elevated mercury concentrations."*

Comment: Review of the document "Mustard Characterization Project Report for Deseret Chemical Depot Mustard Ton Containers" (EG&G, 2004) indicates that other compounds are also elevated in some TCs. For example, the 18 TCs with high Hg also had an average arsenic level of 2169 mg/kg in the solids (range was 33.4 to 12,900 mg/kg). Using the same calculation applied to Hg in the EA (to estimate 335 lb Hg is solids), this arsenic level equates to 298 lbs of arsenic. The current feed limit to the MPF for this compound is 0.0982 lb/tray which equates to a maximum heel of 45 lbs at the average arsenic concentration. A TC with a 600 lb heel would contain 1.3 lbs of arsenic. The presence of arsenic is further confirmed by TOCDF TC sampling. The following two figures provide the liquid concentrations of arsenic and mercury measured in 4048 TC at TOCDF.

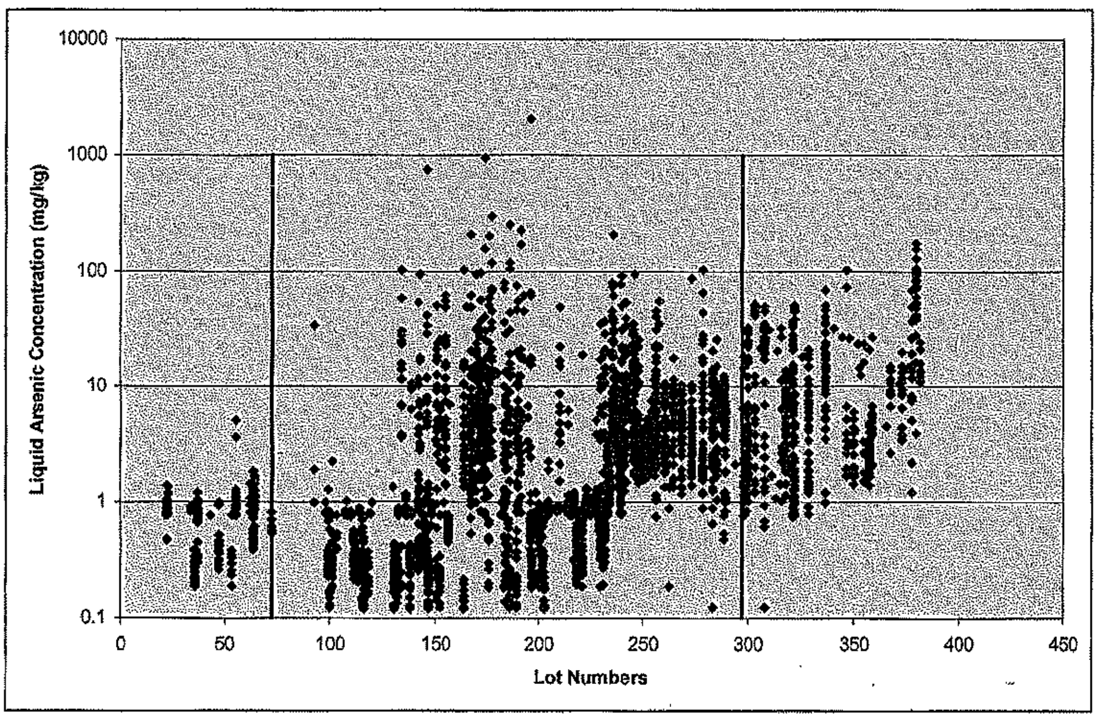

Figure 1: Arsenic concentrations (mg/kg) in HD liquids in TOCDF TC.

- Improper risk assessment analysis by the application of the 1997 pre-trial burn risk assessment and not the 2008 post-trial burn risk assessment.
- Neglecting contaminants other than mercury that have been observed in the HD TCs.
- Neglecting the cumulative impacts of mercury on the health of the surrounding region.
- Neglecting evaluation of off-site transportation risk of high mercury brines.
- The assumption that it safe to expose the surrounding populations to additional mercury contamination and that the surrounding population is willing to accept the additional contamination.
-

The CTUIR would suggest the Army cannot adequately complete this EA until they have accurately sampled the solids and liquids in the 2635 TC at the UMCD (both for volume and chemical composition) and adequately demonstrated Hg removal using SIC in a pilot-scale facility (at least 40 times greater that what has been currently operated, but 400 times would be more standard for scaling packed bed systems[4]). Finally, the EA should include a discussion of the proposed mercury monitoring strategy that would be coupled with the system to ensure compliance.

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.
Manager, CTUIR-EMP/DOSE

Cc:
Stuart Harris, Director, CTUIR DOSE
Mr. Rich Duval, Oregon DEQ
File

Enclosure

[4] Peters, M.S. and K.D. Timmerhaus, 1991, Plant Design and Economics for Chemical Engineers, Fourth Edition, Mc Graw Hill, New York, New York.

sample represents the chemical composition of all the solids in a given TC. Given the uncertain history of the formation of the heel, and its heterogeneous appearance, it is unlikely that the heel has a uniform chemical composition.

5. The Army has assumed that TCs with liquid levels of mercury below the PQL also have negligible amounts of Hg in the solids. Assuming a PQL of 0.55[3] ppm, and applying a linear regression for the high Hg data that showed liquid Hg between 1 and 4 ppm, it can be estimated that there is an additional 230 lbs of Hg contained the low-Hg, high-heel TCs.

The uncertainty generated by these assumptions creates an even greater uncertainty in the properties (amount and composition) of feed stocks to be processed in the MPF and LIC. As a result, it impossible to evaluate the accuracy of the emission levels calculated in this EA. It should be noted that the CMA (Chemical Materials Agency) has no experience processing large quantities of mercury laden heels and so does not really know how this highly heterogeneous material will release mercury (and other compounds) to the PAS. Once in the PAS the Army does not know how much material will be removed in scrubber brines and how much will remain in the gas phase. Finally, the performance of the PAS with SIC is also an unknown as the material has yet to be tested beyond bench-scale experiments. The scale tested to date is 1/4000th that of the UMCDF PFS based on the cross-sectional area of the carbon beds. In addition, these tests have been conducted using simulated gas feeds that may, or may not, represent the full suite of processing conditions that occur in the full-scale units.

Finally, this EA only evaluates the impacts of mercury contamination in the TCs. A review of the data generated from the 2004 sampling report for TOCDF TCs indicate that there are also elevated levels of arsenic, and possibly lead, manganese, and nickel in the TCs. The impact of these compounds must also be included in this assessment.

With regard to off-site shipment of HD brines, it is the CTUIR's official position that liquid waste be processed on-site. However, we recognize that processing of mercury laden brines has the potential to emit unacceptable levels of contamination onto land and resources the CTUIR holds as a treaty right. In light of these potential conflicting constraints, the CTUIR requests the Army complete an evaluation of the potential risks associated with both processing and shipping the mercury laden brines and engage in government-to-government consultation with the CTUIR on this issue. It should be noted that the HD brine shipment risk assessment recently completed by the CTUIR did not include the high levels of mercury, arsenic, and other co-contaminants found in the TC.

In summary, the CTUIR-DOSE finds this EA to be inadequate since it is based on:

- Imprecise estimates of the total quantity of heels and the concentration distribution of hazardous compounds within the heels.
- Unproven performance of the SIC in a full-scale PFS unit.

[3] There is some inconsistency in the PQL level in Army's reports on this issue. The value may be as low as 0.24 ppm for Hg in liquids. The value of 0.55 ppm was selected to be consistent with CMA projections found in "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*"

process.[1] However, as you will see in our attached comments, it is clear the Army is proposing to increase emission levels far beyond what has been demonstrated in the 2008 risk assessment. The Army's choice to use the 1997 pre-trial burn risk assessment for the basis of the EA is inappropriate since the 1997 risk assessment did not include site-specific data such as emissions rates, emission conditions, processing schedule, exposure pathways, and the exposure profile for unique local populations such as Native Americans. Including this information in the 2008 analysis generated a very different risk profile than was observed in 1997. Furthermore, it is the opinion of the CTUIR that any risk assessment involving mercury emissions in our ceded lands, especially near the Columbia and Umatilla rivers, must include a cumulative analysis where background mercury levels are included along with other major emission sources (for example the PGE coal fired power plant near Boardman, OR which releases approximately 200 lb/year of mercury). At present, fish within the area already are showing elevated mercury levels (Columbia River Basin Fish Contaminant Survey [EPA-910-R-02-006], 1998).

Another major flaw the CTUIR has observed in this EA is that the analysis is based on very uncertain estimates of the contents of the HD TCs. A review of Army reports on the subject has led us to the conclusion that the projected estimates of the quantity of both solids content and mercury concentrations (both in solids and liquids) are likely far from accurate. The following is a brief critique of some of the major assumptions applied in this EA to estimate the amount of mercury in HD ton containers at the UMCDF.

1. The estimate of the total quantity of solids in the TC was developed based on depth sampling by inserting a stick into the TC. <u>The army is assuming they have accurately characterized the volume of the solids using this method</u>. However, this method will not be very accurate given the irregular shape of the solid heels. The inaccuracy of the method has been verified by observation at TOCDF (Personal communication with UMCDF environmental staff).
2. The average solids concentration has been estimated from samples taken from 98 out of the over 13,000 TC produced at the Rocky Mountain Arsenal. <u>The Army is assuming these 98 TC accurately represent all TC in the stockpile</u>. It is highly unlikely that this is a representative data set for the full population of the TC since they do not even span all lots that are the most likely to contain high mercury (Lots 91 through 297, DEQ Item Number 07-1100).
3. Of the 99 lots stored at the UMCD, only 32 are in common with the DCD. This means that TC from 67 lots stored at the UMCD have never been sampled. <u>The Army is making the assumption that these lots are statistically similar to adjacent lots.</u> This assumption is untested and unproven.
4. No indication is given by the Army on the heterogeneity of the composition of the solids within the TC. It appears from the 2004 sampling report[2] that a single solids sample was pulled from each TC and they are <u>making the assumption that this single</u>

[1] Please note that the 2008 risk assessment DID NOT evaluate metals emissions at the permitted levels. Rather, the evaluation used the metals concentrations measured during trial burns. In many cases these values were several orders of magnitude lower than the emission limits.

[2] EG&G Defense Materials, Inc., 2004. Mustard Characterization Project Report for Deseret Chemical Depot Mustard Ton Containers, Rev 0.

Enclosure #2

CONFEDERATED TRIBES

of the

Umatilla Indian Reservation

DEPARTMENT OF SCIENCE AND ENGINEERING

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July 31, 2008

UMCDF Outreach Office
190 East Main
Hermiston, OR 97838

Re: Comments on the Environmental Assessment titled "Proposed Modifications to Support The Destruction of Mustard Agent at the Umatilla Chemical Agent Disposal Facility (UMCDF) in Oregon" and the related draft FONSI

To Whom It May Concern:

On behalf of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Science and Engineering (DOSE), I am submitting the following comments to the draft Finding of No Significant Impact (FONSI) for proposed modifications to support the destruction of mustard agents and munitions at the Umatilla Chemical Agent Disposal Facility (UMCDF). This finding is based on the May 2008 Environmental Assessment (EA) titled "Proposed Modifications to Support The Destruction of Mustard Agent at the Umatilla Chemical Agent Disposal Facility (UMCDF) in Oregon"

As described in the FONSI, the Army is proposing to modify the UMCDF to accommodate two unforeseen issues with mustard agent (HD) processing; high mercury concentrations and large solid heels. The following are the four proposed modifications:

- Add sulfur-impregnated carbon (SIC) to the metal parts furnace (MPF) pollution abatement system to enhance mercury removal.
- Expand the facilities agent storage tank capacity to accommodate mercury sampling of mustard agents.
- Add a heel transfer system to break up and mobilize solid heel so that the material can be distributed into multiple containers for processing.
- Provide for off-site shipment of HD brines to avoid the possible release of mercury to the environment from brine processing.

In theory, the CTUIR is not technically opposed to the first three modifications provided they can be made in a manner that keeps the facility's emission within current levels that have been demonstrated through the risk assessment process to be safe. By current levels, we mean the emission levels measured in the trial burns and applied in the 2008 risk assessment addition, the potential adverse impacts of increased stack emissions of mercury and arsenic should also be evaluated through both human health and ecological risk assessments to ensure that the area in the immediate vicinity of UMCDF will not experience adverse effects from depositions. To ensure minimization of risks and compliance with emission limits both the liquid incinerators (LICs) and the MPF must be equipped with continuous mercury monitors.

Requested Action: Update the human health and ecological risk assessments as needed to account for the possibility of increased metals emissions. Require the Permittees to submit a Transportation Risk Assessment for the off-site shipment of mustard-derived brines that includes increased metals content in the brines. Require continuous mercury emissions monitors on both the liquid incinerators (LICs) and the MPF.

Requested Action: DEQ and the Army should address the issue of the arsenic-contaminated waste treatment and disposal as well as the mercury-contaminated wastes. The Army's testing of mercury removal using SIC in the PFS should be expanded to include arsenic and other toxic metals clearly present in the mustard agent.

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7. The removal and/or treatment of the solid heels within mustard containers, especially heels contaminated with high levels of heavy metals, should be part of the information evaluated for this BAT analysis.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707) contains no mention of the issue of heel weights in the ton containers or the proposals for potentially entire new processes to remove the heels from containers to maintain permitted feed limits to the metal parts furnace.

Comment: The available documents indicate that up to 30% (almost 800) of the ton containers at Umatilla might have heels exceeding 600 pounds (See DEQ Item No. 08-0750, "Environmental Assessment: Proposed Modifications to Support the Destruction of Mustard Agents and Munitions at the Umatilla Chemical Agent Disposal Facility in Oregon," CMA, May, 2008.

Although the Army's Environmental Assessment proposes a method to break up and remove the heel from ton containers, there is limited discussion about whether the process has been used successfully. Note that this not just an issue of exceeding the feed limit to the metal parts furnace (MPF). The design of the MPF does not lend itself to efficient combustion of material within a container without the addition of some sort of sparge air to provide the mixing and air/fuel ratio necessary to fully combust the contents inside what is virtually a closed container. Sampling at TOCDF indicates that high levels of mercury, arsenic, and other metals are more likely to be contained within the solid phase and that the concentration levels are highly variable within the same container. Consequently, the 600 pound limitation currently being discussed might have to be greatly reduced to account for the heterogeneous nature of the heavy metal contamination within the solid and the ability of the MPF to completely combust the contents of a container.

Requested Action: Include the removal and/or treatment of the solid heels within mustard containers, especially heels contaminated with high levels of heavy metals, as part of the information evaluated for this BAT analysis.

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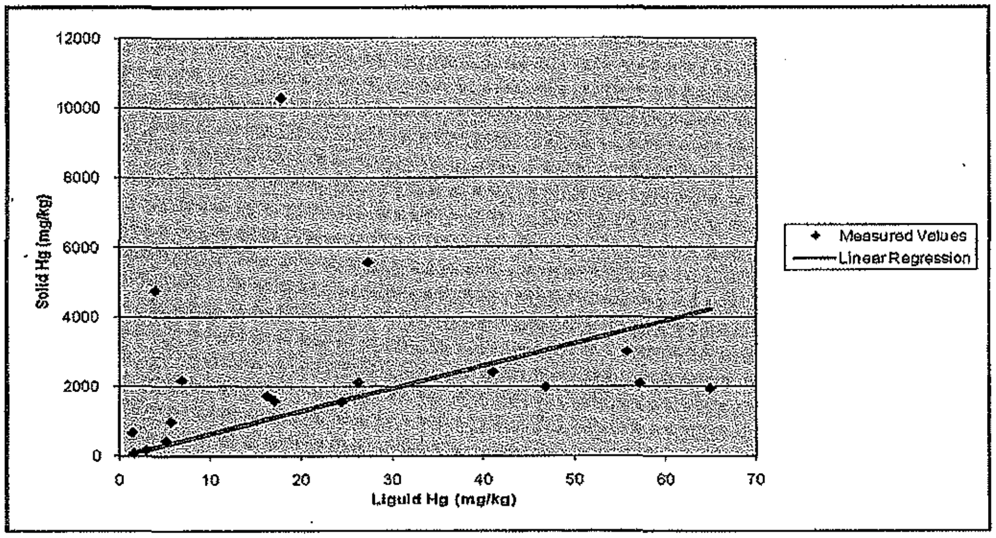
8. Insufficient risk analysis has been conducted to determine the risks of metals emissions that exceed the levels used in the human health and ecological risk assessment and to determine the risks of off-site disposal of brines generated from mustard processing.

Comment: None of the DEQ documents reviewed indicate that the Department has considered updating the human health and ecological risk assessments to account for the potentially higher metals emissions. The Transportation Risk Assessment conducted for the off-site shipment of brines [see Permit Modification Request 08-022-BRA(2), Brine Management] did not include the possibility that higher levels of mercury, arsenic, and other metals could be contained in mustard-derived brines. In



Data Source: Mustard Characterization Project Report for DCD Mustard Ton Containers, Table 3-21.

Requested Action: While the CTUIR understands that accessing and sampling the solid portion of the ton containers is a difficult proposition, it is not clear how the Permittees and the DEQ will determine whether UMCDF is operating within its feed rate limits without actual analytical data from the solids in ton containers, especially those with high heels. Additional sampling of Umatilla ton containers should be conducted to expand the database so that more meaningful analysis can be conducted on the relationship between contaminant levels in the solid and liquid phases.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707) contains no mention of the issue of the arsenic contamination being seen in the mustard ton containers, in some cases exceeding the maximum value of the mercury (>1%). (See DEQ Item No. 08-0503: "Chemical Agent Characterization, Draft Final Revision 4,")

Comment: There are indications from the various chemical agent characterization reports that the estimated amount of arsenic (about 300 pounds) is nearly as high as the estimated amount of mercury in the ton containers (about 350 pounds). Note, however, that these estimates are based on average values, and given the poor correlation noted between the mercury concentration in the liquid versus the solid, the estimates are questionable. Regardless, the amount of arsenic (and other contaminants such as lead and chromium) appear to be significant.

The focus of the BAT determinations is being limited to "high-mercury" ton containers, apparently because the remand from the Multnomah County Circuit Court was specific to mercury (the level of arsenic being seen in the early days of the DCD sampling program was not made an issue during the trial proceedings, so was not brought to the Court's attention). There is no indication that the DEQ or the Army are investigating the ability of either the PAS or the PFS with SIC to remove arsenic as well as mercury.

Requested Action: Require the mustard ton containers at Umatilla to be individually sampled and analyzed not only for mercury, but for all heavy metals, other contaminants previously identified, and heel level. A sampling strategy using information developed at DCD, but specific to the UMCD mustard containers, should be developed and provided for review.

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5. Data from liquid and solid phases of the mustard agent in the ton containers do not support the contention that the concentration of mercury in the liquid is predictive of the mercury concentration in the solid heel.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707, High Mercury Mustard Agent, Page 3) states that *"At the Deseret Chemical Depot, investigation of the heel formation was begun in 2003 for the ton containers stored there...This investigation tested the heels of 96 ton containers of mustard agent. Eighteen of these contained high levels of mercury. The Army also sampled the liquid component of these ton containers and identified a correlation between the liquid and solid in each container. For each container that contained high levels of mercury in the solids, the liquid portion of the waste also contained elevated levels of mercury(although not quite as high as in the solids). Based on this correlation, and the difficulty in sampling the heels of ton containers, the sampling program was continued utilizing only liquid samples from each ton container to determine if the mercury level was elevated (Reference 6 and 7)."*

Comment: CTUIR's analysis of the relatively sparse data from liquid and solid phases of the mustard agent does not support the contention that the concentration of mercury in the liquid is predictive of the mercury concentration in the solid heel. The CTUIR reviewed the source document for the above statements about the correlation of mercury concentration between the liquid and solid samples. Review of DEQ Item No. 04-0294, "Mustard Characterization Project Report for Deseret Chemical Depot Mustard Ton Containers," (EG&G Defense Materials, Inc., Revision 0, January 14, 2004) reveals that the correlation is based not on 98 ton container samples (as implied above), but was actually limited to the 18 containers that showed "high" levels of mercury. The CTUIR conducted an analysis of the data presented in Table 3-21 of the 2004 Mustard Characterization Report. The results are presented below in graph form. Note that the linear regression analysis produces an r^2 value of 0.3598, an extremely low correlation coefficient.

November, 2007 (not received at DEQ until May 29, 2008) ("*Umatilla Mercury Projection Report*")

Comment: The SAIC Investigation conducted in 2007[3] (Reference 11 above) presents the results of the investigation into the potential sources of mercury contamination in the mustard ton containers. The investigators traced the history of the production of mustard agent at the Rocky Mountain Arsenal (RMA, the source of the mustard agent current stored in Utah and Oregon) and were able to identify the most probable causes of the mercury and arsenic contamination in the mustard ton containers. Based on their review of the contamination sources, coupled with the limited sampling data available at the time, the investigators tentatively concluded that they could predict which lots and/or individual containers of mustard would have high levels of mercury, arsenic, and/or other constituents. However, the authors noted that some ton containers did not follow identified patterns and should be "viewed as suspect reutilized TCs" [ton containers]. The authors also noted that "it may be worth checking" such things as old paint markings, hydrostatic test dates, and other sources of information to identify suspect TCs.

Based on the SAIC Investigation (presumably, see footnote 3 below), the U.S. Army Chemical Materials Agency (CMA) submitted a November 2007 report to the DEQ in late May, 2008 (Reference 12, above). The Umatilla Mercury Projection Report concludes that "*...the UMCD RMA HD TC stockpile is expected to have characteristics similar to the corresponding [Deseret Chemical Depot] RMA HD TC stockpile; hence, the characteristics of the UMCD RMA HD TC stockpile can be estimated from analyses of the corresponding DCD RMA HD TCs.*" The report cites the results of the "Statistical Model for Mercury Distribution in Rocky Mountain Arsenal Mustard Ton Containers"[4] (Draft, November 2007) to support the contention that sampling of individual ton containers at Umatilla will not be necessary.

Contrary to the statements made repeatedly throughout all of these documents, careful review of the data generated from the sampling at DCD indicates just how much variability there is in contaminant levels within a lot. According to the documents, Umatilla has only 32 of 99 mustard agent lots in common with TOCDF—**almost 70% of the mustard agent lots at Umatilla have never been sampled**. Although the predictive model developed by the Army is surely a reasonable tool in determining initial segregation and treatment strategies, a model cannot and should not replace actual analytical data of a waste already proven to be extremely heterogeneous.

The results from the sampling and analysis of each mustard ton container stored at the Deseret Chemical Depot (DCD) in Utah are somewhat useful in determining the extent of contamination and solid heel formation in mustard containers. However, the available information concerning the history of individual containers and agent lots, the contaminant analyses, and the fact that sample results are available from only 32 of the 99 agent lots stored at the Umatilla Chemical Depot (UMCD) does not support the Permittees' or the DEQ's contention that sampling of individual containers at UMCD is unnecessary.

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[3] DEQ Item 07-1100 is a set of presentation slides, not the actual SAIC report. Reference 12 (listed above) refers to a reference titled "Rocky Mountain Arsenal Mustard Production and Mercury Contamination in Support of the Umatilla Chemical Agent Disposal Facility Mustard Ton Container Best Available Technology Evaluation, Draft, November 2007." The CTUIR assumes that DEQ Item 07-1100 is based on this 2007 report, but the full report has apparently never been submitted to the Department or made available for public review.

[4] The "Statistical Model" cited as the basis for segregation of HD ton containers at Umatilla has not been provided for public or peer review.

for Phase IIA and a preliminary copy of the Phase IIB results (however, these reports have apparently not yet been submitted to the Department). The preliminary results indicate that SIC has a "reduced capacity" for agent adsorption (and presumably, other organics). In addition, it is clear from the early data that the level of acid gases in the gas stream will greatly impact the adsorption capacity for mercury.

Regardless, the U.S. Army Chemical Materials Agency (CMA) has moved forward with construction of a PFS using SIC at the Tooele Chemical Agent Disposal Facility (TOCDF). The SIC PFS at TOCDF has not completed construction, let alone undergone any testing. The Permittees have not yet proposed a specific design for the UMCDF, and there is no indication from the available documents that this particular application of SIC for mercury removal from a combustion gas stream has ever been tested.

Requested Action: The use of sulfur-impregnated carbon in the PFS for mercury removal has not yet moved beyond bench-scale testing. The results of the early testing indicate that the presence of acid gases in the gas stream will greatly affect the mercury removal efficiency of the SIC. Delay the BAT determination until SAIC completes its testing program and the SIC PFS at TOCDF is completed and appropriately tested under actual operating conditions.

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4. The mustard ton containers at Umatilla must be individually sampled. A sampling strategy using information developed at the Deseret Chemical Depot (DCD), but specific to the Umatilla mustard containers, should be developed and provided for review.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707, Identification of High Mercury Ton Containers, Page 5) states that *"Based on the sampling results for the TOCDF ton containers, the Army has developed a model to predict how many and which individual ton containers will contain higher than expected levels of mercury. This model identifies 425 ton containers at UMCDF that will have measurable levels of mercury (References 6, 7, and 12). The Army's predictive model is based on the lot number and serial number of ton containers (References 6,7, 11 and 12)."*

For use in the following discussion, the cited references are:

Reference 6. DEQ Item No. 08-0623: "*UMCDF Best Available Technology Evaluation, Final Revision 1*," US Army Chemical Materials Agency, May 16, 2008, received at DEQ June 5, 2008 ("*Army BAT*")

Reference 7. DEQ Item No. 08-0503: "*Chemical Agent Characterization, Draft Final Revision 4*," US Army Chemical Materials Agency Program Manager for the Elimination of Chemical Weapons, December, 2007 (not received at DEQ until May, 2008) ("*Agent Characterization*")[2]

Reference 11. DEQ Item No. 07-1100: "*Mustard Contamination Investigation: A Summary of the Investigations and the Conclusions Drawn*," Science Applications International Corporation, July 2007-Rev 3. ("*SAIC Investigation*")

Reference 12. DEQ Item No. 08-0594 (this was incorrectly identified in the DEQ staff report as Item No. 08-0649): "*Mercury Projections for Umatilla Distilled Mustard Ton Containers, Interim*,"

[2] DEQ Item 08-0504 is the companion database (in spreadsheet format) of the chemical agent stockpile/nonstockpile analytical data discussed in DEQ Item 08-0503.

carbon to be processed. Despite these unresolved issues (almost three years after the submittal of PMR 05-034), the DEQ states in its June 2008 memorandum that the "*...The DFS/CMS technology represents the best available technology for treatment of agent-contaminated carbon.*"

It should also be noted that as of yet there is no accepted analytical method for determining whether spent carbon is contaminated with one or more chemical agents. Although the Permittees recently submitted PMR UMCDF-08-008-WAP(2), "Waste Analysis Plan Update for Spent Carbon Sampling and Analysis Requirements," both DEQ and EPA laboratory reviewers (and other commenters) were concerned that the proposed analytical method was not appropriate for determining agent on spent carbon. DEQ has requested, and UMCDF concurred, an extension of the decision date on the PMR until September, 2008. It is unclear what additional information, if any, will be provided by UMCDF to the DEQ to change the initial results of the method review.

Requested Action: Require the Permittees to respond to the NOD on the PMR 05-034 to address the outstanding issues with the treatment of spent carbon. Require the Permittees to submit additional information (which should be made available for public comment) concerning the carbon sampling and analysis proposed in PMR 08-008. The responses should also be required to address carbon contaminated with mercury and arsenic.

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3. It is premature for the DEQ to declare sulfur-impregnated carbon (SIC) in the PFS as BAT for mercury removal from UMCDF. The BAT determination should be delayed until test results are available from TOCDF.

The DEQ memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707 states that "*Utilizing ...the addition of sulfur impregnated carbon filters for mercury control raises some permitting questions*" and "*The agent free criteria in the permit any have to be modified to allow the off-site shipment of this spent carbon or an alternative treatment method identified to manage this waste stream on-site*" (Incineration, Page 6).

Comment: The CTUIR believes that the "permitting questions" are potentially significant and go beyond the issue of off-site shipment of contaminated carbon. Curiously, the DEQ fails to note that the report submitted by the Army to support its proposal to use sulfur impregnated carbon in the PFS for mercury control contains only the results from a very small-scale laboratory study. Although the PFS has been demonstrated as a viable pollution control technology for organic emissions from the UMCDF furnaces, the efficacy of sulfur-impregnated carbon (SIC) for control of mercury emissions under actual UMCDF operating conditions (including the level of acid gases in the gas stream, which greatly affect the ability of the SIC to adsorb mercury) has not yet been fully demonstrated.

There has been no final design decisions made on how SIC will be incorporated into the PFS at UMCDF. It is not clear whether the Army will replace the carbon in a one or more PFS units, or replace just some of the carbon with SIC in each of the PFS units, or build an entirely new SIC-only PFs unit to supplement the existing units.

The only indications of DEQ review of the investigations of SIC for mercury removal are contained in DEQ Item No. 08-0603 ("SAIC Mercury Control: Testing Fixed-Bed Adsorption for Mercury Emission Control in the U.S. Army Chemical Demilitarization Incinerators—Phase I Final Report," June 1, 2007—not submitted until May, 2008) and DEQ Item No. 08-0760 ("UMCDF PFS Carbon Selection Presentation," July 9, 2008). The Phase I results of Science Applications International Corporation's (SAIC) investigation of the mercury removal performance for various types of sulfur-impregnated carbon involved only small lab scale tests. The CTUIR has obtained copies of the report

The DEQ Memorandum, "Best Available Technology – Inclusion of the Pollution Abatement System Carbon Filter System (PFS) in the Umatilla Chemical Agent Disposal Facility (UMCDF) Incineration Process" (DEQ Item No. 08-0708) states that *"Based on the information evaluated and consistent with previous EQC decision[sic] (Reference 8), the Department has [sic] believes, subject to review of public comment, that inclusion of the PFS as part of the pollution abatement system in the UMCDF incineration process has been demonstrated to be the best available technology for the UMCDF."*

Comment: Although the CTUIR concurs that the PFS is an integral part of the pollution abatement system and has been demonstrated to reduce emissions at UMCDF, there is still (1) no permitted treatment or disposal method for agent- contaminated carbon; (2) no approved analytical method to determine whether spent carbon is agent-contaminated; (3) no permitted treatment or disposal method for "agent-free" carbon; and (4) no permitted treatment or disposal method for sulfur-impregnated carbon potentially contaminated with not only chemical agent and products of incomplete combustion, but also with mercury and arsenic from the mustard agent.

The EQC's "Final Order for Best Available Technology for Secondary Waste" (DEQ Item No. 08-0725, dated June 30, 2008), Finding 1, states that *"After careful consideration of alternatives, the EQC finds that incineration in the metal parts furnace [MPF] and deactivation furnace system [DFS] as currently configured represents the best available technology for treatment of agent-contaminated wastes originally destined for treatment in the Dunnage Incinerator..."* and *"Addition of a carbon micronization process will be required as part of BAT for treatment of any agent contaminated carbon."* Finding 9 then states that *"Permit modifications [including]... UMCDF-05-034, Carbon Micronization System, October 24, 2007 [sic]...are in place to allow processing of secondary waste in the MPF and DFS."*

It is interesting to note that the DEQ memorandum (DEQ item No. 08-0611) supporting the staff report presented to the EQC in June 2008 (Item No. 08-0610) contradicts Finding 9 of the EQC's June 2008 Order by clearly stating that *"...agent-contaminated carbon is the only waste stream originally intended for the Dunnage Incinerator that has not yet been permitted for treatment in another furnace at the UMCDF. However, a permit modification request proposing permitting of the DFS for treatment of agent-contaminated carbon is currently under review by the Department. Permit Modification Request UMCDF-05-034-WAST(3) (PMR 05-034) was submitted by the UMCDF October 25, 2005. In addition to proposing modifications to the DFS for effective carbon combustion, PMR 05-034 requests the addition of a carbon micronization system (CMS), which would finely grind agent-contaminated carbon before feeding it into the DFS."*

The actual title of PMR 05-034 is "Deletion of the DUN and Addition of the CMS," and it was submitted in October 2006, not October 2007.[1] The DEQ conducted a preliminary review of PMR 05-034 and issued a Notice of Deficiency (NOD) in December 2006. Since that time the Permittees have requested (and DEQ has approved) five extensions of time to respond to the NOD. The current due date for a NOD response from the UMCDF is December 31, 2008. Unresolved issues identified by the DEQ in the 2006 NOD included inadequate/incomplete design and operating information, inadequate supporting information concerning the characteristics of the carbon to be processed, and insufficient information about the basis for determining the agent and metal concentrations in the

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1 Recently the Permittees submitted a Class 1 PMR (no public review or comment is invited) to remove all references to the DUN from the permit. Although the CTUIR does not object in principle to the removal of references to a treatment unit that was never built, it is becoming clearer and clearer through review of various (apparently unrelated, yet revealing) documents that the Army would very much prefer to avoid construction of the CMS and instead ship all spent carbon off-site, regardless of its contamination status.

destruction. The Army has identified two demonstrated technologies for consideration, baseline incineration and neutralization. The Department has added one additional demonstrated technology, the DAVINCH™ process." (Assessment, Page 5)

Comment: Although neutralization of mustard was successfully completed at the Aberdeen Chemical Agent Disposal Facility (ABCDF), the mustard agent stored at Aberdeen was apparently not contaminated with mercury. Neutralization will not remove mercury and will produce vast amounts of mercury-contaminated liquid waste because the Army would propose to "utilize the dilution effects allowed under the NPDES [National Pollutant Discharge Elimination System] program" (DEQ Memo, Page 7). The U.S. Army's "UMCDF Best Available Technology Evaluation" (DEQ Item No. 08-0623) acknowledges that "The treatment method for Hg removal remains an undefined process." The efficiency of the chosen process for Hg removal will need to be determined by additional research and development" (Section 5.5.1, page 5-91).

The DAVINCH™ process has apparently been used in Japan and elsewhere, although the process has never been used on a mustard ton container and its ability to capture mercury emissions is unknown (although discussion with the representatives from Kobe Steel during a recent public meeting indicate they are confident the DAVINCH™ unit can handle mustard ton containers with high heel levels and/or mercury contamination). As stated in the National Research Council's 2006 report, "Review of International Technologies for Destruction of Recovered Chemical Warfare Materiel," (DEQ Item No. 08-0679), the "DAVINCH technology has not been permitted for use in destroying chemical weapons in the United States, although it has been used successfully in Japan for this purpose. No significant regulatory issues were identified to indicate that the DAVINCH technology could not meet U.S. environmental regulatory requirements if appropriate information (such as verified DRE [destruction removal efficiency], residual levels of dioxin, furans, arsenic, and any other chemicals of regulatory concern) is developed and provided to the regulators in a timely manner."

The purpose of the current BAT evaluation is to evaluate treatment technologies for mustard with high mercury contamination, not treatment of the mustard agent alone. Consequently the Army's neutralization proposal contains insufficient information to conduct a comparative evaluation because "Hg removal remains an undefined process." In terms of the DAVINCH process, there is no evidence in the record that information concerning DRE or emissions of mercury, dioxins, furans, etc. has been provided to DEQ.

The BAT evaluation of neutralization and the DAVINCH process cannot be conducted because there is insufficient information concerning either technology's ability to capture mercury or arsenic.

Requested Action: The DEQ should require the Army to submit a neutralization proposal that includes processes that do not involve dilution of wastes to circumvent the intent of the RCRA and Land Disposal Restriction regulations. The process should include the proposed methodology to minimize discharges to the environment through the removal and sequestration of not only the mercury in the mustard agent, but also arsenic and other identified contaminants.

If GEOMET Technologies and Kobe Steel desire serious consideration of the DAVINCH process as BAT for high mercury mustard then the vendors should be required to provide emissions data and waste characterization information sufficient to at least make preliminary determinations concerning its ability to be permitted in the U.S.

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2. **The PFS should not be declared BAT, especially for high-mercury mustard, until the issues with analysis, treatment, and disposal of spent carbon are resolved.**

Comments on the "Best Available Technology Determinations Related to the Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers"

The CTUIR comments on the Best Available Technology (BAT) Determinations for the Pollution Abatement System Carbon Filter System (PFS) and Mustard-Filled Ton Containers (TCs) include the following issues:

1. Of the three treatment technologies being considered as BAT for mustard with high levels of mercury (and arsenic), only baseline incineration with the addition of sulfur-impregnated carbon (SIC) in the PFS has sufficient information available for the preparation of substantive comments.

2. The PFS should not be declared BAT, especially for high-mercury mustard, until the issues with analysis, treatment, and disposal of spent carbon are resolved.

3. It is premature for the DEQ to declare sulfur-impregnated carbon (SIC) in the PFS as BAT for mercury removal from UMCDF. The BAT determination should be delayed until test results are available from TOCDF.

4. The mustard ton containers at Umatilla must be individually sampled. A sampling strategy using information developed at the Deseret Chemical Depot (DCD), but specific to the Umatilla mustard containers, should be developed and provided for review.

5. Data from liquid and solid phases of the mustard agent in the ton containers do not support the contention that the concentration of mercury in the liquid is predictive of the mercury concentration in the solid heel.

6. The DEQ needs to address the issue of arsenic-contaminated waste treatment and disposal as well as the mercury contamination.

7. The removal and/or treatment of the solid heels within mustard containers, especially heels contaminated with high levels of heavy metals, should be part of the information evaluated for this BAT analysis.

8. Insufficient risk analysis has been conducted to determine the risks of metals emissions that exceed the levels used in the human health and ecological risk assessment and to determine the risks of off-site disposal of brines generated from mustard processing.

Each issue is discussed in more detail below:

1. Of the three treatment technologies being considered as BAT for mustard with high levels of mercury (and arsenic), only baseline incineration with the addition of sulfur-impregnated carbon (SIC) in the PFS has sufficient information available for the preparation of substantive comments.

The DEQ Memorandum ["Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707)] states that *"In developing a list of potential treatment technologies [for high mercury mustard] the Department has limited the investigation to technologies that have been demonstrated by actual chemical weapons*

Although the July 1, 2008 date listed in this response was specific to the Secondary Waste BAT, the CUTIR is concerned that a similar response will be given to this request.

The CTUIR is not aware of any Court-imposed deadlines related either to the Court's June 2007 remand or to any new litigation.[1] As evidenced by the need to re-open the public comment period and reconsider the Secondary Waste BAT determination (and the subsequent revision of the EQC's Order), it does not serve the citizens of Oregon, the public process, or the legal process if the EQC is forced to make decisions prematurely to satisfy a self-imposed schedule.

I have also enclosed the comments that CTUIR prepared in response to the Environmental Assessment (EA) and draft Finding of No Significant Impact recently released for public comment by the U.S. Army Chemical Materials Agency. Please consider the CTUIR's comments on the EA as additional comments on the BAT determinations—the issues are similar, if not identical, and in some cases there is additional detail in the EA comments that would supplement our comments on the BAT issues.

Thank you for considering these comments as you prepare your presentation to the Environmental Quality Commission. If you have any questions concerning this matter please contact Dr. Rodney Skeen of my staff at (541) 966-2413.

Sincerely,

Rodney S. Skeen, Ph.D, P.E.
Manager, CTUIR-EMP/DOSE

Cc:
Stuart Harris, Director, CTUIR DOSE
File

Enclosure (2)

[1] No lawsuit-related documents (Petitions for Review, Pleadings, Briefs, Hearing Schedules, etc.) have been entered into the DEQ database since August of 2007, so it is possible that there are legal events of which the CTUIR is unaware. However, even if a Court-imposed deadline exists, the CTUIR does not believe that the Court would expect the EQC to make Findings that cannot be supported by the available record.

CONFEDERATED TRIBES of the **Umatilla Indian Reservation** 08-0844

DEPARTMENT OF SCIENCE AND ENGINEERING

P.O. Box 638
73239 Confederated Way
PENDLETON, OREGON 97801
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Fax: (541) 278-5380

July 31, 2008

Mr. Rich Duval
Department of Environmental Quality
Eastern Region Hermiston Office
256 East Hurlburt, Suite 105
Hermiston, OR 97838

RE: Comments on "Best Available Technology Determinations (BAT) for the Pollution Abatement System Carbon Filter System (PFS) and Mustard-Filled Ton containers" at the Umatilla Chemical Agent Disposal Facility (UMCDF)

Dear Mr. Duval;

Enclosed are comments from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) on the current Best Available Technology (BAT) determinations under consideration by the Environmental Quality Commission (EQC). The CTUIR understands that many of the issues noted in the enclosed comments (such as the need for extra storage capacity and a system to remove and transfer solid heels from some ton containers) are permitting issues that will need to be addressed in the coming months as UMCDF approaches the start of the mustard campaign.

Although other issues identified by the CTUIR are already in the permitting process (off-site shipment of mustard-derived brines, analysis of chemical agent in carbon) we believe that it is important to address the concerns now as part of the EQC's BAT determination. It is clear to the CTUIR that a significant amount of information necessary for a complete BAT evaluation is not yet available to the DEQ or to the EQC. For example, the Army's proposal to use sulfur-impregnated carbon in the PFS to capture mercury is based solely on the test results achieved in a bench scale test apparatus that is 1/4000th the size of the full-scale facility. Normal engineering practice would be to base a final design on a scale 1/100th of full-scale. Yet the Army moved from the 1/4000th scale test apparatus straight to construction of a full-scale PFS unit at the Tooele facility—a PFS unit that is still under construction and has never been tested.

For that reason, and others listed in our comments, we are requesting that these BAT determinations be delayed until information sufficient for a meaningful evaluation is submitted for review by the DEQ and the public. In response to a similar request from CTUIR concerning the Secondary Waste BAT determinations in June of this year, the Department responded (DEQ Item No. 08-0609, RTC-9) with "...deferral of the BAT determination is not a practical possibility given the GASP V lawsuit and the implicit requirement to achieve redetermination by July 1, 2008."

08-0840

City of Hermiston Oregon
incorporated 1907

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July 28, 2008

Mr. Rich Duval
DEQ Chemical Demilitarization Program Administrator
256 E Hurlburt Avenue
Hermiston, OR 97838

Mr. Duval,

This letter is written in response to the Oregon Department of Environmental Quality's call for public comment on Umatilla chemical demilitarization activities, including the need to dispose of mustard agent ton containers with higher levels of mercury than expected.

The Army knows what challenges it faces in disposing of Umatilla Chemical Depot mustard agent, based on sampling of similar containers at Tooele, Utah. The plan to use sulfur-impregnated carbon to capture mercury appears to be a practical solution to this problem. The plan also includes ways to treat the solid material in the mustard containers and to manage the associated waste.

We have the benefit of four years of plant operations to show incineration is safe and effective. It's highly questionable whether the time and expense needed to decide if alternatives to incineration can capture mercury or improve upon the performance of the Umatilla incinerator would be in the best interests of our citizens.

The plant's carbon filtration system has demonstrated its value in cleaning air emissions throughout testing and operations of the Umatilla Chemical Agent Disposal Facility. The state's requirement in the 1990s to include the filters has proven to be a wise decision.

Representatives of the City would like to support the recommendation to determine the Pollution Abatement System Carbon Filter System as best available technology, and to urge the Oregon Environmental Quality Commission to designate incineration as the best available technology to dispose of mustard ton containers.

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED

JUL 31 2008

HERMISTON OFFICE

Sincerely,

Bob Severson

Bob Severson, Mayor
City of Hermiston

July 24, 2008

08-0829

Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program
256 E. Hurlburt Avenue
Hermiston, OR 97838

Dear Mr. Duval,

Please note that I'm in support of keeping incineration as the Best Available Technology for the Umatilla Army Depot project. I'm also in favor of designating the Carbon Filter System as a Best Available Technology.

As I understand it, the Army has a solid plan for removing mercury from mustard agent using carbon filtration. We long ago decided as a community and state that incineration was better suited to the Umatilla than neutralization or other methods, and I haven't heard anything since that has changed my mind.

I've been a real booster of the Umatilla Army Depot since 1941. We have good people running the depot and let's let them get the job done without more delay.

FRANK J. HARKENRIDER
935 South First Street
Hermiston, Oregon 97838

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED

JUL 28 2008

HERMISTON OFFICE

4. In the PFS BAT Staff report, the DEQ states: "Basically, the EQC's order, based on Department recommendation (Reference 17), identified inclusion of the PFS in the UMCDF incineration process to be the best available technology without making a new, formal best available technology determination." Report at 8. How was the public notified that the EQC was going to determine the PFS filter system as BAT? Please provide evidence indicating proper notice and opportunity to comment on this important issue.

5. How many times has the bypass around the PFS been used during UMCDF operations? What were the types and quantities of emissions during those events?

6. In the PFS BAT Staff report, the DEQ mentions the concern about the release of cadmium during the M55 rocket incineration campaigns. How much cadmium was captured during the burning of the M55 rockets? How much was released? How much PCB was captured during the M55 campaigns? How much was released? What data supports your response?

7. If a fire occurs in the PFS carbon filter beds during the final days of the incineration of mercury-contaminated HD ton containers, how much mercury is likely to be emitted into the environment? What quantities of other contaminates will likely be released? Has such a scenario been considered in DEQ's BAT analysis?

8. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

9. We are requesting an extension of the comment period and point out that the EQC should not be making a determination that the PFS with sulfur-impregnated carbon is BAT for HD with high mercury until such time that Tooele completes construction of its PFS and demonstrates that it will work.

22. In addition to the May14th incident, how many other significant incidents have occurred during the testing and operation of UMCDF? Are these incidents described and analyzed in writing and will they be provided to the EQC?

23. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

24. In light of the success of the neutralization of the HD ton container stockpile in Aberdeen, Maryland, will DEQ and EQC reconsider the BAT determination for HD ton containers that are purported to not contain high levels of mercury? If not, why not?

25. What can concerned citizens due to insure that the DEQ and EQC reconsider BAT for HD ton containers that are purported to not contain high levels of mercury? Please be specific.

BAT FOR PFS CARBON FILTERS

1. Has DEQ performed a mass balance analysis (*i.e.*, measuring the total amount of a chemical of concern going in and measuring what amount is captured in the filter system) to determine how efficiently the PFS carbon filters are capturing agent and other hazardous wastes? If so, please provide the data. If not, why not?

2. Before allowing the incineration of HD from the ton containers will DEQ require tests to determine through testing with actual waste from a mercury-contaminated HD ton container whether mercury is captured at a sufficiently high rate in the sulfur-impregnated carbon filters? If not, why not?

3. Has the metals removal efficiency (MRE) noted in the staff report for trial burn conditions been tested or verified during actual operating conditions at UMCDF? If not, why not?

14. Do you know what specific neutralization approach (there are several) was studied in determining the $117 million cost for the small-scale neutralization system? Do you know if there are proven systems that would be less costly?

15. Do you know why it is that TOCDF's sulfur-impregnated carbon system to capture mercury is projected to cost $57 million and Umatilla' is project to cost $47 million? What information or references support your response?

16. Is it not true that a modified sulfur-impregnated carbon filtration system targets one specific heavy metal at the cost of reducing the capture capability of other heavy metals and toxics? What data does DEQ have regarding this issue?

17. What studies have been done to determine the ramifications of such a trade-off on public health and the environment?

18. Are you aware that there are proven treatment options for neutralized mustard secondary waste (hydrolysate) that would meet the LDR requirements?

19. The Court has noted "Petitioners were also able to adduce evidence that neutralization technologies have by now demonstrated their practical utility to the extent that the Army has used or plans to use neutralization technologies to destroy agent at Aberdeen, Blue Grass and Pueblo chemical weapons sites, and that the Army estimates a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration." *G.A.S.P., et al v. EQC, et al.*, Case No. 0009 09349 (Opinion & Order July 26, 2004) at 27.

Question: Has the DEQ taken into account the fact that (as the Army has admitted) there will be a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration?

20. Is it true that on May 14. 2008, an incident occurred that resulted in serious damage to and the shut down of the: liquid incinerator at UMCDF? What happened? How has DEQ investigated this incident? Has DEQ been on-site and witnessed the damage? Are there pictures or video of the damage? Will pictures and video of the damage be released to the public?

21. How has the May 14th incident been factored into DEQ's BAT analysis? Can you point out where it is referenced in any of DEQ written reports or other information released to the public?

8. It is a fact each mustard ton container will have a different heel to liquid ratio and contain different chemical/heavy metals compositions. Do you honestly believe that a trial burn using a specific ton container or a few specific ton containers with different heel amounts and different chemical/heavy metal compositions can be relied upon to accurately predict emissions for all mustard ton containers? If so, please explain your justification.

9. Are you aware that TOCDF spokesperson Alaine Grieser was quoted in the Deseret News on March 31, 2008 as saying, "Technicians conducting tests on the stockpile have found no patterns to help explain why some of the weapons and bulk containers are tainted with mercury and others are not."? Would you not agree, based on that statement, that it is ludicrous to rely on TOCDF results to determine Umatilla's mercury-contaminated mustard tons?

10. Does it not follow, that to get an accurate determination of the percentage of mercury contamination in each ton container at Umatilla, each ton container must be analyzed as is being done at TOCDF? Wouldn't such an analysis be costly and time-consuming and then it wouldn't even give you an accurate analysis of the mercury in the heels anyway, would it? Have those cost and schedule estimates been determined?

11. Are you aware that if Umatilla's mustard tons were to be neutralized, such an analysis would be unnecessary and it would be assured that no mercury would be released into the environment?

12. Why is the term "higher than expected levels of mercury" applied to the U.S. stockpile of mustard when the 2000 Operations Schedule Task Force Final Report noted (p. 27) that an SAIC study "MACT Rule: Impact Assessment and Programmatic Compliance Strategy, 10/09/00" indicated two areas of potential concern from a compliance perspective: semi-volatile metals and mercury. The Task Force Report then goes on to say "...several data points exist which indicate that higher mercury feeds should be anticipated, at least for some lots or sublots of munitions or containers." And then recommends "[G[iven the potential ramifications, this issue needs to be more intensively managed so that future sites (ANCDF, UMCDF and PBCDF) are prepared to address this issue in a consistent manner."

13. The report also noted the heel problems with the potential for through put rate ramifications that could be significant and recommended a more comprehensive understanding of the condition of the mustard ton containers. It even raised the possibility of an alternative process. Have you read this report?

08-082[illegible]

Comments for DEQ hearing in Hermiston 24 July 08

The following comments and questions are submitted on behalf of G.A.S.P., Oregon Wildlife Federation (OWF), Government Accountability Project (GAP), Sierra Club, Karyn Jones, Debbie McCoy Burns, Susan Lee Jones, Robert Palzer, Jan Lohman, and Judy Brown.

BAT FOR DESTRUCTION OF MERCURY CONTAMINATED HD TON CONTAINERS

1. Will the BAT determination be based on pollutants discharged into the environment and their potential effects on human health and the environment as required by law?

2. If the answer to that question is yes, then why are we here? It is a universally known fact that neutralization releases orders of magnitude less pollutants into the environment than incineration releases. In light of the significant difference in emissions, how does DEQ justify utilizing incineration for HD ton containers contaminated with mercury?

3. Isn't it true that incinerators have a direct pathway to the environment and when incinerating mustard, toxics will be chronically discharged into the environment and that during upset/mechanical breakdown conditions even more toxics and agent will be released through this direct pathway?

4. Are you aware that the neutralization of Aberdeen's stockpile of Mustard tons was successfully completed without mercury releases into the environment?

5. Has a comparison been done between TOCDF operations (incineration) and Aberdeen operations (neutralization) at full rate processing of Mustard tons? If so, what were the results?

6. Are you aware of a 2002 White Paper presented to Oregon's Governor, which showed that, based on official regulatory documents, the average daily water usage for incineration is 260,000 gallons compared to 27,000 gallons per day water usage for neutralization?

7. Are you aware that there are a number of scientists who have determined that the amount of mercury in a gelled mustard heel can not be accurately predicted based on measuring the mercury found to be present in the liquid mustard? How will DEQ account for the amounts of mercury contained in the heels in the ton containers?

DEQ Item # 08-0918
Attachment C To Agenda Item C
BAT Determination Staff Report on
Pollution Abatement System Carbon Filter System (PFS) [Consolidated Public Comments]

Handout Item C
Aug 21, 2008

Department of Environmental Quality

DEQ

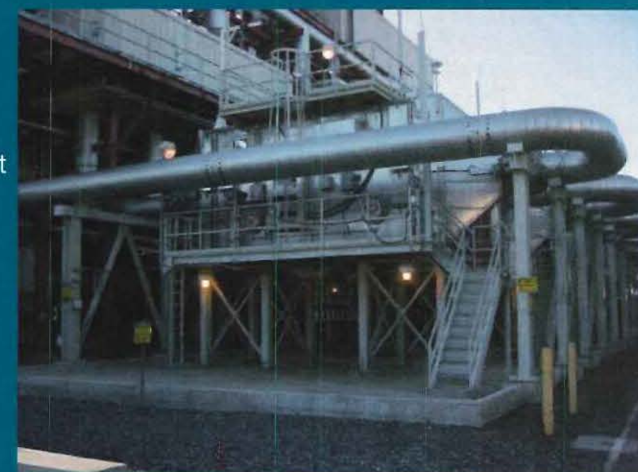
Best Available Technology Determination
Umatilla Chemical Agent Disposal Facility
Pollution Abatement System
Carbon Filter System

Department of Environmental Quality

DEQ

Purpose

The GASP IV judgment requires a best available technology determination for the role of the Pollution Abatement System (PAS) Carbon Filter System (PFS) in the UMCDF incineration process.

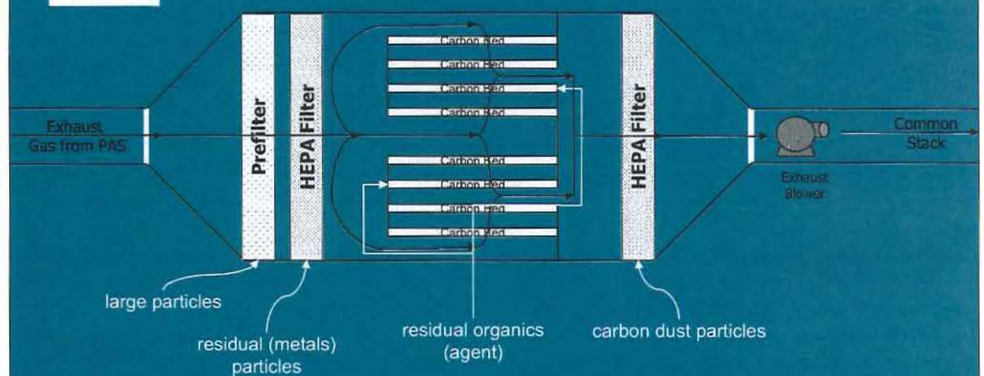


What is the PFS?

- Each incinerator has its own pollution abatement system (PAS).
- The PFS is downstream of the furnace PAS mist eliminators.
- The PFS utilizes a series of filters and carbon beds to capture residual particulates and organic compounds remaining in the gas exiting the PAS.

Department of Environmental Quality

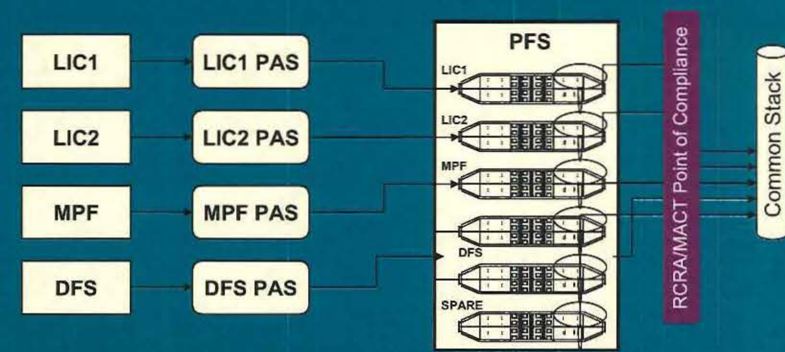
PFS Unit



Previous Commission Action

- The EQC required construction and operation of the PFS as part of issuance of the original UMCDF permit.
  - Not included in the original best available technology determination.
  - Required as an additional measure of safety.
- Class 3 Permit Modification Request UMCDF-03-041-PFS(3)
  - At the May 2004 meeting, the Commission approved a Class 3 permit modification that changed the point of compliance from before the PFS, to after the PFS, in order to resolve discrepancies between the HW permit and AQ regulations.

PMR 03-041 Changes



Department of Environmental Quality

Previous Commission Action

- The EQC required construction and operation of the PFS as part of issuance of the original UMCDF permit.
  - Not included in the original best available technology determination.
  - Required as an additional measure of safety.
- Class 3 Permit Modification Request UMCDF-03-041-PFS(3)
  - At the May 2004 meeting, the Commission approved a Class 3 permit modification that changed the point of compliance from before the PFS, to after the PFS, in order to resolve discrepancies between the HW permit and AQ regulations.
  - As part of this approval, the Commission issued a finding that identified the PFS as demonstrated technology and an integral part of the PASs on the UMCDF incinerators.
  - As a formal BAT determination was not deemed necessary at the time, the phrases "best available technology" and "no major adverse impact" were not used in the EQC's decision.

Department of Environmental Quality

Public Involvement

- A public comment period was held June 27, 2008, through August 11, 2008.
- A public meeting and hearing were held July 24, 2008.
- 14 sets of public comments received
  - 8 in support of inclusion of the PFS in the incineration BAT
  - 6 requesting delay of EQC decision or generally outside scope of BAT (mercury treatment-related issues)

Department of Environmental Quality

Next Steps

The Department recommends the Commission find that inclusion of the PFS in the UMCDF incineration process represents the best available technology.

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 19, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda Item D, Action Item: Best Available Technology for Treatment of High-Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility
August 21-22, 2008, EQC Meeting

Purpose of Item

The Department of Environmental Quality requests that the Environmental Quality Commission find that the best available technology determination for treatment of high-mercury mustard ton containers at the Umatilla Chemical Agent Disposal Facility is baseline incineration with the addition of sulfur impregnated carbon to the metal parts furnace.

Background

In order to issue the initial operating permit February 12, 1997, ORS 466.055(3) required the DEQ to find that the proposed UMCDF would use the best available technology for treating agent-filled munitions and bulk items and the resulting secondary wastes. The EQC and DEQ determined the best available technology for the UMCDF was the Army's baseline incineration system, which was designed to meet all applicable regulatory criteria.

Since issuance of the original permit, the U.S. Army has determined, based on lessons learned from the Tooele Chemical Agent Disposal Facility, that some of the HD ton containers at the UMCDF contain higher than originally anticipated levels of mercury and other metals. It is believed mercury contamination may have been introduced during filling operations through the use of incompletely cleaned ton containers that previously held Lewisite. (CMA December 2007 and November 2007). For the purposes of this item, "high-mercury" ton containers are those with mercury content at or above one part per million (1 ppm) in the liquid portion of the container.

In the final judgment in GASP, *et al*, v. EQC, *et al*, Case No. 9708-06159 (GASP IV), remanded three issues to the EQC for findings on the best available technology for the UMCDF and that its operations have no major adverse impact on public health or the environment. One of the remanded best available technology determinations is "destruction of any mustard in any ton container that contains significantly higher mercury levels than previously reported."

Based on the correlation between the TOCDF and UMCD HD ton container lots and sampling conducted by the TOCDF, the U.S. Army has estimated that out of the 2,635 HD ton containers in the UMCD stockpile 430 are high-mercury ton containers and contain a total of 343 pounds of mercury (CMA November 2007).

DEQ conducted a public comment period June 26 through August 11, 2008; and held a public meeting and public hearing on July 24, 2008, to solicit information and opinions on the available treatment technologies.

Key Issues

The key issue is what is the best available technology for treatment of the UMCDF HD ton containers containing higher than originally anticipated levels of mercury. The EQC must answer this question in order to address the remand of this issue to the EQC in the Multnomah County Circuit Court's GASP IV decision.

According to sampling conducted at the TOCDF (CMA November 2007), the liquid contents of the high-mercury HD ton containers may contain up to 875 ppm of mercury and the heels up to 10,300 ppm. Thus, this material carries the EPA waste code of D009 for mercury and is subject to Land Disposal Restrictions. For the "high-mercury-organic" subcategory (waste containing >260 mg/kg of mercury that also contains organics), the required treatment is incineration or retorting.

In order to determine the best available technology for the treatment of mustard agent containing higher-than-expected-levels of mercury, DEQ investigated three demonstrated technologies:

1. Incineration with enhancements to the pollution abatement system for mercury capture;

2. Neutralization and biotreatment under a National Pollutant Discharge Elimination System (NPDES) permit; and

3. Treatment utilizing DAVINCH™ contained explosives technology developed by Kobe Steel Group.

Based on information received during the public comment period and evaluation of the above technologies, DEQ has determined that incineration represents the best available technology for treatment of high-mercury mustard ton containers (see Attachment B).

Requested Action DEQ requests that the EQC find that baseline incineration with the addition of sulfur impregnated carbon to the metal parts furnace represents the best available technology for treatment of the UMCDF mustard ton containers with higher-than-expected levels of mercury.

Attachments

A. Memorandum, "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the UMCDF," August 15, 2008, DEQ Item No. 08-0919
B. Response to Comments received during public comment period ending August 11, 2008
C. Full Text of Comments received (available on EQC webpage)

Available Upon Request

- EG&G Defense Materials, Inc. (EG&G), "Tooele Chemical Agent Disposal Facility (TOCDF) Mustard Characterization Project Report for Deseret Chemical Depot Mustard Ton Containers," Revision 0, January 14, 2004 (DEQ Item 04-0294).
- EG&G, "TOCDF Mustard Sampling Validation Project Report," Revision 0, January 2005 (DEQ Item 05-0303).
- U.S. Army Chemical Materials Agency (CMA), Project Manager for Chemical Stockpile Elimination (PMCSE), "Umatilla Chemical Agent Disposal Facility Mustard Ton Container Best Available Technology Evaluation," Final, December 2007 (DEQ Item 07-1779).
- CMA, PMCSE, "Mercury Projections for Umatilla Distilled Mustard Ton Containers," Interim, November 2007 (DEQ Item 08-0594).

Approved:

Section: Joni Hammond for
Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program

Division: Joni Hammond
Joni Hammond, Acting Deputy Director

Report Prepared By: Kelly Hodney, Sr. Hazardous Waste Specialist
Phone: (541) 567-8297, extension 30

State of Oregon
Department of Environmental Quality **Memorandum**

DEQ Item No. 08-0919 (11)

To: Richard C. Duval, Administrator
Chemical Demilitarization Program

Date: August 15, 2008

From: Kelly Hodney
Senior Hazardous Waste Specialist

Subject: Best Available Technology for Treatment of High-Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility

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This memorandum documents the Department's determination and recommendation to the Environmental Quality Commission of best available technology (BAT) as it pertains to treatment of high mercury mustard ton containers at the Umatilla Chemical Agent Disposal Facility (UMCDF).

Cause for Reevaluation:

In Opinion and Order dated April 17, 2007 (Reference 13), Judge Michael Marcus of the Multnomah County Circuit Court remanded the Environmental Quality Commission's (EQC's) order issuing Hazardous Waste Permit No. ORQ 000 009 431 (Permit) to the UMCDF for the destruction of chemical agent and chemical agent-filled munitions and bulk items stored at the Umatilla Chemical Depot for further action as it pertains to the best available technology and no major adverse effect determinations required by Oregon Revised Statute (ORS) 466.055 (GASP, *et al*, v. Environmental Quality Commission, *et al*, Case No. 9708-06159 [GASP IV]). Judgment was entered in GASP IV on June 12, 2007 (Reference 14), and the Court directed the EQC to reassess the best available technology and no major adverse effect determinations in light of certain changes in facility design and new evidence.

> "It is ADJUDGED that the OREGON EQC'S determinations made pursuant to ORS 466.055 as to whether the Umatilla Chemical Agency *[sic]* Disposal Facility uses the best available technology and has no major adverse impact on public health or the environment in regard to (a) destruction of any mustard in any ton container that contains significantly higher mercury levels than previously reported; (b) the destruction of hazardous waste originally intended for the dunnage incinerator; and (c) the role of PFS carbon filters; are remanded to the State of Oregon Environmental Quality Commission for

> consideration and further proceedings consistent with the court's opinion of April 17, 2007."

The "best available technology" determination is required by ORS 466.055, "Criteria for new facility," which states, in part:

> "Before issuing a permit for a new facility designed to dispose of or treat hazardous waste or PCB, the Environmental Quality Commission must find, on the basis of information submitted by the applicant, the Department of Environmental Quality or any other interested party, that the proposed facility meets the following criteria . . .
>
> (3) The proposed facility uses the ***best available technology*** [emphasis added] for treating or disposing of hazardous waste or PCB as determined by the department or the United States Environmental Protection Agency . . .

Consistent with the above, Oregon Administrative Rule (OAR) 340-120-0010(c) also states:

> *Technology and Design.* The facility shall use the ***best available technology*** [emphasis added] as determined by the Department for treatment and disposal of hazardous waste and PCB. The facility shall use the highest and best practicable treatment and/or control as determined by the Department to protect public health and safety and the environment;

Background

In February 1997, the EQC and Department issued Permit No. ORQ 000 009 431 to the UMCDF for the storage and treatment of the Umatilla Chemical Depot chemical weapons stockpile. As part of the permitting process, the EQC ensured and verified that several regulatory statutes (ORS 466.050, 466.055[1]-[5]) had been met (Reference 5). As identified above, ORS 466.055(3) requires the Department to find that the proposed facility uses the best available technology for treating agent-filled munitions and bulk items and the resulting secondary wastes. In making this evaluation, the EQC and the Department developed the following criteria (References 2, 8, and 5 [Items 60, 63, 73, and 74]) from which to make a best available technology determination of the technology proposed for the UMCDF (incineration). These criteria were established primarily to compare the baseline incineration process in the U.S. Army's application to alternative technologies that were then in development.

Best Available Technology Criteria:

1. Types, quantities, and toxicity of discharges to the environment by operation of the proposed facility compared to the alternative technologies.

2. Risks of discharge from a catastrophic event or mechanical breakdown in operation of the proposed facility compared to the alternative technologies.

3. Safety of the operations of the proposed facility compared to the alternative technologies.

4. The rapidity with which each of the technologies can destroy the stockpile.

5. Impacts that each of the technologies have on consumption of natural resources.

6. Time required to test the technology and have it fully operational; impacts of time on overall risk of stockpile storage.

7. Cost.

Based on information reviewed by the Department from the Department of the Army and Ecology and Environment (an independent subcontractor to the Department) (Reference 1), the Department (Reference 3) and EQC (Reference 5) both found that incineration was the best available technology for disposing of the Umatilla Chemical Depot stockpile as well as the secondary wastes that would result from the treatment of the chemical weapons, and would not present a major adverse impact to public health/safety or the environment.

Umatilla Mustard Agent

During 1945-46, the U.S. Army manufactured mustard agent at the Rocky Mountain Arsenal in Colorado. It was stored there until the early sixties when the mustard agent was transferred to the Umatilla (Oregon) and the Deseret (Utah) Chemical Depots. During 1968-69, 2,635 ton containers of mustard agent were sent to Umatilla from the Rocky Mountain Arsenal stockpile (Reference 20).

High-Mercury Mustard Agent

A common problem with all mustard agent manufactured, including that at the Rocky Mountain Arsenal, has been the formation of solid heels. The cause has not been determined, but every container of mustard has some level of solid heel formation.

Investigation of the heel formation was begun in 2003 on ton containers stored at the Deseret Chemical Depot (DCD). During this investigation, routine sampling for metals identified several containers with elevated levels of mercury and other metals (References 20 and 19). Not all of the ton containers tested during the DCD heel investigation showed high mercury levels. This investigation tested the heels of 96 ton containers of mustard agent. Eighteen of these contained high levels of mercury (References 20, 19, and 21).

The Army also sampled the liquid component of these ton containers and identified a correlation between the liquid and solid in each container. For each container that contained high levels of mercury in the solids, the liquid portion of the waste also contained elevated levels of mercury (although not quite as high as in the solids). Based on this correlation and the difficulty in sampling the heels of ton containers, the sampling program was continued utilizing only liquid samples from each ton container to determine if mercury was present (References 20 and 19).

"Higher-than-Expected" Level of Mercury

The Army has proposed to treat any container of mustard agent with a quantifiable level of mercury in the liquid portion of the waste as a high-mercury container (References 20 and 19). Since mercury was not originally expected in the mustard containers, and most do not contain quantifiable levels of mercury (Reference 23), this proposal is reasonable.

Results of TOCDF Sampling

The Tooele Chemical Agent Disposal Facility (TOCDF) sampling indicates that the high-mercury ton containers contain an average of 2,440 milligrams of mercury per kilogram of waste (mg/kg) in the heels, and have an average heel of 30 percent (References 21 and 22). The liquid portions of these containers contain an average of 22 parts per million (ppm) of mercury (Reference 22). Based on these results, the average mercury content is 747 mg/kg.

There is high uncertainty that the sampling performed on high mercury container heels is representative of the waste. Due to the characteristics of mercury and its salts, it is highly unlikely that the mercury present is uniformly distributed throughout the heel. Levels measured will be dependent upon the sampling location within the heel, as evidenced by the wide variation in the results obtained during the TOCDF sampling, 95 to 10,300 parts per million.

Due to the contents and structure of the heels, it will be virtually impossible to accurately quantify the mercury content of each individual container. The solid bricks of heel and the adherence of portions of the heel to the container itself will render solvent washing techniques ineffective.

The only methodology that could be used would be physical removal. This method would involve cutting the ton containers sufficiently to provide access to all portions of the interior of the container and physically removing all waste in the container with mechanical means (scrapers, grinders and/or samdblasting tools) and attempting to homogenize the removed waste. Utilizing this method with manual labor (inside DPE suits) would expose workers to unacceptable hazards and extend the required time necessary for processing high mercury containers from 60 days to 18 months. Developing robotics to perform, if they can be developed, would delay processing of high mercury containers five to ten years.

It is preferable to utilize alternative compliance determinations procedures, as discussed below.

Regulatory Status of High-Mercury Containers

The results of the TOCDF sampling indicates that these containers will carry the Federal RCRA Hazardous Waste Codes of D004 (arsenic), D006 (cadmium), D007 (chromium), D008 (lead), D009 (mercury), and D010 (selenium) (Reference 19). They will also contain the D001 Waste Code based on the contained hydrogen gas observed in all mustard agent containers.

These waste codes subject the containers to the Land Disposal Restrictions (LDR) contained in Part 268 of Chapter 40 of the Code of Federal Regulations (CFRs) (adopted by Oregon Administrative Rules [OAR] 340-100-0002). Prior to land disposal, this waste must meet the following standards:

D001	DEACT and meet universal standards
D004	5.0 mg/L TCLP and meet universal treatment standards
D006	0.11 mg/L TCLP and meet universal treatment standards
D007	0.60 mg/L TCLP and meet universal treatment standards
D008	0.75 mg/L TCLP and meet universal treatment standards
D009	0.025 mg/L TCLP and meet universal treatment standards
D010	5.7 mg/L TCLP and meet universal treatment standards

D009 also contains a higher level restriction based on whether the waste, as generated, contains greater than 260 mg/kg of mercury. Based on the discussion above, this waste will be subject to this restriction. This LDR requires that waste be treated by a specific treatment technology prior to land disposal:

RMERC – Retorting or roasting in a thermal processing unit capable of volatizing mercury and subsequently condensing the volatized mercury for recovery, and which is subject to an emission limitation for mercury; or

IMERC – Incineration of wastes containing organics and mercury in units operated in accordance with the technical operating requirements of 40 CFR Part 264 Subpart O.

This LDR is attached to the waste at the point of generation; which, in this case, was the adoption of OAR 340-101-0030 in 2001 that established stored chemical weapons at Umatilla as solid waste and listed hazardous waste. The LDR will remain attached to the waste, and any intermediate treatment residues, until one of the designated treatment technologies is applied (Reference 6).

Identification of High-Mercury Ton Containers

Based on the sampling results for the TOCDF ton containers, the Army has developed a model to predict how many and which individual ton containers will contain higher-than-expected levels of mercury. The Army's predictive model, based on the lot and serial numbers of the ton containers (References 20, 19, 10, and 18), identifies 433 ton containers at the Umatilla Chemical Depot that will have measurable levels of mercury (References 20, 19, and 18).

The Army has submitted a roster of ton containers stored at the Umatilla Chemical Depot which identifies, by serial number, the mercury status of each individual container (Reference xx).

Assessment:

Based on the investigations and sampling performed at TOCDF (References 20 through 18), it is clear that the ton containers of mustard agent that contain higher-than-expected levels of mercury are a separate waste stream from the mustard agent that has not been contaminated. The hazardous waste program, as well as the GASP IV judgment, requires these mercury-contaminated containers be characterized as a waste stream separate from the main body of mustard agent that does not show mercury contamination.

In developing a list of technologies for treatment of high mercury mustard, the Department has limited the investigation to technologies that have been demonstrated to be capable of weapons destruction at a production level.

The Army has proposed two demonstrated technologies, baseline incineration and neutralization. The Department has added one additional demonstrated technology, the DAVINCH™ process.

Incineration

Baseline incineration is the technology currently in use at the UMCDF and directly meets the LDR requirements for the high mercury mustard waste stream. However, due to the Maximum Achievable Control Technology (MACT) Clean Air Act emission limitations for mercury, it is unlikely that the existing incineration system can achieve compliance without modifications to the pollution abatement system or reducing waste feeds below efficient levels.

As the Army has demonstrated during the surrogate trial burns, the existing incineration system has the capability to capture mercury after mercury-bearing waste is processed in an incinerator (see References 15, 16, and 17). During the Liquid Incinerator 1 surrogate trial burn, surrogate waste was spiked to 32 parts per million of mercury (Reference 24). This mercury was effectively captured in the pollution abatement system. The liquid incinerators would be controlled via waste feed limits, which is the emission control process generally utilized for incinerator systems and that has been in use at UMCDF since the beginning of hazardous waste processing.

The Army has proposed adding a sulfur-impregnated carbon filter to the metal parts furnace system for mercury capture (Reference 20). The Army has submitted reports to demonstrate the effectiveness of sulfur-impregnated carbon in controlling mercury emissions (References 11 and 12). The Army is proposing to demonstrate through a source test that the metal parts furnace can treat the worst case mercury content of a 500 pound container heel with 10,300 parts per million of mercury. A non-mercury container would be drained to 500 pounds and spiked with 5.2 pounds of mercury to demonstrate this worst case. Additionally, the Army is proposing to install a state of the art mercury monitor on the metal parts furnace system to document that mercury removal is performing as designed.

Utilizing this system of mercury control raises some permitting questions. One is what to do with the carbon discussed above when it is spent. Currently, wastes must be verified agent free by analysis prior to off-site shipment, otherwise on-site treatment is required. For spent carbon, there is not an approved sampling methodology in the current permit, although the Army is working to develop one. Since carbon used for mercury control clearly cannot be run through an on-site incinerator, the Department has determined that the spent carbon should be stored in J-block until a viable BAT for this secondary waste stream can be selected.

The advantage of using storage for spent carbon is to allow for continued development of suitable agent-free criteria demonstration or design of an alternative spent carbon treatment methodology. It also allows the facility to continue destruction of 343 tons of mercury contaminated mustard agent, currently stored in 60+ year old containers that are prone to leaking, and store the mercury in 60 tons of carbon placed in new containers. The spent carbon from the metal parts furnace is not expected to be generated until the end of facility closure in 2012. The spent carbon generated at this time, whether it contains mercury or not, will not have an on-site furnace available for processing and will need to be stored pending final disposition.

There would be a similar permitting situation with the Brine Reduction Area (BRA). While the brine system is not the main control for mercury, some level of mercury may be collected. Because of the volatility of mercury, processing in the BRA of brine that contains elevated levels of mercury could pose an immediate health hazard to employees and be an uncontrolled emission point for mercury. Several options, which will require modifications to the permit, are being explored to address this situation should it occur.

Capital expenditures for the installation of processes necessary for the management of high-mercury mustard will be limited to the placement of sulfur-impregnated carbon in two filters and has been estimated at $750,000 (Reference 20).

Modifications to the baseline incineration system to allow processing of high-mercury mustard are expected to be accomplished during the currently scheduled changeover from VX to mustard, and are not expected to delay the predicted 2009 initiation of mustard agent operations.

Neutralization

Neutralization would be a new treatment technology at the UMCDF. The Army has proposed a design based on the system used at Aberdeen, Maryland (ABCDF). The neutralization portion was used successfully at ABCDF, but the biotreatment portion was not built due to security concerns and the proximity of an alternative biotreatment facility.

Neutralization technology does not directly address the LDR for this waste, but there is no prohibition to using neutralization prior to meeting the required technology. However, treatment residues would still need to meet the IMERC/RMERC treatment technology prior to being land disposed.

Using a National Pollutant Discharge Elimination System (NPDES) permit for the neutralization process would provide an exemption to the LDR and RCRA permitting requirements. This exemption, from 40 CFR 261.4(a)(2), exempts the final point discharge, but only the point discharge, from all RCRA requirements, including the LDR treatment technology. However, due to an Oregon regulation that prohibits the discharge of chemical weapons waste into waters of the State [OAR 340-42-0100(1)], this exemption is not available for this facility. Therefore, waste streams derived from the neutralization process, including the treated effluent and all treatment residues, would still be subject to the IMERC/RMERC treatment standard.

Due to the LDR treatment technology requirement, it is very unlikely the Army will elect to treat all of the Umatilla mustard agent through a neutralization facility. The bulk of the mustard agent is not currently subject to this LDR and would not be unless it is mixed with the high-mercury mustard agent.

Solid wastes generated by the neutralization process are summarized in Table 5-9 on page 5-95 of Reference 20. The emptied ton containers and most of the secondary waste will not be subject to the LDR treatment technology because they are either empty containers or newly generated waste, but they will not meet the current agent-free criteria. Either the hazardous waste permit will need to be modified to adjust the agent-free criteria to allow off-site treatment or the existing furnaces utilized to treat these wastes to current requirements.

The solid wastes listed in Table 5-9 would be treatment-related wastes and subject to the LDR treatment technology (IMERC/RMERC). The estimated generation rate, at least 10,652,000 pounds, is 14 times the weight of the mustard agent being treated. These wastes should meet the agent-free criteria and be suitable for off-site shipment for additional treatment.

The neutralization process relies on the same system for emptying ton containers as was proposed for the incineration system. As mentioned above, there is not an acceptable system available for completely emptying the ton containers that contain mercury. Therefore, it is likely that the metals parts furnace, with sulfur impregnated carbon, will still need to be utilized with the neutralization system.

An additional neutralization type system was submitted for consideration by Arc Tech. This system utilizes chemical neutralization with peroxide followed by a proprietary humic acid treatment system. The Arc Tech proposal, which is contained in Attachment C with the other public comments, was missing many details which would be necessary to provide a suitable comparison such as the quantity of chemicals used in the process, wastes generated, the natural resources needed to complete the process, and the cost to install. The proposal included the ton container drainage system mentioned above, and was proposed to evaporate the generated effluent after lowering mustard agent levels to 200 parts per million. The 200 parts per million level would not meet the standard set for UMCDF in the current permit. Due to the data gaps, and the fact that neutralization variant has never been used for chemical agent beyond bench scale testing, the Arc Tech proposal was not used to represent the neutralization technology alternative in the Department's analysis.

The estimated cost of the neutralization system listed in Reference 20 of $468 million was based on the full -size facility. For a reduced-size facility to treat only high mercury mustard , the cost would be lower. For purposes of comparison, the Department has assumed $117 million.

Neutralization would be a new treatment technology at Umatilla and, according to the Army, would be viewed as a significant Federal action for NEPA purposes . This would require a new Environmental Impact Statement, which would delay the start of the Army request for funding by an estimated two years. Funding procurement would be expected to require an additional two years, and could take longer depending on the status of the Federal budget.

Use of this technology is expected to delay processing of high-mercury mustard agent eight years to accommodate Federal requirements, system design, permitting, construction and systemization. Completion of processing is estimated to be completed by 2017.

DAVINCH™ Process

DAVINCH is a trademarked acronym for the detonation of ammunition in a vacuum integrated chamber, and is a controlled detonation system for the disposal of chemical munitions. The process is described in detail in References 8, 9, and 7.

This process has been used to destroy chemical weapons and related material in Japan, Belgium, and in the U.S. Army nonstockpile program. As stated by the National Research Council in Reference 8, this is a demonstrated technology.

This technology does not directly address the LDR for the high-mercury mustard waste, but there is no prohibition to using this process prior to meeting the required technology. However, treatment residues that are not the subject of an exemption will still need to meet the

IMERC/RMERC treatment technology prior to being land disposed. There is an exemption opportunity that may be applicable to this process for alternative technologies that achieve a measure of performance equivalent to that achieved by the specified methods [40 CFR 268.42(b)], but it provides few benefits here and does not justify the time or expense to pursue.

A design proposal for this process specific to the UMCDF high-mercury mustard agent ton containers is found in Reference 7.

The DAVINCH™ process is an enclosed treatment system. Residual gases in the detonation chamber are processed through high-efficiency particulate air (HEPA) and carbon filters and a cold plasma arc unit, and stored in a buffer tank until analysis verifies that the gases are clean enough to discharge. Gases in the buffer tank can be recirculated through the pollution abatement system if necessary.

Use of this process at the UMCDF would require modification(s) to the facility's hazardous waste and air quality permits.

Capital and operating costs are not yet available for this application.

The DAVINCH system has not been demonstrated in application for ton containers containing heterogeneous material.

DAVINCH™ would be a new treatment technology at Umatilla and would be viewed as a significant Federal action. This would require a new Environmental Impact Statement, which would delay the start of the request for funding by an estimated two years. Funding procurement would be expected to require an additional two years, and could take much longer depending on the status of the Federal budget.

Use of this technology is expected to delay processing of high-mercury mustard agent eight years to accommodate Federal requirements, system design, permitting, construction and systemization. Completion of processing is estimated to be completed by 2017.

Analysis

Attachment A contains a comparison table of the three alternatives based on the best available technology analysis criteria established by the EQC.

1. Types, quantities, and toxicity of discharges to the environment by operation of the proposed facility compared to the alternative technologies.

   Incineration will meet all MACT air emission standards, emitting low levels of volatile organics and metals. Emissions have been deemed protective pursuant to the human health risk assessment. Mercury emissions are estimated at less than one pound.

   Neutralization will have emissions from the reactor and the biotreatment facility. These emissions have not been quantified at previously operated facilities. The reactor would generate significant amounts of complex organics and some mercury, but these would be controlled with carbon filters. Mercury emissions would be less than one pound. Emissions from the biotreatment facility will consist mainly of carbon dioxide with low toxicity.

   Emissions from the DAVINCH™ would be similar to incineration but at a lower level due to the process used, however, this process has never been permitted in the United States. Emissions would also be expected to be protective. Mercury emissions from the air pollutant control system would be low, estimated as less than one pound. Mercury behavior in this system is modeled on the measured behavior of arsenic, so some uncertainty remains on the potential mercury emissions from the containment chamber during debris cleanup.

2. Risks of discharge from a catastrophic event or mechanical breakdown in operation of the proposed facility compared to the alternative technologies.

   Risk of discharge from the incineration system due to upset condition or catastrophic failure are deemed to be low based on the operational history of this and other chemical weapons incinerators and the controls built into the system.

   Risk of discharge from the neutralization facility due to upset condition or catastrophic failure are deemed to be low based on the operational history of Newport and Aberdeen facilities.

   Risk of discharge from the DAVINCH™ system is deemed low based on the design of the containment chamber and safe operations at existing facilities in Japan and Belgium. However the system proposed here is two and half times larger than any other system previously constructed by the company.

3. Safety of the operations of the proposed facility compared to the alternative technologies.

   Incineration has demonstrated safe operations at this and other chemical demilitarization facilities.

Neutralization has demonstrated safe operations at other chemical demilitarization facilities.

Controlled detonation systems have demonstrated safe operations at several facilities in the United States and specific to DAVINCH™ in Japan and Belgium.

4. The rapidity with which each of the technologies can destroy the stockpile.

   Incineration can process up to 7 ton containers per day, and would require about 62 days to process high mercury mustard containers.

   The neutralization process, while designed for 7 containers per day, has averaged just under 5 ton containers per day on systems that did not have a biotreatment facility. Neutralization would require about 86 days to process high mercury mustard containers.

   The DAVINCH™ process design included the processing of three ton containers every two days, which would require about 287 days to process high mercury mustard containers. This was based on one shift (40 hours per week) operations. Full operation (all shift) would enable the processing of twelve ton containers every two days, or six per day, and would require 72 days to process the high mercury mustard containers.

5. Impacts that each of the technologies have on consumption of natural resources.

   Incineration consumes a large quantity of natural gas and significant amounts of water and electricity. All of the utilities necessary for operation are available.

   Neutralization would consume a significant amount of water and electricity. The biotreatment facility would consume an additional significant amount of water and a moderate quantity of natural gas. The water necessary for the operation of the biotreatment facility is not currently available at the Umatilla Chemical Depot. Water availability for the neutralization portion is questionable since the incinerator will still need be operated to manage secondary waste.

   The DAVINCH™ uses very low quantities of water, natural gas and electricity, but would require 633,000 TNT equivalent pounds of explosives.

6. Time required to test the technology and have it fully operational; impacts of time on overall risk of stockpile storage.

   The incineration system is fully operational now and requires six months to changeover to mustard agent. Destruction of the high mercury mustard containers would be done in conjunction with the rest of the mustard stockpile. All mustard agent would be processed by June 2011.

The neutralization system, being a new technology, would be subject to National Environmental Policy Act (NEPA) requirements for a new environmental impact statement that could take two to three years to complete. This system would also require a new financial appropriation for the construction costs which, depending on the status of the Federal budget, could take 18 months to three years. System design, environmental permitting, construction, workforce training and systemization are estimated to take an additional three years from budget procurement. In all, it would require 6 to 9 years before the technology is operational, so processing would begin between 2014 and 2017 and be complete within three months. Because the neutralization system needs to utilize the metal parts furnace for the management of empty ton containers and secondary waste, the closure of the incineration facilities would be delayed three to six years. Since the stockpile storage risk has been reduced to the 1% level, impacts on the storage risk should be small.

The DAVINCH™ system, being a new technology, would be subject to National Environmental Policy Act (NEPA) requirements for a new environmental impact statement that could take two to three years to complete. This system would also require a new financial appropriation for the construction costs which, depending on the status of the Federal budget, could take 18 months to three years. System design, environmental permitting, construction, workforce training and systemization are estimated to take an additional two years from budget procurement. In all, it would require 5 to 8 years before the technology is operational, so processing would begin between 2013 and 2016 and be complete within three months. Since the stockpile storage risk has been reduced to the 1% level, impacts on the storage risk should be small.

7. Cost.

Incineration costs are limited to placement of sulfur-impregnated carbon, estimated at $750,000, and the cost of disposal of approximately 60 tons of carbon.

Neutralization system construction costs are estimated at $117 million. Neutralization will also generate about 5300 tons of treatment residues that will require incineration and/or retorting prior to disposal.

DAVINCH™ construction costs have not been determined but should be in the neighborhood of $40 million. This system will generate about 1000 tons of residues that will require retorting prior to disposal.

Public Comments

The Department received comments from 18 individuals or groups on this evaluation. The Department's response to comments is included in Attachment B. The actual comments received are included in Attachment C.

Department Recommendation

Based on the evaluation table in Attachment A, the Department has determined baseline incineration with the addition of sulfur impregnated carbon as the best available technology for the treatment of mustard agent containing higher-than-anticipated levels of mercury and recommends that the Commission make this finding The Department recommends that the spent carbon secondary waste stream that would be generated be stored until such time as a BAT determination for ultimate treatment or disposal of spent carbon is developed.

Appendix A – Best available technology evaluation table for mustard agent containing higher than anticipated levels of mercury

References:

1. Ecology and Environment, Inc. (E & E), November 1996, "Best Available Technology Findings Report: Umatilla Chemical Depot, Hermiston, Oregon," prepared for the State of Oregon Department of Environmental Quality (DEQ), Seattle, Washington. DEQ Item 1386
2. Environmental Quality Commission (EQC), August 23, 1996a, "Minutes of the Two Hundred and Fifty-Fourth Meeting." DEQ Item 98-1379
3. EQC, November 22, 1996b, Minutes of Environmental Quality Commission Special Session. DEQ Item 2433
4. EQC, February 7, 1997a, Transcript of Meeting of the Environmental Quality Commission. DEQ Item 98-1375
5. EQC, February 10, 1997b, "Findings and Conclusions of the Commission and Order 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." DEQ Item 98-1458
6. EPA, October 2000, "Mercury Treatment Standards under the Land Disposal Restrictions Program" DEQ Item 08-0681
7. GEOMET Technologies, LLC, 2008, "Best Available Technology (BAT) Determination for Mustard Agent with Elevated Mercury Levels," June 16, 2008. DEQ Item 08-0677
8. National Research Council, 2006, Excerpt from "Review of International Technologies for Destruction of Recovered Chemical Warfare Material" DEQ Item 08-0679
9. Science and Technology of Energetic Materials, 2007, "Study on Controlled Detonation Chamber System of Chemical Weapons (II): Implosion and Sequential Detonation" DEQ Item 08-0680
10. Science Applications International Corporation (SAIC), 2007a, "Mustard Contamination Investigation," dated July 2007. DEQ Item 07-1100

11. SAIC, 2007b, "SAIC Mercury Control: Testing Fixed-Bed Adsorption for Mercury Emission Control in the U.S. Army Chemical Demilitarization Incinerators," Phase 1 Final Report, June 2007 — DEQ Item 08-0603

12. SAIC, 2008, "Phase 2C 3000-hour Interim Report SAIC Mercury Control: Testing Fixed-Bed Adsorption for Mercury Emission Control in the U.S. Army Chemical Demilitarization Incinerators," Final, August 2008. — DEQ Item 08-0904

13. State of Oregon, Multnomah County Circuit Court, April 17, 2007, "Opinion and Order," Case No. 9708-06159, in the Matter of GASP, et al, vs. EQC, et al," (GASP IV). — DEQ Item 07-0678

14. State of Oregon, Multnomah County Circuit Court, June 12, 2007, "Stipulated General Judgment," Case No. 9708-06159, GASP IV. — DEQ Item 07-1227

15. Umatilla Chemical Agent Disposal Facility (UMCDF), 2003, "Permit Condition VI.A.5.v., Submittal of the Liquid Incinerator #1 Surrogate Trial Burn Report," letter No. ENV-03-0154 dated May 8, 2003 — DEQ Item 03-0282

16. UMCDF, 2005a, "Proposed Change to Revision of the Liquid Incinerator (LIC) 1 Surrogate Trial Burn Report," letter No. ENV-05-0029 dated February 4, 2005. — DEQ Item 05-0221

17. UMCDF, 2005b, "Supplemental Information on the Proposed Changes to Revision 1 of the Liquid Incinerator (LIC) 1 Surrogate Trial Burn Report," letter No. ENV-05-0040 dated February 14, 2005. — DEQ Item 05-0282

18. U.S. Army Chemical Materials Agency Project Manager for Chemical Stockpile Elimination (CMA), November 2007, "Mercury Projections for Umatilla Distilled Mustard Ton Containers" — DEQ Item 08-0649

19. CMA Program Manager for the Elimination of Chemical Weapons, December, 2007, "Chemical Agent Characterization, Draft Final, Revision 4." — DEQ Item 08-0503

20. CMA, 2008, "Umatilla Chemical Agent Disposal Facility, Best Available Technology Evaluation, Final, Revision 1," dated May 16, 2008. — DEQ Item 08-0623

21. CMA/DEQ, 2008a, "TOCDF 2003 HD Ton Container Heel Sampling, High Mercury Results" — DEQ Item 08-0656

22. CMA/DEQ, 2008b, "TOCDF 2006-2008 HD Ton Container Liquid Sampling, High Mercury Results" — DEQ Item 08-0657

23. CMA, 2008c, "TOCDF 2006-2008 HD Ton Container Liquid Sampling Results" — DEQ Item 08-0658

24. UMCDF, 2005b, "Surrogate Trial Burn Report for Liquid Incinerator 1," dated May, 2003. — DEQ Item 03-0839

cf: Kelly Hodney, DEQ Hermiston

Appendix A

Technology Comparison Table

	Criteria	Best Available Technology (BAT)		
		Incineration	**Neutralization**	**DAVINCH™**
1	**Types, Quantities, Toxicity of Discharges to the Environment**	• **PFS with SIC meets BAT criteria based on testing and HRA results.** • **Meets MACT/RCRA standards** • **Discharges <1 lb of mercury per year** • *Generates 60 tons of treatment residue that may require IMERC/RMERC*	• **Emission never quantified but expected to be low** • *Generates 5300 tons of treatment residues that require IMERC/RMERC*	• **Vacuum reduces volume of emissions** • **Will meet RCRA/MACT emission standards before discharged** • **Discharges< 1 lb of mercury per year** • *Uncertainty on mercury emissions from chamber* • *Generates 1000 tons of treatment residues that require RMERC*
2	**Risks of Discharge from a Catastrophic Event**	• **Risks are considered low based on operational history.**	• **Risks are considered low based on operational history.**	• **Risks are considered low based on operational history in Japan and Belgium** • *Proposed system is 2.5 times larger than any previously constructed*
3	**Safety of Operation**	• **Demonstrated safe operations.**	• **Demonstrated safe operations.**	• **Demonstrated safe operations**, but not specific to HD TC processing. • Requires extensive handling of explosives.
4	**Rapidity of Destruction**	• **Quickest destruction since facility is constructed and operating.** • **~7 TCs/day, 62 days processing time**	• *5 TCs/day, 86 days processing time*	• *~1.5 TCs/day, 287 days processing time* • *6 TCs/day, 72 days processing time*
5	**Impacts on Consumption of Natural Resources**	• *Requires large quantity of natural gas.* • Significant water and electricity consumption	• Large water consumption for neutralization plus biotreatment • *LDR required treatment of residues (incineration/retort) requires additional resources* • *Requires use of MPF for container processing*	• **Uses low amount of natural gas, water and electricity** • *LDR required treatment of chamber residues* • *Requires 633,000 pounds TNT equivalent of explosives*
6	**Time Before Technology is Operational and Impacts to Overall Risks**	• **Installation of SIC in PFS – immediate** • **2011 completion date**	• *6 to 9 yrs to complete NEPA analysis, budget, permit, construct, and systemize prior to operation* • *2014 to 2017 completion date* • *Requires more preparatory efforts and workforce training* • *Risks associated with neutralization in addition to those associated with incineration operations*	• *5 to 8 yrs to complete NEPA analysis, budget, permit, construct, and systemize prior to operation* • *2013 to 2016 completion date* • *Requires more preparatory efforts and workforce training*
7	**Costs**	• **SIC installation, $750,000** • *Disposal of 60 tons of mercury waste.*	• *$117 million* • *Disposal of 5300 tons of mercury waste* • *Extended campaign schedule will increase costs for incinerators and Depot security*	• *Around $40 million* • *Disposal of 1000 tons of mercury waste* • *Extended campaign schedule will increase costs for incinerators and Depot security*

BOLD HIGHLIGHT – meets Criteria   NORMAL FONT - marginally meets criteria   *ITALICIZED TEXT* - Does not meet criteria

Hg = Mercury
SIC = Sulfur-impregnated carbon
TC = Ton containers

Response to Comments

Best Available Technology Determination – Treatment of High-Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility

State of Oregon
Department of Environmental Quality
Umatilla Chemical Demilitarization Program
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PERMIT NUMBER: ORQ 000 009 431

WHAT WAS DECIDED? The Department of Environmental Quality (DEQ) issued a notice June 27, 2008, requesting public comments on the best available technology for treatment of mustard-filled ton containers at the Umatilla Chemical Agent Disposal Facility (UMCDF) with higher-than-expected levels of mercury.

PUBLIC COMMENTS: A public comment period was conducted for this best available technology determination from June 27, 2008, through August 11, 2008. A public meeting and a public hearing were held July 24, 2008. The DEQ received 18 sets of comments during the public comment period, the majority of which concurred with the Department's best available technology determinations.

List of Commenters

Supportive of Incineration

Kaylin W. Burnett
Allison R. Cook
Russell Dorran
M. Steven Eldrige
Frank J. Harkenrider
Tim Mabry
Bob Severson, Mayor, Hermiston, Oregon
Tami Sinor
Charles R. Taft
Umatilla Chamber of Commerce
UMCDF
Umatilla County Board of County Commissioners
James Wenzl

Supportive of the DAVINCH™ Technology

DAVINCH™
David P. Trott, Mayor, Umatilla, Oregon
G.A.S.P, et al.

Supportive of Alternatives to Incineration

ARCTECH, Inc.
G.A.S.P., et al.

Requested Delay of Decision

Confederated Tribes of the Umatilla Indian Reservation (CTUIR)
G.A.S.P., et al.

WHERE CAN I GET MORE INFORMATION? A copy of this response to comments has been provided to each party who provided comment during the public comment period, along with a copy of the associated notice of decision. Copies of the notice of decision and the response to comments will also be placed in each of the information repositories listed in the notice of decision.

ACCESSIBILITY INFORMATION: The DEQ is committed to accommodating people with disabilities. Please notify the 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 Shilo Ray in the DEQ Hermiston office (541) 567-8297, ext. 21, or toll-free in Oregon at (800) 452-4011), fax to (541) 567-4741, TTY (503) 229-6993, or e-mail to deqinfo@deq.state.or.us to request an alternate format.

Response to Comments not in Support of Incineration as the Best Available Technology (BAT) for Treatment of High-Mercury Mustard-Filled Ton Containers at the UMCDF

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-1	If the BAT determination will be based on pollutants discharged into the environment and their potential effects on human health and the environment as required by law, how does the DEQ justify utilizing incineration versus neutralization for treatment of HD ton containers contaminated with mercury in light of the significant difference in emissions? (GASP)	In evaluating the BAT for the treatment of mercury-contaminated mustard ton containers at the UMCDF, the Department has considered the advantages and disadvantages of the technologies evaluated, whether they met the established BAT criteria, and the applicable regulatory requirements (e.g., land disposal restriction requirements). The types, quantities, and toxicity of discharges are addressed as one of the seven BAT criteria. The UMCDF permit ensures emissions are not "uncontrolled," establishing design and operating requirements that are protective of human health and the environment. Although emissions may appear to be less for neutralization versus incineration, the neutralization process does not satisfy the land disposal restrictions, resulting in the need for additional RCRA treatment. All residues, about 5300 tons, will require further treatment (incineration or retort) as per the land disposal restrictions treatment standard requirements. The subsequent treatment will result in the consumption of additional resources and will result in additional releases to the environment.
RTC-2	Has the DEQ taken into account that use of neutralization technology would result in smaller quantities of dioxins, PCBs, and hazardous waste emissions as well as less water consumption than with incineration? (GASP)	
RTC-3	The DEQ fails to compare the obvious and significant difference in quantity of the uncontrolled emissions of agent and hazardous chemicals from neutralization, controlled-detonation, and incineration facilities. (GASP – 2)	
RTC-4	Is it true that incinerators have a direct pathway to the environment and when incinerating mustard, toxics will be chronically discharged into the environment and that during upset/mechanical breakdown conditions even more toxics and agent will be released through this direct pathway? (GASP)	The engineering controls built into the UMCDF, combined with permitted waste feed limits, emissions limits, and operating requirements, ensures toxics are not "chronically discharged into the environment." Further, the UMCDF engineering controls and pollution abatement systems are designed to prevent releases even under upset/mechanical breakdown conditions.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-5	Is the DEQ aware that neutralization of Aberdeen's stockpile of mustard ton containers was successfully completed without mercury releases into the environment? (GASP)	The Aberdeen hydrolysate was sent off-site and commingled with other industrial waste during the treatment process; therefore, there is no way to quantify mercury releases attributable to Aberdeen hydrolysate. Because of this, comparisons between Aberdeen and TOCDF mercury emissions have not, and cannot, be done. As noted in GASP's second set of comments, "While the neutralization of the agent at Newport *[Indiana]* was successful, the secondary treatment which relied upon incineration at a facility in Texas was not adequately protective of human health and the environment and would not meet Oregon environmental standards." It is important to note that neutralization does not treat (remove or destroy) mercury; and, if used to treat the high-mercury UMCDF ton containers, would produce a significant amount of mercury-contaminated solid and liquid waste that would require incineration or retort in order to meet the land disposal restriction requirements.
RTC-6	Has a comparison been done between Tooele Chemical Agent Disposal Facility (TOCDF) operation (incineration) and Aberdeen operations (neutralization) at full-rate processing of mustard tons? If so, what were the results? (GASP)	
RTC-7	Are you aware of a 2002 white paper presented to Oregon's Governor, which showed that, based on official regulatory documents, the average daily water usage for incineration is 260,000 gallons compared to 27,000 gallons per day water usage for neutralization? (GASP)	The "For Official Use Only" Army briefing dated March 28, 2002, entitled, "Project Speedy Neut - Oregon," was included as an attachment to commenter's comments dated August 11, 2008 (DEQ Item No. 08-0869). The Department has reviewed same and cannot find that the document makes such an assertion.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-8	Are you aware that there are a number of scientists who have determined that the amount of mercury in a gelled mustard heel cannot be accurately predicted based on measuring the mercury found to be present in the liquid mustard? How will the DEQ account for the amounts of mercury contained in the heels in the ton containers? (GASP)	Sampling has been conducted at the TOCDF of both the liquid and heel portions of the mustard ton containers. Based on the sampling results and correlation of the TOCDF/UMCDF manufacturing lot numbers and ton container numbers, the UMCDF has been able to determine that the Umatilla Chemical Depot stockpile also contains mercury-contaminated mustard ton containers. Because of the sampling conducted at the TOCDF, the UMCDF was able to make this determination without undertaking an independent sampling effort. Having established that some of the UMCDF mustard-filled ton containers will have high levels of mercury (430 of the 2,635 mustard-filled ton containers in the Umatilla Chemical Depot stockpile), the purpose of this BAT is to evaluate the best available technology for treatment of high-mercury mustard ton containers. The Department does not agree that using waste feed rates is the only method available to demonstrate compliance with applicable regulations.
RTC-9	The DEQ has not tested or required thorough testing of the ton containers to determine the actual number that have "high" levels of mercury or the actual number that have high levels of solid heels. In addition, no testing has been done of the heels in the ton containers to determine whether the heels contain high levels of mercury. (GASP – 2)	
RTC-10	Data from liquid and solid phases of the mustard agent in the ton containers do not support the contention that the concentration of mercury in the liquid is predictive of the mercury concentration in the solid heel. (CTUIR) It is evident from reviewing the data that it is impossible to obtain an accurate estimate of solid concentration of mercury from the liquid concentration. (CTUIR – EA) The UMCDF mustard ton containers must be individually sampled not only for mercury, but for all heavy metals, other previously identified contaminants, and heel level. There are indications that the estimated amount of arsenic (300 lbs) is nearly as high as the estimated amount of mercury (350 lbs), and other contaminants such as lead and chromium are also of concern. The SAIC report indicates considerable variability in the contaminant levels within the identified mustard agent lots, and the UMCDF only has 32 of 99 lots in common with the TOCDF (i.e., almost 70% of the UMCDF mustard agent lots have never been sampled). (CTUIR) Without individual TC sampling, it will be impossible to know the feed rate for mercury and other metals to the MPF. Not knowing these feed rates means that we can no longer apply the current regulatory strategy of establishing a maximum feed rate for individual compounds (under worst-case emission conditions) and then verifying emission levels under these conditions in a trial burn. Furthermore, it is impossible to know if emission will remain below levels determined safe through the risk assessment process. (CTUIR – EA) A sampling strategy using information developed at the Deseret Chemical Depot (DCD), but specific to the UMCDF mustard ton containers, should be developed and provided for review. (CTUIR)	

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-11	Require the Army to provide information on the heterogeneity within the solid heel and the justification why the solids data collected for the 98 TCs can be considered to be representative of the whole heel with the TC. (CTUIR – EA)	
RTC-12	No evidence or independent documentation is offered to provide that the SIC filters will perform as described in real-world conditions and during upsets and malfunctions. (GASP – 2)	The use of sulfur-impregnated carbon (SIC) for effective mercury capture is an established industry standard. In addition to its already demonstrated capability, the Army is conducting benchmark testing specific to the use of SIC at the demilitarization facilities during HD operations. The Department anticipates the final data will be used by the Army to support requests for modifications to the facility to incorporate the use of SIC in the PFS. Modifications to the existing incineration system are only relevant to this BAT as they relate to time to install and associated costs. Requests for modifications to the facility, including those for treatment of high-mercury mustard ton containers, must be made through the permit modification process. The adequacy of any proposed PFS modifications and the need for mercury monitors will be evaluated as part of the permit modification request(s). All systems will be permitted and regulated so that potential discharges meet the standards applicable to each system to ensure protection of human health and the environment. The addition of SIC into the filter configuration is designed to capture mercury emissions; other filter elements (e.g., HEPA filters) will continue to capture the other less volatile emissions. Design and operating standards will be established for the LICs and the MPF to ensure that emission limits are met for all discharges, including mercury and other metals.
RTC-13	The DEQ should require continuous mercury emissions monitors on both the liquid incinerators and the MPF. (CTUIR)	
RTC-14	In the EA, the Army indicates it intends to propose the use of sulfur-impregnated carbon (SIC) in the PFS for the MPF and not for the LIC based on the assumption that it will control feed of the mustard to the LICs "so as to comply with applicable mercury emission limits and regulations." Rather than allowing the UMCDF to maximize feed rates to the point that emissions are near the permit limits, the DEQ should require an "as-low-as-reasonably-achievable" approach by requiring the use of SIC for both the MPF and the LIC (not just the MPF) thereby reducing mercury emission levels as much as possible. (CTUIR – EA)	

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-15	Does a modified sulfur-impregnated carbon filtration system that targets one specific heavy metal (i.e., mercury) do so at the cost of reducing the capture capability of other heavy metals and toxics? What data does the DEQ have regarding this issue? What studies have been done to determine the ramifications of such a trade-off on public health and the environment? (GASP)	There is no "trade-off." If SIC is used in the PFS, it will have no impact on the ability of the PFS to capture other heavy metals and toxics. If there are residual metals (other than mercury) remaining in the exhaust gas after the PAS, they will continue to be present as particulates and captured in the prefilter and first HEPA filter of the PFS unit. If residual amounts of mercury are present in the exhaust after passing through the PAS, it will more likely be present as vapor phase elemental mercury. Therefore, the prefilter and HEPA filters, which capture metals in particulate form (not vapor phase) would not capture it. SIC in the carbon banks of the PFS (after the first HEPA filter) would adsorb residual vapor phase mercury.
RTC-16	What specific neutralization approach (there are several) was studied in determining the $117 million cost for the small-scale neutralization system? Are there proven systems that would be less costly? (GASP)	The cost estimate is based on Army estimates for a full-scale neutralization system similar to that used at Aberdeen, Maryland, but is revised downward to reflect that only high-mercury mustard agent (not all mustard agent) will be treated in the neutralization process.
RTC-17	Why is the cost of TOCDF's sulfur-impregnated carbon system to capture mercury projected to be $57 million whereas the UMCDF's is projected to cost $47 million. What information or references support your response? (GASP)	The UMCDF and TOCDF costs for addition of the SIC systems do not directly correlate because existing site-specific designs differ, affecting the complexity and costs of the additions.
RTC-18	Are you aware there are proven treatment options for neutralized mustard secondary waste (hydrolysate) that would meet the LDR requirements? (GASP)	As this BAT is specific to mercury-contaminated mustard ton containers, the hydrolysate in question would require incineration or retort in order to meet the land disposal restriction requirements.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-19	Explain what happened during the May 14, 2008, incident that resulted in serious damage to and shut down of the Liquid Incinerator at the UMCDF and how the DEQ has investigated this incident. Has the DEQ been on site and witnessed the damage? Are there pictures or video of the damage? Will pictures and video of the damage be released to the public? (GASP)	The Department has not completed its review of the May 14, 2008, incident. Preliminary review indicates that the incinerator encountered an upset condition, but operated as designed so that there was no release to the environment (reference BAT criteria #2). However, there are no indications that the BAT evaluation should be influenced by the incident or subsequent actions related to the incident. Information the DEQ has on this incident is available on the DEQ's Chemical Demilitarization Program web page (http://www.deq.state.or.us/umatilla/cdpsearch/cdpSearch.asp).
RTC-20	How has the May 14, 2008, incident been factored into the DEQ's BAT analysis. Where is it referenced in any DEQ written reports or other information released to the public? (GASP)	
RTC-21	If a fire occurs in the PFS carbon filter beds during the final days of the incineration of mercury-contaminated HD ton containers, how much mercury is likely to be emitted into the environment? What quantities of other contaminates will likely be released? Has such a scenario been considered in the DEQ's BAT analysis? (GASP)	A risk assessment (refer to DEQ Item No. 99-0066 for more information) was prepared to evaluate any additional risks associated with inclusion of the PFS in the UMCDF process, including risk from accidents and other hazards. Scenarios evaluated included carbon filter fires and desorption (release) of contaminants previously captured by the carbon due to high-humidity or high-temperature conditions. The conclusion was that inclusion of the PFS in UMCDF operations had an overall neutral value from a human health/environmental risk standpoint.

<table>
<tr><th>Response to Comment (RTC) No.</th><th>COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)</th><th>RESPONSE</th></tr>
<tr><td>RTC-22</td><td>GASP requests an extension of the comment period and points out that the EQC should not be making a determination that the PFS with sulfur-impregnated carbon is BAT for HD with high-mercury until such time that TOCDF completes construction of its PFS and demonstrates that it will work. (GASP)</td><td rowspan="4">A public comment period for this BAT was held from June 27 through August 11, 2008. In addition, both a public meeting and public hearing were held on July 24, 2008. The public had sufficient opportunity to comment on this BAT determination, and the DEQ had sufficient information upon which to makes its determination that the BAT for the UMCDF incineration process should include and require operation of the PFS. Extension of the public comment period would only result in an unnecessary delay the BAT evaluation process.

Requests for modification of the facility from the Permittees must be submitted to the DEQ as a permit modification request. New results from testing of SIC, designed to test flue gas conditions including mercury and acid gas concentrations representative of UMCDF Metal Parts Furnace PFS, have recently been documented (DEQ Item No. 08-0904). The adequacy of the testing, the use of sulfur-impregnated carbon in the PFS, and any other modifications to the facility will be considered as part of the evaluation of said permit modification request(s).</td></tr>
<tr><td>RTC-23</td><td>It is premature for the DEQ to declare SIC in the PFS as BAT for mercury removal from the UMCDF. Only bench-scale testing has been conducted thus far, and early testing indicates the presence of acid gases in the gas stream will greatly affect the mercury removal efficiency of the SIC. The BAT determination should be delayed until test results are available from the TOCDF. (CTUIR)</td></tr>
<tr><td>RTC-24</td><td>The bench-scale SIC testing is $1/4,000^{th}$ that of the UMCDF PFS using simulated gas feeds that may or may not represent the full suite of processing conditions that occur in the full-scale units. The Army should be required to demonstrate mercury removal using SIC in a pilot-scale facility (at least 40 times greater than what has been currently operated, but 400 times would be more standard for scaling packed-bed systems[1]). (CTUIR – EA)</td></tr>
<tr><td>RTC-25</td><td>The UMCDF should not serve as the pilot-plant for testing the SIC technology. The Army needs to evaluate this process with actual HD incineration in an approved pilot-test facility that is designed and instrumented properly and that can mimic actual operation of the MPF and LIC. Once true pilot testing has been completed, the Army can reevaluate this EA using a proven removal efficiency. (CTUIR – EA)</td></tr>
</table>

[1] Peters, M.S. and K.D. Timmerhaus, 1991, *Plant Design and Economics for Chemical Engineers*, Fourth Edition, McGraw Hill, New York, New York.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-26	The PFS should not be declared BAT, especially for high-mercury mustard, until the issues with analysis, treatment, and disposal of spent carbon are resolved. (CTUIR)	The PFS BAT evaluation was undertaken to determine whether the PFS should be included as part of the chosen technology (incineration) for the UMCDF. The Department evaluation (DEQ Item No. 08-0708) for the PFS BAT addresses the seven criteria established by the EQC for BAT determinations. Although the PFS BAT recommendation does not specifically address the analysis, treatment, and disposal of spent carbon , these items will be/are being addressed via the permit modification process and will be the subject of a future BAT analysis.
RTC-27	Of the three treatment technologies being considered as BAT for mustard with high levels of mercury (and arsenic), only baseline incineration with the addition of sulfur-impregnated carbon (SIC) in the PFS has sufficient information available for the preparation of substantive comments. (CTUIR)	The Department evaluation (DEQ Item No. 08-0xxx) for the BAT for treatment of high-mercury mustard ton containers at the UMCDF addresses the seven criteria established by the EQC for BAT determinations. Three separate technologies (incineration, neutralization, and the DAVINCH™ process) were considered. The evaluation analyzed each technology in view of the BAT criteria and provided references to supporting information, all of which are available on the DEQ's Chemical Demilitarization Program web page (http://www.deq.state.or.us/umatilla/cdpsearch/cdpSearch.asp).
RTC-28	The removal and/or treatment of the solid heels within mustard containers, especially heels contaminated with high levels of heavy metals, should be part of the information evaluated for this BAT analysis. (CTUIR)	The Department concurs that the management of solid heels with mustard containers must be addressed prior to treatment of the high-mercury ton containers. The BAT evaluation, however, addresses the seven criteria established by the EQC for BAT determinations. The more specific issues related to removal and treatment of solid heels will be addressed via the permit modification process.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-29	Insufficient risk analysis has been conducted to determine the risks of metals emissions that exceed the levels used in the human health and ecological risk assessment and to determine the risks of off-site disposal of brines generated from mustard processing. The human health and ecological risk assessment should be updated to account for the possibility of increased metals emissions. The Permittees should be required to submit a transportation risk assessment for the off-site shipment of mustard-derived brines that includes increased metals (high-mercury and/or high-arsenic [CTUIR – EA]) content. (CTUIR)	Two risk assessments have been completed by the Department for UMCDF operations. The first risk assessment, in 1997, included an estimate of mercury emissions and assessed the associated risk. The post-trial burn risk assessment was recently completed and included 101 chemicals of potential concern, including mercury. These risk assessments demonstrated that facility operations do not pose an unacceptable risk to human health and the environment. Design and operating limits will be established to ensure emission limits are met. The need for additional risk assessment may be considered following the mustard agent trial burn if warranted by emission determinations.
RTC-30	The DEQ's BAT assessments did not utilize reliable and adequately protective calculations . . . the analysis provided in the post-trial burn risk assessment clearly indicates that the UMCDF assessment has many deficiencies that likely underestimate or fail to estimate the risks to human health, wildlife, and the environment . . . (GASP – 2)	

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-31	The combination of the failure to complete a sufficiently protective risk assessment and the admitted unacceptable levels of cancer and noncancer impacts of the incineration technology make clear that a BAT determination that favors baseline incineration is not supported by the record. (GASP – 2)	Comment noted, but the Department does not concur. Taking into consideration the extraordinarily precautionary design of the PostRA (e.g., the assumption of the presence of nerve agents when they have never been detected), it was concluded that the probability of actual risk and hazard attributable to current operation of the UMCDF is very low and the probability of major adverse impacts from facility operations is similarly very low. The UMCDF's Comprehensive Monitoring Program, a long-term monitoring program that provides a more definitive measurement of impacts, has been able to demonstrate no evidence of negative trends that would support the risk model estimates. The Department believes the post-trial burn risk assessment to be sufficiently protective, and the EQC accepted the results of the UMCDF post-trial burn risk assessment during its June 2008 meeting, finding that the Post-Trial Burn Risk Assessment supports the determination that (a) the probability of major adverse effects on human health or the environment from currently permitted UMCDF operations is exceptionally low at the facility boundary and decreases rapidly beyond that point and (b) the terms and conditions of the existing permit are sufficient to protect human health and the environment from major adverse effects.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-32	The DEQ and the Army should address the issue of the arsenic-contaminated waste treatment and disposal as well as the mercury-contaminated wastes. The Army's testing of mercury removal using SIC in the PFS should be expanded to include arsenic and other toxic metals clearly present in the mustard agent. (CTUIR)	UMCDF emissions limits have been established (permitted) to ensure protection of human health and the environment, and include limits for arsenic and other toxic metals in addition to mercury. Considerations specific to processing of the high mercury HD ton containers (adequate waste characterization, appropriate waste feed limits, and operating requirements) to meet the permitted emissions limits during HD ton container processing will be addressed via trial burns and the permit modification process.
RTC-33	There are indications that the estimated amount of arsenic (300 lbs) is nearly as high as the estimated amount of mercury (350 lbs), and other contaminants such as lead and chromium are also of concern. The DEQ and the Army should address the issue of the arsenic-contaminated waste treatment and disposal as well as the mercury-contaminated wastes. The Army's testing of mercury removal using SIC in the PFS should be expanded to include arsenic and other toxic metals clearly present in the mustard agent. (CTUIR)	
RTC-34	A review of the 2004 TOCDF TC sampling report indicates that there are also elevated levels of arsenic and possibly lead, manganese, and nickel in the TCs. It appears there are many TCs with heels less than 80 lbs that have low mercury but high arsenic. The Army should identify all compounds that will exceed current permit limits (feed or emissions limits) and include these in the environmental assessment. (CTUIR – EA)	

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-35	The DEQ's analysis generally asserts that alternative technologies will take too long to construct and operate. However, no data is cited in support of this proposition, and certainly no data independent of the Army is referenced that would support the DEQ's position. (GASP – 2)	Implementation of an alternative technology could add several years to the schedule for completion of the mustard campaign. Obtaining the additional funding necessary could take three years. Permitting a new unit would be expected to take considerably longer than modifying the existing UMCDF permit. Based on projections for the Blue Grass facility, construction of a neutralization facility would take approximately three years; this timeframe would be shortened for the DAVINCH™ process, but this gain may be offset somewhat by the lead time for procurement. Differences in operating timeframes for incineration and neutralization are difficult to predict; the Blue Grass EIS predicted comparable operating schedules for these two technologies, while the Pueblo EIS predicted longer operating times for incineration. Schedule impacts due to appropriation requirements for an alternative technology are possible, but hard to predict.
RTC-36	The DEQ fails to discuss the Army's 2002 "Speedy Neut" approach which was proposed for UCD. Under this approach, the Army argued that the entire mustard stockpile could be destroyed as much as four years earlier than would be the case using incineration. (GASP – 2)	The "For Official Use Only" Army briefing, "Project Speedy Neut - Oregon," was presented to the governor March 28, 2002 (Reference RTC-7), which proposed neutralization of mustard concurrent with GB and VX incineration treatment at the UMCDF. Issues identified were delisting and off-site shipment of the hydrolysate, off-site transport of the drained ton containers for incineration at another demilitarization site, an adequate water supply to support neutralization, etc. In a letter dated April 8, 2002, the governor stated that water and hazardous waste disposal issues would have to be satisfactorily addressed before the proposed speedy neutralization approach could be considered. As GB operations have been completed and only one VX campaign (mines) remains, the "speedy neut" strategy is no longer applicable to the UMCDF.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-37	The DEQ's analysis fails to discuss in any detail another proven alternative to incineration. The DAVINCH™ system reportedly destroys chemical agent in a chamber with the energy of 10 GPa and 3,000°K and can achieve the high-destruction efficiency more than 99.9999%. This system uses "cold plasma" to process the off-gas products of detonation, which can also destroy agent if there were any residual amounts after detonation. The cold plasma is used as an oxidizer to destroy the CO and H_2, which are the product gases of the detonation chamber. This controlled detonation process is reportedly being successfully used for the destruction of chemical warfare agents in Japan and Belgium. (GASP – 2)	The information cited in this comment was part of the materials included in the public notice. During the comment period, at the DEQ's request, DAVINCH™ representatives provided more detailed information on their system specific to treatment of high-mercury mustard ton containers at the UMCDF. However, the DAVINCH™ system has not been demonstrated for treatment of large bulk containers, containers comprised of both liquid and solid (heel) constituents, nor mercury-containing organics (HD). DAVINCH™ representatives hypothesize that their proposed, much larger pressure chamber would be able to safely and effectively treat the ton containers, their software would be able to adequately determine the correct amount and placement of explosives to treat ton containers with solid heels, and destruction/capture of mercury would be similar to their experience with arsenic (they have sampling data to support the destruction/capture of arsenic, which is the "closest" metal to mercury, but have no actual mercury data); however, it is not yet demonstrated technology as it specifically pertains to the treatment of high-mercury mustard ton containers.

Response to Comment (RTC) No.	COMMENT (Complete/Summarized Text) (Name of Commenter in Parentheses)	RESPONSE
RTC-38	In a footnote to its second set of comments (undated letter transmitted via e-mail of 08/11/08 4:59 p.m., DEQ Item No. 08-0869), GASP stated it agrees "with many of the comments offered by Morrow County and incorporate them in these comments by reference." (GASP – 2)	Morrow County did not provide comment on this BAT determination but it did; however, comment on the environmental assessment (EA) prepared by the Army in relation to treatment of the mercury-contaminated ton containers. The Department has reviewed the comments and determined that only one Morrow County EA comment related to the BAT has not already been addressed by one of the other commenters. That comment is addressed below.
	The EA indicates that a significant number of TCs (i.e., those with low mercury contaminants) can be processed at *[the]* UMCDF under the current RCRA permit and operation parameters. Section 2 of the EA – The Proposed Action and its Alternatives – should include the alternative of treating the low-mercury TCs onsite and shipping the high-mercury TCs that fall outside of the UMCDF process parameters to one of the other Army demilitarization sites that are frequently cited as having successfully treated TCs considered to be problematic at *[the]* UMCDF. (Morrow County/GASP – 2)	Federal law prohibits the movement of chemical weapons and bulk containers across state lines.

Attachment C for Items C&D

Umatilla County

Board of County Commissioners

08-0886

UMATILLA COUNTY

Commissioners

Bill Hansell
541-278-6201

Larry Givens
541-278-6203

Dennis Doherty
541-278-6202

Executive Assistant
Connie Caplinger
541-278-6293

Executive Secretary
Laura Headley
541-278-6204

County Counsel
Douglas Olsen
541-278-6208

Budget Officer
Bob Heffner
541-278-6209

Director of Economic Development
Hulette Johnson
541-278-6305

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

Full text of comments on PFS & mustard containers

August 11, 2008

Oregon Department of Environmental Quality
Rich Duvall, Administrator Chemical Demilitarization Program
256 East Hurlburt, Suite 105
Hermiston, OR 97838

Mr. Duvall:

The Board of Commissioners supports the mission to safely destroy the chemical agents stored at the Umatilla Chemical Depot. The safety record accumulated over these years is exemplary. The incineration process has worked as intended.

Why would we tinker now with the process? The GB campaign was safely concluded. The VX campaign is near completion. Those chemical agents are far more lethal than mustard.

At this point, the timing dimension takes on greater weight. A decision to convert to a different technology means three things: significant extra time, during which the mustard inventory continues to be stored in aging containers; significant expense to the federal government; and significant disruption to the expectations that were created for the on-post workforce and the off-post community with various intended and unintended consequences to follow.

It would be wrong to not continue with the existing incineration methodology. People accepted that technology, and the attendant projected schedule when the original permit was vetted.

The Umatilla County Board of Commissioners believes that it is in the best interest of Umatilla County citizens that the mustard campaign move forward as scheduled, using current incinerations plans.

Sincerely,

Bill Hansell
Bill Hansell
Chairman

Larry Givens
Larry Givens
Commissioner

Dennis D. Doherty
Dennis D. Doherty
Commissioner

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED

AUG 12 2008

HERMISTON OFFICE

08-0879

HODNEY Kelly

From: DUVAL Rich
Sent: Monday, August 11, 2008 5:20 PM
To: RAY Shilo
Cc: HODNEY Kelly
Subject: Fw: Public Comment

Public comment

Sent from my BlackBerry Wireless Handheld

-----Original Message-----
From: Tami Sinor <tami.sinor@umatillaelectric.com>
To: DUVAL Rich
Sent: Mon Aug 11 16:51:57 2008
Subject: Public Comment

Dear Mr. Duval,

As a former employee of the Umatilla Chemical Agent Disposal Facility, I'm fully confident that incineration

is the best of all available technologies for destroying Umatilla's mustard agent stockpile.

I also urge the Environmental Quality Commission to support a Best Available Technology designation for the Carbon Filtration System for the extra safety measures it has provided for the life of the UMCDF.

Thank you for your continuing efforts to ensure the health and safety of both the Umatilla Chemical Depot workforce and surrounding communities.

Sincerely,

Tami Sinor

UMATILLA ELECTRIC COOPERATIVE

August 11, 2008

Rich Duval, Administrator
DEQ Chemical Demilitarization Program
256 e. Hurlburt Avenue
Hermiston, OR 97838

Mr. Duval,

Thank you for the opportunity to provide comments for your consideration as you re-evaluate the Best Available Technology (BAT) for the Umatilla Chemical Disposal Facility (UMCDF) as it pertains to the processing of Mustard-Filled Ton Containers stored at Umatilla Chemical Depot (UMCD).

I understand that the processing of Mustard Agent presents new challenges for the disposal technology employed. Special issues include the treatment of the solid material that accumulates in the long-stored mustard-filled ton containers and methods that effectively deal with certain lots of the mustard-filled ton containers that are expected to contain higher levels of mercury than originally anticipated.

The UMCDF's pollution abatement system, which incorporates a highly effective carbon filtration system, has worked well during the processing of nerve agents. Enhancements to this system to meet the special challenges of processing mustard agent and successfully manage the wastes (including mercury) are a part of Umatilla's plan, a plan based in part on data generated during extensive testing and from successful mustard planning and disposal being done in Tooele, Utah.

Although I am not an expert on the subject, what I have read regarding the preparations for Mustard disposal at Umatilla, including use of the incineration facility that has already destroyed over 35% of the Umatilla stockpile in a safe matter, meeting and exceeding EQC requirements. Further, with the use of the Pollution Abatement System Carbon Filter System, convinces me that the project should be allowed to continue its work as planned.

I urge you to reject considerations that lengthen the demilitarization at the Umatilla Chemical Disposal Facility (UMCDF). Additionally please re-confirm the Umatilla Chemical Disposal Facility (UMCDF) incineration process as Best Available Technology (BAT) for processing of mustard-filled ton containers and the use of the Pollution Abatement System Carbon Filter System as the Best Available Technology (BAT) for treatment of Mustard Agent ton containers with higher levels of mercury than originally anticipated.

Sincerely,

Steve

M. Steven Eldrige
General Manager and CEO

MSE/trs

750 W Elm Street • PO Box 1148 • Hermiston OR 97838

08-0878

UMATILLA ELECTRIC COOPERATIVE

FACSIMILE TRANSMITTAL SHEET

TO: Rich Duval	FROM: Steve Eldrige
COMPANY: DEQ	DATE: 8/11/2008
FAX NUMBER: (541) 567-4741	TOTAL NO. OF PAGES INCLUDING COVER: 2
	PHONE NUMBER: (541) 564-4388
REGARDING: Public Comment	FAX NUMBER:

☐ URGENT ☑ FOR REVIEW ☑ PLEASE COMMENT ☐ PLEASE REPLY ☐ PLEASE RECYCLE

NOTES/COMMENTS:

PO BOX 1148 – 750 W. ELM STREET, HERMISTON, OREGON 97838

08-0877

Charles R. Taft
984 E. Hurlburt Av.
Hermiston, OR 97838-2578
541-567-3834

11 August 2008

To Whom It May Concern,

As a citizen of Hermiston, I would like to make comments regarding the upcoming BAT decision for the processing of the Ton Containers of HD at the Umatilla Chemical Depot (UMCD).

I believe that the HD should be processed using the incineration technology that has been so successfully used for the first 11 of the 13 agent/item campaigns at the Umatilla Chemical Agent Disposal Facility (UMCDF). Incineration has been used for mustard at the Johnston Atoll facility and at the Tooele facility without problems. With the past successes and the proposed use of sulfur-impregnated carbon filters, as successfully demonstrated by testing at the University of North Dakota, I believe that the use of incineration is the best choice for the UMCDF HD campaign.

I have heard others say that alternate technologies were successful at the Aberdeen (for mustard) and Newport (for VX) facilities and that they have been chosen for the Bluegrass and Pueblo sites. Nobody mentions that at those four sites the use of an alternate technology was mandated by Congress or some other political entity. There have been no cases where an alternate technology was chosen as the BAT from among a list of technologies that included incineration.

The Japanese DAVINCH technology offers nothing to support its use for mercury, only for its use with arsenic. The 2 elements are different in nature and not in the same family or group on the periodic table of the elements. A system that works for a volatile chemical doesn't automatically work for a non-volatile chemical and vise-versa.

As a taxpayer, I expect elected officials and others paid with tax dollars to always take time and money into consideration when making decisions. The current "best-guess" schedule using incineration has all of the HD being destroyed about May-June of 2010, which would allow the UMCDF to meet the treaty deadline agreed to by the federal government for the destruction of the United States' chemical stockpile. Any other technology will increase the time and money needed to destroy the UMCD stockpile and could cause Oregon to miss the treaty deadline.

Charles R. Taft
Charles R. Taft

Kaylin Burnett
18825 N 1239 PRNW
Prosser, WA 99350

Richard Duval, Program Administrator
Oregon Department of Environmental Quality
256 E. Hurlburt Ave. Suite 105.
Hermiston, OR 97838

08-0876

11 August 2008

Dear Mr. Duval.

I wanted to take a moment to comment on the High Mercury Best Available Technology (BAT) for the Umatilla Chemical Agent Disposal Facility (UMCDF). First, I would like to introduce myself. I am currently an employee of the facility and have been working within the program for three years. I have also been involved in many discussions relating to BAT for our Mustard stockpile and have taken time to evaluate the technologies independent of my role at the UMCDF.

Although incineration is criticized by some members of the community, I assure you that it is the Best Available Technology to safely and efficiently remove the risks to our communities. We have proven the ability to operate safely and to process the Mercury through our trial burns. There are a few additional items the plant is considering that will improve reduce the public risk such as; sulfur impregnated carbon (SIC), an additional mercury monitor, heel transfer system, etc. There is something to be said of a known process versus an unknown process. Incineration is a known process that has been continuously demonstrated and has a defined solution for Mercury, the other technologies have not addressed a Mercury solution.

In terms of neutralization, my perspective is that it is merely a dilution process prior to incineration. I don't see the point. I also know the facility and cultural changes required for the facility, the slower processing rates, and length of time to gain funding.. I do not personally feel that dilution is the best approach for mercury nor do I believe it the EPA's recommended solution. I am therefore opposed to neutralization.

The DAVINCH system is an entirely different approach. It has some huge advantages for the portable disposal arena, but it scares me from a full scale plant perspective. The current proposed system will be roughly 4 times larger than the largest system the company has ever operated. The presentations, discussions and literature provided to me have failed to address Mercury beyond comparing it to Arsenic. I'm not a chemist, but my understanding is that the two metals are significantly different in behavior and toxicity in the environment. There is a significant explosive donor charge required, and the skill sets and approval process through the Department of Defense Explosive Safety Program (DDESP) to deal with it. The system cannot process a whole Ton Container with fluid, so there is an unknown draining and preparation process.

In simple terms, the only real proven technology that addresses Mercury is incineration. Therefore it must be the Best Available Technology and it has proven to be compliant at the site, in addition.

Thank you for your time.

Sincerely.

Kaylin W. Burnett

DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND
EDGEWOOD CHEMICAL BIOLOGICAL CENTER
5183 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5424

REPLY TO
ATTENTION OF

AMSRD-ECB-PI-OP

11 August 2008

Mr. Daman Walia
ARCTECH, Inc.
14100 Park Meadow Drive
Chantilly, VA 20151

Subject: Edgewood Chemical Biological Center (ECBC) Participation with ARCTECH, Incorporated in the Draining and Treatment of Ton Containers

Dear Mr. Walia:

We appreciate your interest in ECBC for collaboration on draining and treatment of ton containers containing the chemical agent mustard (HD) with high Mercury concentrations at the Umatilla Chemical Depot (UMCD).

If ARCTECH should be awarded the contract, ECBC agrees to enter into negotiations in good faith for a Cooperative Research and Development Agreement (CRADA) to provide technical services. Specific terms of our participation would be negotiated after contract award.

If you have any questions please contact David Kline at (410) 436-9733 or via E-mail at david.kline1@us.army.mil.

Sincerely,

for TIMOTHY A. BLADES
Deputy Director Operations,
Directorate of Program Integration

JACADS Project Office (CD-CO-J-2021)
SUBJECT: ARCTECH's HUMASORB® Technology--Successful Application at Johnston Atoll Chemical Agent Disposal System (JACADS)

a. HUMASORB® treated brines reduced the metals concentration to below the permit limits in a significant portion of the test containers.
b. Brine treatment by the HUMASORB® system allowed for faster processing of the brine in the BRA from 20% of capacity to 90% of capacity.
c. The solids generated from the HUMASORB® process were non-hazardous.

4. PMCD is very satisfied with ARCTECH and the performance of the HUMASORB® system at JI. HUMASORB® system performed as promised and ARCTECH met all the obligations of the contract and performed the project on-time and as per schedule. ARCTECH personnel demonstrated professionalism and flexibility throughout the project from inception to finish to meet the needs of PMCD. Please contact me if you have further questions concerning this project.

5. Questions on this matter should be referred to Mr. Charles Papish, (808) 421-0011 x 3975.

Gary W. McCloskey
GARY W. MCCLOSKEY
JACADS Site Project Manager

Copy Furnished:
R. Malone, SAIC

DEPARTMENT OF THE ARMY
US ARMY CHEMICAL MATERIALS AGENCY (PROVISIONAL)
JOHNSTON ATOLL CHEMICAL AGENT DISPOSAL SYSTEM
PO BOX 156
APO AP 96558-0008

REPLY TO
ATTENTION OF:

SFAE-CD-CO-J (50q) 19 August 2003
JACADS Project Office (CD-CO-J-2021)

MEMORANDUM FOR Record

SUBJECT: ARCTECH's HUMASORB® Technology--Successful Application at Johnston Atoll Chemical Agent Disposal System (JACADS)

1. The U.S. Army is currently is the process of destroying the obsolete U.S. stockpile of chemical weapons using an reverse assembly followed by incineration process. This is underway at locations in the continental United States and was completed on Johnston Atoll in the Pacific in November 2000. Incineration was the technology selected for this disposal at five of the nine stockpile locations. Various chemical agents and munition parts are processed in furnaces designed to handle liquid agent, explosive components and metal/miscellaneous parts. The gas stream from these furnaces is treated in a pollution abatement system (PAS) designed to capture metals and other contaminates prior to being released from a stack. In the PAS, the gas stream is washed down with a caustic solution, which result in the formation of a brine solution.

2. The waste brines produced during the destruction of chemical weapons contain a number of toxic metals which are typically processed through a Brine Reduction Area (BRA) that evaporates the solution to generate dry solid salt, which then has to be disposed off as a hazardous waste. However, the brine-processing rate is often limited when toxic metals are present above the RCRA permitted feed limits. This decrease in throughput leads to increase in operational costs and project schedule delays. The deployment of a waste brine treatment system for removal of metals can offer significant economical and operational advantages for risk mitigation.

3. The Program Manager for Chemical Demilitarization (PMCD) contracted with ARCTECH in 2001 to design, build and install a HUMASORB® system at Johnston island (JI) for treatment of brines generated from the JACADS PAS. A mobile HUMASORB® system had already been successfully tested in 1999 at JI to remove metals from Spent Decontamination Solution (SDS).

ARCTECH completed the task of design, fabrication and installation of the HUMASORB® system in 2002 and successfully treated approximately 160,000-180,000 gallons of brines in 2002 and 2003. ARCTECH personnel modified the process in the field as needed to treat brines with varying characteristics. HUMASORB® system deployment at JI for brine treatment led to the following advantages:

DEPARTMENT OF THE ARMY
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND ACQUISITION CENTER
EDGEWOOD CONTRACTING DIVISION
5179 HOADLEY ROAD, BLDG E4455
ABERDEEN PROVING GROUND, MD 21010-5401

REPLY TO
ATTENTION OF:

February 21, 2008

AMSRD-ACC-E

Dr. Daman Walia
ARCTECH, Inc.
14100 Park Meadow Drive, Suite 210
Chantilly, VA 20151

Dear Dr. Walia,

Reference: Chemical Materials Agency (CMA) Industry Briefing – Assessment of Technologies Suitable for the Treatment of Chemical Agents Lewisite (L), Tabun (GA) and GA/UCON; APG-EA; 27 November 2007

Thank you for responding to the CMA market survey of potentially applicable technologies on behalf of ARCTECH.

Your submission, Actodemil®/HUMASORB Technology for Safe Destruction of Chemical Agents Lewisite (L), Tabun (GA) and GA/UCON Obsolete Wastes Stored at the Deseret Chemical Depot (DST), Tooele, Utah, was evaluated by a CMA panel composed of Government and contractor technical experts. The assessment was carried out using the process efficacy, maturity, safety and residuals parameters presented at the briefing.

Based on the information you provided, the panel judged the ARCTECH concept to be potentially applicable to the elimination of the two chemical agents in question. Further consideration of the available technologies to meet CMA's objectives is ongoing.

Point of contact for this action is Mrs. Jennifer Zeman, 410-436-4492, email: Jennifer.zeman1@us.army.mil.

Sincerely,

Jennifer Zeman
Jennifer Zeman
Contract Specialist

slow process but very costly to operate and costly to build. As your Memorandum concludes the limitations of this process to address let alone mercury but also several other toxic melts present in the UMCDF TC,s.

ARCTECH has proven track record of conceiving to implementing technological solutions, which our public is seeking to ensure environment is protected and safe for the operators. The world leader organization, the ECBC has both experience and personnel and has agreed to team with ARCTECH for deployment of Actodemil and HUMASORB technology at UMCDF. An ECBC letter confirming this intent is attached here with.

I very much appreciate your and your staff in undertaking this very challenging task to guide your Environmental Quality Commission members on reaching a decision for Best Available Technology solution for implementation in your state in compliance with aspirations of its citizens.. We will be very pleased to provide any additional information about our technologies and experience in its applications for munitions demil operations.

Thank you very much.

Sincerely,
ARCTECH, Inc

Daman S. Walia, PhD
President and CEO

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Our Actodemil and HUMASORB technology is based on humic acid derived from abundant coal natural resources and chemicals such as caustic and hydrogen peroxide which are plentiful and available at low costs. The amount of energy input is minimal as small amount of heated water to 50-60 degrees C is used. Most of the water will be recycled. Only other use of energy will be for evaporating small amount of water.

6. Time required to test the technology and have it fully operational; impacts of time on overall risk of stockpile storage.

The selected BAT with incineration and PFS and our Actodemil and HUMASORB technologies both can be equally rapidly deployed and brought operational. However if the incineration with PFS does not perform as it is a technology which has to date been never practiced in large scale commercial operations, the time lost will severely impact the 2012 target date for completing the UMCDF activity.

7. Cost

The selected BAT with incineration and PFS is very high cost. U.S. Army estimate for capital cost alone is $47 million as stated in your reports. No O&M costs are given. Recognizing the very high cost energy today, just the cost for energy alone will be very high. We understand that on average the cost of operation of chem. demil facilities are $300,000 per day so even if it takes 100 days to incinerate the high mercury TC,s, it will result in $30 million, thus toal cost approaching $77 without cost of energy and replacement of very high cost SIC for PFC.

Our Actodemil and HUMASORB units are inherently much lower cost because of simpler process units primarily tanks, mixers and metering pumps. Already two CHAT units are available by U.S. Army/ECBC and our HUMASORB unit is in storage at TOCDF. Other units will be built at out side fabrication shops, skid mounted for rapid deployment at UMCDF. We have stated above the average costs of our units and expect much lower cost then $47 million for capital alone for the selected BAT. For treating 425-430 TC,s each containing average of 150 gallons or 64,500 gallons and at average cost of $150 per gallon on high side for O&M will cost about $15 million thus at 50% of selected BAT.

We also noted that you have listed two other technologies for this need at UMCDF. These are chemical neutralization and DAVINCH Process. We would like to offer our brief comments on their applicability for safe disposal of high mercury TC,s at UMCDF. The chemical neutralization as practiced at Edgewood only destroyed the mustard. The hydrolysate containing schedule II chemical thiodyglycol was shipped to DuPont waste treatment facility. Its application at UMCDF will require complete treatment and as well as disposal of mercury waste water by dilution, which will be problematic under NPDES and LDR as stated in your Memorandum. The DAVINCH Process by Kobe Steel is based on controlled detonation and applied for recovered unexplode4d shells. Its application for TC,s containing heterogeneous material will pose many challenges to detonate bulk chemical agents prone to leaks and release of mercury. Small quantities of agents transferred in suitable containers will be required to be detonated and thus not only very

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electricity although back up power may be available, accidental releases of highly lethal and toxic chemicals , which can seriously endanger the workers and as well as release in to the environment. To date chemical demil incinerations have been successfully operated without catastrophic blow up, but the mustard TC,s contain hydrogen as measured by the TOCDF analysis. Any carry over of hydrogen as part of entrapped in mustard or in feed will increase the risk of such catastrophy.

Our Actodemil and HUMASORB technology again being operated near ambient conditions and in batch can easily manage upsets which might occur due to mechanical failures, which might be simple pump break down. Any trapped hydrogen in gelled mustard will be released during the a-HAX wash out and hydrolysis. Provisions for spill containment are standard feature of our Actodemil and HuMASORB units.

3. Safety of the operations of the proposed facility compared to alternative technologies

The selected BAT with incineration and PFC pose very serious safety concerns of workers due to both local releases of toxins as described in #1 and potential of hydrogen explosions as described in #2.

Our Actodemil and HUMASORB best feature is not only safety of the environment from any releases but also safety to the workers.

4. The rapidity with which each of the technologies can destroy the stockpile.

Certainly the large existing furnaces for incineration have high through put but to meet very low mercury emission standards from the stack, the through put will have to be considerably slowed down. For example at TOCDF, the emission requirement for mercury is 130 microgram per cubic meter of dry gas with 7% oxygen. Both the wide varyiations of mercury in TC,s and consistent requirement of limit on its emissions will pose very serious operational problems , which will be only manageable with slowing the feed.

Our Actodemil and HUMASORB shall incorporate two CHATS , which will enable retrieval of 10TC,s per shift at 60% availability factors and thus the 425-430 of high mercury TC,s will require less than 50 days of operations. Even if all the 2635 TC,s are treated with our technology, it will require less than one year of operations thus with provisions for permitting, contracting, system installation at UMCDF, systemization, and O&M, it will be well within the target date of 2012.

5. Impacts that each of the technologies have on consumption of natural resources

The selected BAT with incineration and PFC requires very large amounts of natural gas , which is now more than ten times more costly then when UMCDF facility was started in late 1990,s. Natural gas because of its clean burning attributes and decreasing supplies has become a very precious natural resource. So its continuing use for burning wastes which are not combustible themselves except high amounts of gas is burned to co burn the waste is not only increasing the high costs but adversely impacting precious natural resource.

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removal of these toxic metals and to keep these being emitted in to the environment. Mustard is highly chlorinated chemical like PCB,s and because of concerns of highly toxic dioxins being the result of incineration of chlorinated chemicals, your state and federal laws specifically state careful requirements for containment of combustion of chlorinated chemicals such as PCB. The incineration of highly chlorinated mustard will result in high amounts of dioxins which will require much larger amounts and surface area of activated carbon then provisions in current PFS. This problem will be further compounded by replacing the activated carbon with high surface area with lower surface area of SIC, thus resulting in emissions of dioxins in to the environment. Other potential emissions of mercury and other toxic metals potentially will result from the formation of vapors of metal halides formed at high temperature of incineration due to presence of both metals and chlorine gas. These vaporous metal halides will breakthrough the PFS and thus resulting in to emissions in to the environment (For example today chlorine gas is used to remove metal impurities from graphite by forming metal halide vapors at high temperature for production of nuclear grade graphite).

Our Actodemil and HUMASORB technology being operated at near ambient conditions will not result in formation of dioxins and bind the toxic mercury and other toxic metals expected to be present in HUMASORB due to unique properties of humic acid. It is a batch process and thus it lends it self to homogenize and treat varying concentrations of mustard and mercury etc in the TC,s.

Both the selected BAT with incineration and our Actodemil and HUMASORB will result in producing wastes containing mercury exceeding LDR of 260 ppm. SIC with mercury and spent HUMASORB with mercury and as well as other toxic metals. This limit will trigger RMERC/IMERC The spent SIC with mercury will fail TCLP as the mercury is only bound to sulfur molecules, whereas the metals will chelate in to humic acid molecule in the HUMASORB and it will pass TCLP as it was proven at the JACCADS project. The spent SIC will also contain traces of chemical agent. Thus the mercury laden SIC can not be run through an on –site incinerator, since this would continually cycle mercury through incinerators with no removal as stated by you in your Memorandum 08-0707 dated June 27,2008.As you stated in the memorandum " the agent free criteria in the permit may have to be modified to allow the off-site shipment of this spent carbon or an alternative treatment method identified to manage this waste stream on-site." The compliance to RMERC/IMERC for small volume of spent HUMASORB compare to very large volumes of SIC from all the PFC,s units and being free of any chemical agent will be more cost effective and protective of environment , which is the primary objective for seeking this BAT.

2. Risks of discharge from catastrophic event or mechanical breakdown in operations of the proposed facility compared to the alternative technologies.

The selected BAT with incineration and PFC poses the highest risk of discharge of both chemical agents and toxic metals from both catastrophic event and mechanical breakdown. As this BAT is very fast continuous operations and there is no recourse if the incineration furnace blows up or and components of PAC and PFC mechanically malfunctions. What ever chemical agent and its products are in the system can not be retrieved and contained and will result in discharge. Even a simple disruption in

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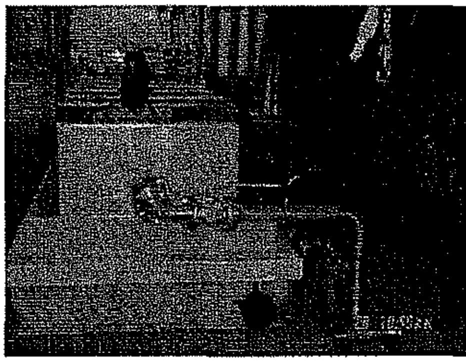
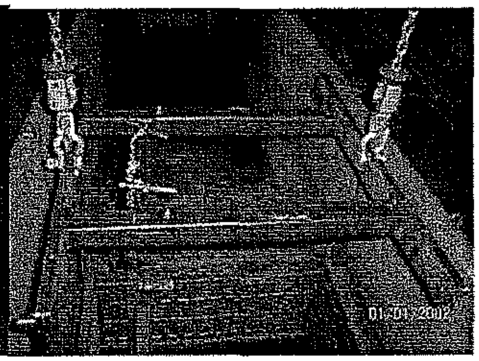
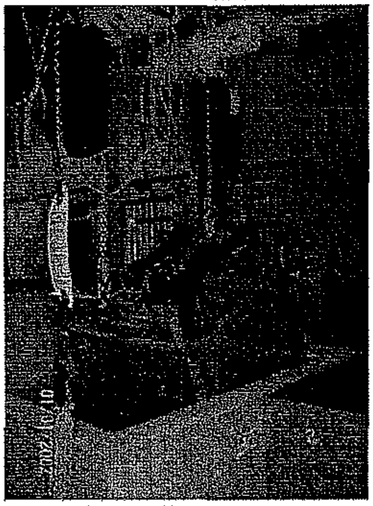




View of Decon Tank **Cages being Immersed in decon Tank**



Cages being Immersed in Rinse Tank

COMMENTS ON BAT DETERMINATIONS OF INCINERATION WITH PFS AND BENEFITS OF ACTODEMIL AND HUMASORB TECHNOLOGY PER 7 CRITERIA SETFORTH ARE AS FOLLOWS:

Criteria 1: Types,quantities,and toxicity of discharges to the environment by operation of the prposed facility compared to the alternate technologies.

The use of SIC filters for mercury capture in combustion gases is yet unproven in any continuous commercial scale operations. It is being tested for its applications for removal of mercury from coal combustion gases by spraying SIC in the combustion gases and then capturing the SIC with mercury in bag house filter. Fresh SIC is sprayed on continuous basis to ensure active surfaces of SIC particles available to maximize the mercury capture. In the proposed approach at UMCDF, SIC will be installed as fixed bed in the PFS and thus will result in decreasing removal efficiencies of mercury over time and resulting in to unacceptable emissions of mercury in to the environment. Mercury content in TC,s is highly heterogeneous as shown from the analysis at TOCDF, and thus this heterogeneous feedstock will result in varying removal efficiencies in the PFS and thus resulting in to release of mercury in to environment when a slug of high mercury containing feed is incinerated. Since the TOCDF analysis showed that the TC,s also contain several other toxic metals as listed above, but is no provision has been made for

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The list of projectile sizes to be treated and destroyed with the decon/demil process equipment include 57mm, 85mm, 88mm, 100mm, 105mm, 115mm, 122mm, 130mm, 150mm, and 155mm. The decon-demil system is capable of treating multiple casings, of multiple sizes, at any given time. The design criterion is for treating up to 300, 100mm projectiles per day.

In the ARCTECH decon/demil facility, the first step in the process is to load the projectiles into metal cages. After the cages have been loaded they are immersed in a decontamination tank which is filled with the a-HAX decontamination fluid, which accomplishes the complete destruction of any TNT that might be present on the surface of the projectiles.

The decontamination tank is rectangular and made of stainless steel. A suction and discharge header, a heat exchanger and a pump are integrated to circulate the heated a-HAX through the tank. In the decontamination step the cages containing the empty projectiles are slowly lowered into the decontamination tank using a hoist and trolley system. The cages are lowered at an angle to ensure that the empty projectiles are completely submerged in the a-HAX reactant which has already been heated to an initial temperature of 195 degrees F, or 90 degrees Celsius, well below the boiling point of water.

After the cages have been immersed in the a-HAX reactant for approximately 1 and a half hours they are slowly removed from the tank. As they are being removed from the decontamination tank the cages are tilted at angle to ensure that all of the a-HAX has been completely drained from the projectiles.

The completely drained cages are then slowly moved to the next step which is rising of the projectiles. Rinsing is accomplished in a 2 tank system. Fresh water flows from one tank to the other to provide counter current rinsing. From the decontamination tank the cage is lowered slowly into the first rinse tank at an angle until it is completely submerged in the water. After a quick immersion the cage is removed slowly from the first rinse tank, and is then ready to be lowered into the second rinse tank. Again after a quick immersion the cage is removed from the second rinse tank and is then ready to be fed into the drying chamber.

The drying chamber is a totally enclosed tunnel equipped with a moving conveyor in which forced air is directed through a series of nozzles to dry the projectiles. After the cage is lowered into the chamber it moves slowly through the tunnel. After about 8 to 10 minutes it reaches the end where it is deposited onto a gravity conveyor.

The final step is the deformation of the projectiles and this is accomplished by using a bandsaw to cut the projectiles into two pieces. The dried projectiles are manually loaded onto the bandsaw and held in place with a quick clamp operating vise. A semi automatic mitering saw then cuts the projectiles into two. The cut pieces are collected and loaded onto mobile bins for transportation to a smelter for recycling.

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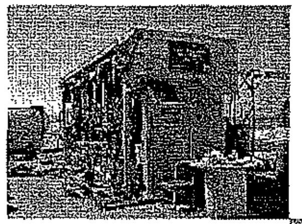
Successful Operations with Brines of Varying Characteristics at JI

Input Brine

	Concentration, mg/L		
Metal	Brine # 1	Brine # 2	Brine # 3
Aluminum	64	4.3	7.8
Antimony	0.79	3.5	24
Arsenic	0.25	0.22	2.7
Barium	ND < 2.0	2	ND
Beryllium	ND <0.02	0.02	ND
Boron	72	16	76
Cadmium	0.52	0.82	0.74
Chromium	360	9.3	20
Cobalt	0.61	0.1	ND
Copper	650	12	18
Lead	2.1	8.2	26
Manganese	12	0.6	0.54
Mercury	0.13	0.0049	ND
Nickel	32	1.6	0.92
Selenium	ND <0.2	0.2	ND
Silver	2	0.35	ND
Thallium	0.23	0.1	ND
Tin	0.6	0.36	0.59
Vanadium	0.51	0.1	ND
Zinc	78	46	69



	Input	Treated
Phosphorus	14-1,100 PPM	ND-36 PPM

Operating Conditions
Brine Flow Rate: 8-10 gpm
HUMASORB®: Same dosage for all brines
pH: 4-5 (for all the 36 isotainers)
Additives:Iron compound for some brines
No downtime for HUMASORB® system at JI

Treated Brine

	Concentration, mg/L		
Metal	Brine # 1	Brine # 2	Brine # 3
Aluminum	1.06	2.45	ND
Antimony	0.061	2.1	ND
Arsenic	ND	0.117	ND
Barium	ND	0.065	0.00433
Beryllium	ND	ND	ND
Boron	46.2	14.7	50.4
Cadmium	ND	0.504	0.0103
Chromium	1.84	1.65	0.0105
Cobalt	ND	0.015	ND
Copper	2.02	1.47	0.0105
Lead	ND	0.271	ND
Manganese	0.108	0.377	3.97
Mercury	ND	ND	ND
Nickel	0.0401	0.636	0.00766
Selenium	0.0637	ND	ND
Silver	ND	0.0223	0.143
Thallium	ND	ND	ND
Tin	ND	ND	ND
Vanadium	ND	ND	ND
Zinc	0.0693	29.4	0.0518

Actodemil® Technology for safe and Effective Decontamination and Deformation of Empty projectile Shells, El Haikstep Demil Facility, Cairo, Egyptian Armament Authority

The Egyptian Armament Authority (EAA) is currently conducting disposal of obsolete and outdated munitions at a state-of-the-art facility in El Haikstep, Cairo. Following dismantling and demilitarization of projectiles the empty shells have to be properly disposed in accordance with both the Egyptian and the U.S. Army requirements so that they cannot ever be used as an IED. ARCTECH is implementing an approach that combines its Actodemil® technology to first decontaminate the projectile shells to remove any residual TNT that might be present on the surface of the projectiles. The destruction of TNT is accomplished by hydrolyzing the compounds with the a-HAX chemical reactant. After decontamination has been accomplished to the required 5X levels the shells will be cut in two using a bandsaw machine so that they cannot be reused for the originally intended purpose. The two step process of decontamination to the 5X level and the cutting of the projectiles after decontamination will ensure that the projectiles have been effectively demilitarized. Following the effective demilitarization, the empty projectile shells can be recycled at a metals smelting facility.

The overall objectives of this project are to accomplish the following:

- Decontamination of the empty projectile shells using the a-HAX treatment to the decontamination factor of 5X.
- Deformation of the decontaminated projectile shells to ensure that they can never be reused as an improvised explosive device (IED).

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(L), Tabun (GA), and GA/UCON Obsolete Wastes, Stored at the Deseret Chemical Depot (DST), Tooele, Utah", in response to the U.S. Army Solicitation Number USA-SNOTE-071029-001. This requirement was prompted by the Army to safely dispose off variable small quantities of chemical agents which contained Arsenic, mercury and other toxic metals. Our proposal was determined to be acceptable for this requirement. A copy of the U.S. Army letter dated February 21, 2008 is attached.

Our Actodemil® and HUMASORB® technologies have been well proven in a number of applications for safe disposition of chemical and conventional munitions wastes. Following are some of the examples:

<u>Actodemil®/HUMASORB® Technology testing under U.S. Army Chemical demil Program</u>: Tests were conducted to determine the process efficacy for destruction of agents under a variety of conditions and decontamination of metal and other surfaces. Several series of tests were conducted which clearly indicated that:

Using the alkalized humic acid reactant solution complete destruction of all agents (greater than 99.9999%) can be achieved with the final agent concentration below the drinking water standard (20 ppb for nerve agents and 200 ppb for mustard agents).

- Agents are destroyed in the reaction and not merely adsorbed to the humic acid matrix.
- There are no Schedule I compounds present at the end of the reaction.
- Agent does not reform during the acidification step and, the reaction is, therefore irreversible.
- There are a few expected Schedule II compounds in the hydrolysate but treatment with hydrogen peroxide and/or Fenton's reagent significantly reduces the concentration of these compounds in the solid residue and liquid recycle stream.
- Test were conducted with various metal surfaces and PVC and PC plastic. In all cases the surfaces were completely decontaminated. In addition, the aluminum was completely solubilized in the reactant solution.

Based on the above test the following are relevant technology application projects for treatment of secondary wastes:

HUMASORB Technology Application of Secondary wastes at Chemical demil site at Johnston Island (JACADS): The effectiveness of HUMASORB® for chelation of more than 20 heavy metals and subsequent solid liquid separation with a commercial filter press was also proven by treating almost 200,000 gallons of caustic wastewater at JACADS. The removal of toxic heavy metals allowed speedy operation of the brine evaporators. Only six drums containing spent humic acid with bound toxic metals were disposed off in a non-hazardous landfill as it passed TCLP tests. A copy of the U.S. Army Site Manager at JACCADS , Mr. Gary W. Mccloskey is included herewith.

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- *Implementation of process* can be accomplished in a short period of time:
  - Standard industrial equipment will mean ease in procure, install and assembly.

- ***Environmental Impacts will be minimal***
  - No process liquid effluent so no impact on local watersheds.
  - Toxic contaminant free solids acceptable for safe disposal offsite either as hazardous waste or as non-hazardous waste at a permitted disposal site.
  - Headspace gasses will be treated; air discharge will only contain CO2.

- ***Process is safe*** because it has inherently mild conditions
  - Local process controls; automatic emergency shutdown in the event of process offset
  - Process Modules are isolated to reduce chemical hazards or spread of contamination
  - Redundancy for safety-related alarms and interlocks
  - Secondary containment to contain and effectively mange any spill

- ***Public Acceptability***
  - Public acceptance will be high due to no release of process liquid effluent into the local watersheds
  - ARCTECH's proven track record of creating safe and environmentally sound technologies will further enhance creditability with public for use of HUMASORB®

In 2003-04 we were approached by TOCDF about the use of our HUMASORB Technology approach for consideration for the mercury mustard campaign. This inerest came after our successful operation of our HUMASORB system at JACCADS to remove mercury along with 20 toxic metals from caustic wastewaters. Later URS (the parent company of EG&G) was given contract to do 10% design i.e. do alternative approaches analysis. We provided our HUMASORB approach ; Hot a-HAX water jet wash, chemical hydrolysis with high shear mixing to break heal along with our proprietary chemical, followed by chemical oxidation to completely destroy thiodiglycol, and adsorption of mercury and other toxins on HUMASORB. This to be followed by filtration of spent HUMASORB for disposal as non hazardous in landfill (HUMASORB binds metals etc and passes TCLP). The clean water can be recycled and/or treat in the existing brines treatment system at TOCDF. Our HUMASORB treatment unit after operation at JACCADS is sitting in storage at TOCDF. Other process units are off the shelf and could be acquired in 4-6 months, installed and operational in very short time. URS engineers evaluated several approaches, we were told 20 or so including SIC but recommended HUMASORB. URS was given follow on contract to do 30% design based on site specific requirements and with detailed process design from us for HUMASORB. URS completed this 30% design and presented to Army and EG&G. We were asked to provide our proposal for supporting the 60% design by URS. At that time URS was asked to take 180 and look at incineration in LIC.

On January 18, 2008 ARCTECH submitted our proposal entitled,
"Actodemil/HUMASORB Technology or Safe destruction of Chemical Agents, Lewisite

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The Actodemil®/HUMASORB® total technology system, because of mild treatment conditions uses standard industry equipment, with high degree of maintainability with minimal breakdowns and minimal potential of catastrophic failure. Thus the process is easily maintained with routine preventative measures using readily available spare parts onsite. The process equipment is expected to last more than the two-year lifespan of this project.

The total technology Actodemil®/HUMASORB® approach proposed by ARCTECH offers the following advantages:

- Total solution for the safe and affective treatment of mercury and other toxic metals contaminated mustard chemical agents and as well as proven for other agents such as L, GA, VX, GB, heavy metals, and other Schedule II organics.
- Implementation at atmospheric pressure and low temperature thereby providing a high level of environment protection and safety
- Production of a significantly small amount of wastes for final offsite disposal.
- Speedy implementation with factory-built mobile modules
- Elimination of any liquid effluent thus speeding up the permitting process
- Cost effective solution.

The following summarizes the technology parameters of the total Actodemil®/HUMASORB® approach:

- ***Process Maturity***: All four three treatment steps in the HUMASORB® process are mature, have been tested and proven effective:
  - In tests conducted under ACWA oxidation was shown to completely destroy Schedule II compounds
  - HUMASORB® chelation of phosphorus and solid/liquid separation conducted on SDS at JACADS
  - U.S. Army/CMA evaluation in October 2003 for VHX treatment concluded that oxidation and HUMASORB® chelation based on mature technologies.
  - Evaporation/condenser and ancillary technologies are industry standard mature technologies

- ***Process reliability and Maintainability*** and Ease of Operations
  - Batch treatment of "treat-hold-test-proceed" ensures complete reliability of treatment before release
  - Equipment are industry standard with established reliability. Process monitoring and control ensures further reliability
  - Equipment are industry standard requiring routine maintenance
  - Equipment and systems will far exceed expected life cycle of project of 2 to 3 years.
  - Utilities of power and natural gas are standard and commercially available.
  - Interruption of utilities will not adversely impact the batch treatment process.
  - Easy and simple batch operations for HAZWOPER and OSHA trained Personnel

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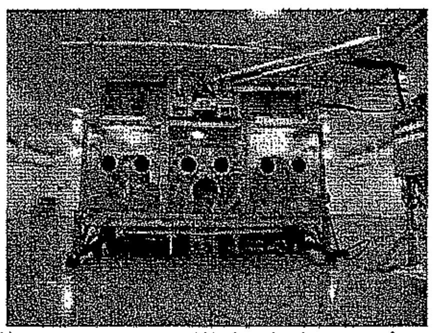
Ancillary Systems: The ancillary systems will include a system for accessing the bulk HD liquids from the filled TCs, and for pumping the alkalized humic acid reagent to the empty TCs for decontamination. This will be accomplished using the two CHATS systems that has been used by ECBC (U.S.Army Edgewood Chemical Biological Center) in many previous applications including for mustard from ton containers with heels. ECBC has currently two CHAT systems available and these units can treat 10 containers per shift even at only availability factor of 60% or so. In this system the TC will be loaded by fork lift into the first chamber of the CHATS. Here the TC will be rotated to locate a plug hole at the top position. Next, the TC will be rolled into the accessing chamber. Once the face of the TC is in the second chamber both sides will be sealed off. At this station a valve will be installed into the top plug hole and the TC rotated so that the valve is now at the bottom. The material will then be pumped out using a double diaphragm pump to a holding tank. The water based dilute a-HAX solution will be pumped in to the TC to remove any gelled mustard. The ECBC has operated the CHAT systems for the U.S.Army chemical demil projects to treat TC,s containing mercury blistering agents and nerve GB and VX agents. A pictorial of the CHATS system is shown below:



In addition, the ancillary systems will include an air treatment unit and systems for monitoring and process control. The air treatment system will include treatment of gases swept from the CHATS system, from the reactors and from the oxidation process into wet scrubbers followed by polishing through carbon filters. This will eliminate the escape of any odor-causing gases formed during oxidation. The monitoring and control systems include instrumentation for pH, level, and temperature measurement at various locations in the treatment process. An onsite laboratory at UMCDF will be utilized for analysis and measurement of total organic carbon to ensure complete destruction of organics from the oxidation step. Other auxiliary equipment include an air compressor fitted with air dryer, a fork lift, safety, maintenance, and repair supplies.

The proposed approach produces no liquid waste. All the water is either recycled back into the process or evaporated. The only waste requiring disposal will be the chelated solid filter cake from the filter press, salt resulting from the evaporator, and decontaminated/treated solid wastes such as TCs, and spent carbon, buckets, barrels.

The sequential batch treatment strategy of treat – hold – test – proceed is designed to ensure that treatment of HD is reliably completed and mercury is contained for safe disposal. ARCTECH's design also incorporates redundancy in process equipment for robust, reliable and uninterrupted operations.

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Step 1: Retrieval and Destruction of Mustard agents that is present in the TCs. The mustard as well as any gelled or mustard heel will be retrieved from the TCs with hot a-HAX solution (temperature of 50 to 60°C) using the already proven U.S. Army CHATS system described below under the ancillary systems. This will be followed by destruction using the established Actodemil® technology stirred tank reactors in which the alkalized humic acid reagent is used to hydrolyze and completely and irreversibly destroy the agents. The TCs cleaned to 3X can be safely disposed off by treatment to 5X levels using the already established UMCDF procedures.

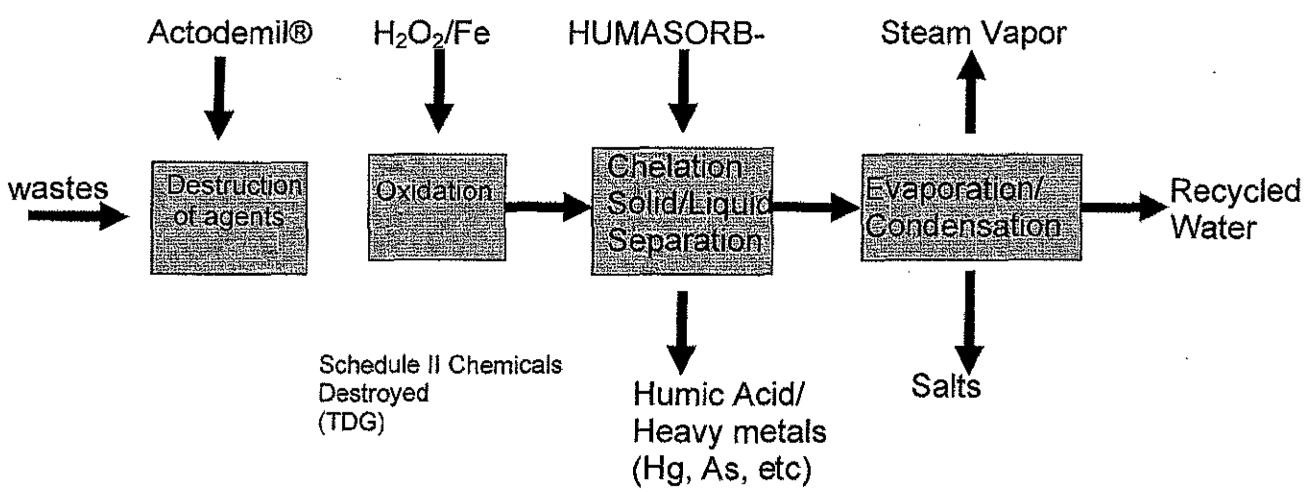
Step 2: Sequential Oxidation: A 2-step Oxidation for safe destruction of Schedule II and trace organics will be implemented:

- First step with hydrogen peroxide at high pH to treat thiodyglycol and prevent possibility of reformation of mustard chemical agent.
- Second step with Fenton's reagent oxidation at pH less than 5 for complete mineralization

Step 3: Chelation and removal with HUMASORB of residual dissolved and suspended components such as arsenic, mercury, and other heavy metals that will be present in the wastes.

Step 4: Evaporation and condensation of treated water for partial recycling into the process and final disposal.

The four steps in the Actodemil®/HUMASORB® total approach are schematically shown below:



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reduction. Cost of this operation was about $2 million. The HUMASORB unit is in storage at TOCDF and is available for application at other chemical demil sites.

The unique chemistry basis of our technology is the use of alkalized organic humic aid (our proprietary water based a-HAX and HUMASORB products)for chemical neutralization or destruction by hydrolysis of chemical agents and explosives followed by chemical oxidation for complete destruction of schedule II chemicals. We use our HUMASORB adsorber for binding the toxic metals for final safe disposition of toxic metals as the metal bound HUMASORB meets TCLP criteria. Humic acid products currently are used as soil amendment and fertilizer for food production. The USDA 2004, national Organic Food Program allows the use of humic acid for organic food production. The U.S. EPA has allowed the use of our humic acid products for rendering pesticides safe and exempted our humic acid from any residence tolerance requirement as it was judged as safe.

Chemical hydrolysis for complete destruction of chemical agents and explosive chemicals is a well prove chemistry and the U.S. Army used it at Edgewood for safe destruction of mustard chemical agent stored in ton containers. Army is currently utilizing it successfully for safe destruction of VX chemical agents at Newport, Indinia. But at both of these demil sites, the schedule II chemicals were not destroyed chemically on site and thus were shipped off site.

The use of a-HAX in our technology is based on proven safe chemical hydrolysis, however has distinct benefits. Chemical hydrolysis with caustic solution results in the production of large volumes of toxic waste liquids, which must be further treated for safe disposal. Our a-HAX not only chemically hydrolyses but also adsorbs the toxic metals. Further the organic humic acid in HUMASORB is easily separated from the spent solution by aggregation and precipitation. A small volume of the separated humic acid and filter cake (1-5%) can be land filled and the large volume of clean liquids (95-99%) can be recirculated and evaporated thus eliminating production of any liquid wastes.

Our these innovative technological solutions are part of our efforts for creating environmentally sound approach of using our vast resources of coal for lower cost energy, cleaner waters, safer foods and safe destruction and recycling of wastes. This holisitic technological approach is being developed for creating solution for global warming in practical and cost effective manner. Many commercial applications of our products and technology have been already successfully implemented in the U.S.A. and in overseas markets. Please note our www.arctech.com for additional information.

ARCTECH'S PROPOSED TOTAL TECHNOLOGY SOLUTION FOR SAFE DISPOSTION OF MUSTARD TON CONTAINERS – OVERVIEW AND DESCRIPTION

ARCTECH's proposed Actodemil®/HUMASORB® total treatment system consists of four steps and is based on a strategy of treat – hold – test – proceed.

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average of 22ppm and this calculates to be average of 747 ppm in the container contents. You have also reported that the TOCDF sampling shows that these containers have other toxic metals regulated as Federal Waste Codes. These toxic metals are arsenic, cadmium, chromium, lead and selenium along with mercury. The challenge is to apply BAT which will enable safe disposition of ton containers now estimated to be 425-430 by modeling and not actual analysis of all 2635 at UMCDF. So it might become necessary to treat all 2635 in same manner if analysis of all of them turns out to be over one ppm mercury and all of this must be done to comply with estmate completion date of 2017. We would first describe our Actodemil and HUMASORB technology and then make our comments on your above stated determinations for incineration with modified PFS and our technology approach per your seven criteria set forth for theBAT determinations.

We have a long history of creating environmentally benign and cost effective technologies for safe disposition of military unique materials. In 1980,s, we had developed composting technology for clean up explosive contaminated soils and sludges at military depots. This technology has been successfully deployed at many depots including Umatilla. In early 1990,s we developed chemical neutralization Actodemil technology for safe destruction and recycling of explosives from obsolete munitions in to highly effective fertilizer. This technology approach was included in the U.S.EPA as acceptable recycling technology per 1997 Munitions Rule. To date we have successfully implemented this technology in the USA and abroad and have met the Universal Treatment Criteria set forth for land application of the fertilizer produced with Actodemil. We have also now deployed a system based on this technology for decontamination of shells instead of using polluting thermal approach of 3X to 5X cleanup levels prior to release for recycling the shells. These Actodemil units cost less than $5 million each. In mid 1990,s we were selected by the U.S.Army as one of the seven technology for evaluation as non-thermal treatment total system under the ACWA program. In this program we proved destruction of all the nerve (GB,VX) and blistering mustards (HD,H,HT) to six nines and as well as schedule II chemicals or precursors, which can be remade in to chemical agents. In case of mustards, it is thiodyglycol (TDG) and must be completely destroyed. An expert panel from the National Research Council in 2001 report entitled " Disposal of Neutralent Wastes" ranked our technology as #1 among 9 technologies. as per criteria set forth by the U.S. Army in terms of robustness, cost, practical operability,continuity,space efficiency,and materials efficiency.This report concluded "The use of hydrogen peroxide or Fenton,s reagent was key feature of the technology developed by ARCTECH and tested on hydrolysates for the ACWA program.The procedures were shown to be effective at the bench scale for hydrolysates of VX, GB, and mustard". However due to our inability to submit data on final treated effluents containing schedule II chemicals by the U.S. Army due date, it did not get selected for further evaluation. This was caused by the U.S. Army delay in supplying the standard chemicals, which are only available from the U.S. Army, needed for completing the analysis. The data did prove that the schedule II chemicals of both mustard and nerve agents were completely destroyed. In late 1990,s and early 2000 , we built and operated HUMASORB treatment unit at Johnston Island (JACAADS) for removing 20 different toxic metals including mercury from about 200,000 gallons of waste waters produced during the incineration of chemical agents. Only six drums of spent HUMASORB with bound toxic metals passed TCLP and were land filled. This accomplished a 1:1000 waste

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Preserving Tomorrow's World...Today

Mr. Richard Duval
Administrator
DEQ Chemical demilitarization program
The State of Oregon
256 E. Hurlburt Avenue
Hermiston, OR 97838

August 11,2008

Via e-mail: cdp@deq.state.or.us

Subject: Public Comments on UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers Hazardous Waste Permit Number ORQ 000 009 431
Due Date : August 11,2008

Dear Mr. Duval:

We very much appreciate the opportunity afforded to us for submitting our public comments on above referenced your determinations and information on our available and proven Actodemil® and HUMASORB® technologies which can be rapidly and safely deployed at modest costs. Our technology will destroy mustard and contain the mercury without its emissions in to the local environment for safe and rapid disposition of high amounts of mercury and other toxic metals in mustard-filled ton containers (TC,S), which are currently stored at Umatilla Chemical Demil facility. We understand you have determined that the Best Available Technology (BAT) according to your seven criteria is use of current furnaces for incineration and followed by use of current Pollution Abatement System (PAS) which comprises of wet scrubber and then followed by treatment of gases in Pollution Filter(carbon) System (PFS). Only change required will be to replace activated carbon in use today to sulfur impregnated carbon (SIC) as fixed bed filter. The SIC is expected to bind mercury vapors on its particle surfaces (mercury is chacophilic element which means it has affinity for sulfur) which will be produced during burning of high mercury containing mustard. Both current PAS and PFS are common to all the incineration furnaces exhausts.

We also noted that the U.S. Army is estimating a capital cost of $ 47 million for this change at UMCDF. No incremental costs for O&M are reported. Your reports also state that currently there are 2635 ton containers at UMCDF, which were sent from TOCDF (Utah) in 1968-69. Thus based on sampling and analysis of mercury containing ton containers at TOCDF , it has been modeled that at UMCDF will have 425-430 ton containers with high level of mercury i.e over one ppm. The TOCDF sampling and analysis has shown that the ton containers contain an average of 2440 ppm in the heels (gelled up mustard) amounting to be about 30%. The liquid portions contain on an

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08-0875

HODNEY Kelly

From: Daman WALIA [dwalia@arctech.com]

Sent: Monday, August 11, 2008 4:20 PM

To: CDP

Subject: Letter to DEQ Oregon on Hg Mustard,Aug 11 2008 a.pdf

Hi Mr. Duval:

Pl note our attached public comments for your UMCDF Best Available Technology Technology Determination: Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers

Thank you very much

With regards

Daman

August 6, 2008

Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program
256 E. Hurlburt Ave.
Hermiston, OR 97838

Dear Mr. Duval,

The Umatilla Chamber of Commerce recognizes the Umatilla Chemical Agent Disposal Facility for its commendable job of safely eliminating GB and VX chemical weapons since operations began in 2004. Based on this record, we support "incineration" as the "Best Available Technology" to destroy the Umatilla mustard agent stockpile.

In the long term, the interests of our Umatilla business community are best served by expeditiously eliminating the remaining Umatilla Chemical Depot stockpile. We are confident the Depot and Oregon's environmental regulators can safely complete this critical project without any unnecessary delay.

We are aware that alternatives to incineration have been considered and rejected in the past for various reasons. At this late date in the Umatilla project, it's not practical to retrofit a billion-dollar incineration complex with a new technology. But we do support ongoing research to identify other more efficient and more economical methods to use when needs arise for future weapons disposal projects.

We also support a Best Available Technology designation for the Carbon Filtration System for the added measure of safety it has provided. For mustard agent processing, the plan to capture mercury using enhanced carbon filtration appears promising. We would like to see how well it performs at the Tooele Chemical Agent Disposal Facility before we can fully judge how suitable this option may be for Umatilla.

Sincerely,

Lavon Starr Meyers, President
Cathy Kaden, Treasurer
Libby Boven, Board Member

08-0874

HODNEY Kelly

From: Umatilla Chamber Of Commerce [umatillachamber@eoni.com]
Sent: Monday, August 11, 2008 1:48 PM
To: CDP
Subject: Incineration Letter to DEQ (3)

Please see attached

12. Section 3.2.2, Waste Quantities, Page 37, Table 4

Inconsistencies in Table 4 need to be corrected. Table 4 is entitled "Estimates of waste quantities to be generated *during the one-year mustard agent campaign* at the UMCDF." Elsewhere in the EA (pages 12-13), it is indicated that the mustard campaign is scheduled to begin in August 2009 and to be completed within three years, with a realistic expectation of 450 days (1.5 years).

Also, page 36 states that an estimated 116 million pounds (58,000 tons) of PAS scrubber brines are expected to be generated during the mustard campaign, which is a substantially larger quantity than the 39,000 tons presented in Table 4, but is consistent with a 1.5 year campaign duration. The smaller 39,000 ton annual brine generation quantity is used on page 38 to compare to regional waste management capacity and assess the impact on the region's capability to manage the large waste stream. If stabilization is required, the entire waste stream projection for off-site disposal becomes nearly 176,000 tons over a 1.5 year period. This total waste stream impact on the region is not considered by comparing to the life-cycle capacity of regional land disposal facilities.

13. Section 3.2.2, Waste Quantities, Pages 38, continued.

The EA text on this page clearly indicates a significant increase in various waste streams will result from the proposed alternative. Also indicated is that regional TSDFs would be taxed in accepting the increased waste volume and that the increase represents approximately 20% of the current regional TSDF waste acceptance capacity on an annual basis. With this large an increase, the EA should term this a significant impact and address in detail how the region's waste disposal facilities will be able to accommodate the 20 percent increase rather than glibly state that "it probably could be accommodated by the facilities in the region without adverse consequences".

14. Sec 3.2.2, Waste Quantities, Page 39, Table 5.

Table 5 presents 2005 regional hazardous waste management capacity and is used for the waste disposal impact analysis presented in Section 3.2.2. Using outdated information from year 2005, when UMCDF mustard waste streams will not be generated until late 2009 may lend to large inaccuracies in the impact analysis. More recent regional capacity information should be used in the analysis. Also, the table includes several management methods that are not suitable or relevant for managing UMCDF wastes addressed in this EA, e.g., energy recovery, fuel blending, land treatment, solvent recovery, etc. With these non-relevant TSD methods included in the regional total waste management capacity, the appearance is given that UMCDF's mustard campaign wastes will have a small impact on the region, when this is certainly not the case. Finally, the table does not provide life-cycle capacity information for the land disposal methods, which would be important for assessing whether volume capacity issues may exist for existing regional disposal facilities. Consequently the UMCDF mustard campaign wastes may present a much larger impact to the quantity of hazardous wastes already managed regionally than the 20 percent increase stated on page 38, and would require shipping waste to other parts of the country and further increasing risks due to longer transportation requirements.

15. Sec. 3.2.3, Off-site Shipment of Hazardous Wastes, Page 41, 1st full paragraph

When evaluating spill risk the EA should also consider all of the other hazardous constituents that will be present in the brines being shipped.

4. <u>Sec 2.1, The Proposed Action: Modifications to Support the Destruction of Mustard Agents at the UMCDF. Page 12, 4th bullet and Page 16, 1st and 2nd paragraphs</u>

   It is not clear in the EA whether increased brine storage and loadout capacity will need to be added to accommodate the mustard agent campaign brine production and loadout for transport to off-site disposal. The impacts relating to storage of large quantities of liquid brine for long-periods of time has not been addressed by the EA. Also, the EA states that "no new equipment would need to be installed at the UMCDF to collect and ship the liquid brines", and that "no disturbance of the areas outside the existing footprint of the UMCDF would occur". However the Army is currently requesting review of a permit modification request to add a second brine loadout station outside of the facility's double fence. This apparent discrepancy should be addressed.

5. <u>Sec 2.2.1, The Proposed Process and its Associated Equipment, Page 13, PFS Upgrades</u>

   Since all hazardous waste combustors must meet MACT requirements, the liquid incinerators (LICs) should also be fitted with SIC to reduce mercury emissions to the maximum achievable range.

6. <u>Sec. 2.1.2, Proposed Site, Layout, and Installation, Page 16.</u>

   This section should be revised to acknowledge that UMCDF is currently seeking a permit modification (PMR-08-033-BRA(2)) to add a second brine loadout facility to be located outside of the facility's double fence.

7. <u>Sec 2.3.2, Install and Operate Only an Enhanced PAS Carbon Filtration System, Page 22.</u>

   This section discusses the alternative to install and operate <u>*only*</u> (emphasis added) an enhanced PAS carbon filtration system (for mercury abatement). The discussion is limited to operation of the MPF. But implicit in the alternative is that no blending capability for drained liquids would be available by adding an ACS tank, and therefore there appears to be an assumption that all drained liquids going to the LICs will meet waste feed criteria for mercury. Not addressed is whether the high mercury drained liquids would require the PFS on the LICs to also need the addition of SIC for mercury control.

8. <u>Sec. 3.1.2 Ecological risk Assessments for the UMCDF, Page 29, Findings from 1997 SLERA</u>

   The text indicates that HQ values were exceeded for macroinvertebrates and indicated a slight potential for effects based on total HI values in the original SLERA. However no explanation/discussion is provided to address or adjust these impacts for the significantly higher mercury concentrations that can be expected with the problematic TCs.

9. <u>Sec. 3.2.1, Waste Characteristics, Scrubber Brines, Pages 36, 2nd paragraph</u>

   With respect to brine treatment this paragraph states that "specialized treatment to remove mercury would be required before the brine could be disposed of as a wastewater." The EA doesn't provide detailed information regarding the specialized treatment required, what facilities are available to perform the treatment, nor what the impacts would be. Consequently, a potentially significant impact has not been adequately evaluated.

10. <u>Sec 3.2.2, Waste Quantities, Pages 36, 1st paragraph, last sentence.</u>

    The liquid brine and spent SIC wastes are the result of treating a listed hazardous waste (Oregon listed waste code F998) and as such are a hazardous waste by definition. There is no question regarding whether they will be a hazardous waste, and must be treated and disposed as such regardless of the characteristic mercury content.

11. <u>Section 3.2.2, Waste Quantities, Pages 37.</u>

    This section refers to other Army facilities that have used deep well disposal for similar brine solutions. However, the EA doesn't state whether these other brine solutions have a similar mercury content issue. Also, the text states "Mercury-contaminated brines may also be suitable for deep-well injection." However there is no discussion or regulatory basis presented to support this statement or show how the brines would or would not be suitable for deep well injection as regulated by the Safe Drinking Water Act.

6. The proposed alternative considers the effect the addition of Sulfur Impregnated Carbon (SIC) would have on mercury emissions. The EA does not provide any information regarding whether the use of SIC affects emission controls for any of the other contaminants present in the LIC and MPF incinerator feed/emissions, nor does the EA provide any information relating to whether SIC breakthrough parameters for mercury and the other emission constituents are effected that could result in shorter use duration.
7. The EA indicates that a significant number of TCs (i.e., those with low mercury contaminants) can be processed at UMCDF under the current RCRA permit and operation parameters. Section 2 of the EA – The Proposed Action and its Alternatives - should include the alternative of treating the low-mercury TCs onsite and shipping the high-mercury TCs that fall outside of the UMCDF process parameters to one of the other Army demilitarization sites that are frequently cited as having successfully treated TCs considered to be problematic at UMCDF.
8. The EA indicates that the high mercury contaminants are suspected to be the result of mercury chloride catalyst contamination during the production of mustard at the Rocky Mountain Arsenal. The EA only addresses the mercury contaminant. Is there also an attending increase in the chloride concentrations in the various emissions and/or wastestreams? High chloride concentrations in the incinerator emissions is not discussed in the EA nor are the effects of higher chloride concentrations discussed in waste management-related issues or whether higher chloride concentrations in the incinerator emissions will effect SIC effectiveness and/or life cycle use or a potential for an increase in HCl emissions, etc.
9. It is questionable that there will be no significant environmental adverse impacts with regard to waste management practices. The EA states that the brine drying facility will not be used to dry brine. This will result in a major change to the waste management practices currently used, including a substantial increase in on site waste storage and off site waste disposal of the produced scrubber brines.

Specific Comments

1. Sec 1.2, Overview of the Proposed Action, Page 5.

   This section leaves it unclear exactly where SIC would be used in the existing six PFS units. It is unclear whether emissions from the two LICs would be controlled with SIC. Page 13 the EA indicates that only the MPF emissions will be controlled with SIC. Clarification and consistency should be provided.

2. Sec. 1.2, Overview of the Proposed Action, Page 6, 1st full paragraph on page

   It is stated that substitution of SIC for conventional carbon in the current PFS would reduce mercury emissions by 80%. Also stated is that a longer gas residence would be required to get the increased removal efficiency. Subsequent EA text doesn't discuss impacts of a longer gas residence time and also uses a 99% mercury removal efficiency to support the conclusion that the proposed alternative has no significant impact. It is not clear whether the Army is assuming 80% or 99% control efficiency for SIC in the proposed alternative. In addition, it is not clear what is meant by the following statement regarding testing, "current testing shows 99% mercury removal over a 2500-hr test period". More information concerning testing should be provided, including whether or not testing has been conducted on the UMCDF pollution abatement systems (PAS) using high mercury wastes.

3. Sec. 1.4 Scope of the Environmental Assessment, Page 10

   Two references (the post-trial burn HHRA and SLERA) are cited that are not finalized, but rather are "currently in progress," with results not available for incorporation into the EA. One should conclude that the relevant information is not yet available or subject to change, and would appear to have the potential for impacting information and conclusions contained in the EA. Preliminary findings should not be used in the EA since they may be subject to revision.

Review Comments

Environmental Assessment

Proposed Modifications to Support the Destruction of Mustard Agent at the Umatilla Chemical Agent Disposal Facility in Oregon

General Comments

1. The declared finding of no significant impact is at best a subjective opinion. The EA does not define what constitutes a significant adverse impact or establish quantitative criteria for evaluating impacts to determine significance, yet the EA consistently asserts that there are no significant adverse impacts from the proposed actions. For example there is a substantial increase in the generation and off-site transportation and disposal of resulting wastes. This increase in wastes, all intended for off-site disposal, would be the equivalent of 20% of the existing regional TSDF capacity, yet it is concluded that the selected alternative will have no significant impacts on regional waste management facilities.

2. The EA relies on an algorithm developed to predict the anticipated mercury concentrations in the ton containers (TCs). It is not clear under what circumstances the algorithm was developed and what its assumptions and bases are. It is not clear whether the algorithm has been tested to validate its estimates of high mercury-contaminated TCs using actual sampling data from TCs stored at UMCD. The accuracy of and confidence in the estimates provided by the algorithm are critical since the entire EA is being based on the number of TCs that would be required to be treated using the proposed treatment process.

3. The EA should address what other constituents besides mercury may be present either in the TC liquids and heels or present in concentration ranges outside of the typical TC addressed in the EA that may deviate from expectations similar to the situation for mercury. If other constituents may be present at concentrations different from design assumptions, the EA should address whether facility changes are necessary to accommodate them and what the impacts will be.

4. It is questionable whether it is appropriate to compare mercury emissions and impacts from the proposed action to 1997 pre-operation estimates and risk analyses. The EA should address whether the 1997 Human Health Risk Assessment (HHRA) and Screening-Level Ecological Risk Assessment (SLERA) remain valid and should be reviewed and updated as appropriate to consider new information, guidance, and methodologies in the science of toxicology and practice of human health and ecological risk assessment that may have been developed over the last dozen years.

5. The 1997 HHRA and SLERA assumed the total mass of mercury emitted over the operational life of UMCDF to be 33.5 pounds. However, current estimates of total mercury to be emitted to the environment through the completion of two nerve agent destruction campaigns is an upper bound of about 6 pounds. The Army assumes then that there is a bank of 27.5 pounds of mercury release available within which to conduct the mustard destruction campaign without resulting in an adverse impact, and concludes that since only 16.9 pounds of mercury are estimated to be released during the mustard campaign, mercury impacts will not be significant. The estimated release of 16.9 pounds of mercury represents a substantial increase in both the emission rate and total mass emission of mercury from UMCDF over the actual operation experienced to date. It is questionable whether it is appropriate for the Army to assume it has a "right to emit" up to 27.5 additional pounds of mercury regardless whether impact projections developed prior to operations were deemed acceptable. In addition, since the mercury release estimated during the mustard campaign (16.9 pounds) is expected to occur over an estimated 450 day period, the expected duration of the mustard campaign, environmental exposure and uptake assumptions in the risk assessments should be reviewed and revised as appropriate.

J8-0870

MORROW COUNTY EMERGENCY MANAGEMENT

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Fax (541) 676-9454

August 8, 2008

Mr. Rich Duval
Oregon Department of Environmental Quality
256 East Hurlburt, Suite 105
Hermiston, OR 97838

Dear Rich:

Please find attached Morrow County's comments to the Environmental Assessment to the Proposed Modifications to Support the Destruction of Mustard Agent at the Umatilla Chemical Agent Disposal Facility in Oregon.

Thank you for your consideration in this matter.

Sincerely,

Casey Beard
Director

A. Detail site condition should be considered for a precise cost estimation, but We believe that Davinch is competitive (less costly) than either of the other incineration and neutralization processes mentioned with estimates cited in the DEQ letters, and can achieve its schedule onjectives faster than either as well.

The Court has noted "Petitioners were also able to adduce evidence that neutralization technologies have by now demonstrated their practical utility to the extent that the Army has used or plans to use neutralization technologies to destroy agent at Aberdeen, Blue Grass and Pueblo chemical weapons sites, and that the Army estimates a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration." G.A.S.P., et al v. EQC, et al., Case No. 0009 09349 (Opinion & Order July 26, 2004) at 27.

Question- Based on actual operation of your technology in Belgium can you estimate the amount of haz waste that will be produced and identify what it consists of?

A. Haz waste is limited to Arsenic and Mercury which come from the content of ton container.We have the data from the actual operation that 99% of the arsenic remains in the chamber after detonation because the detonation product gas tempetarure comes down quickly to 40 to 50 degree C. The Mercury will be expected to act same behavior as Arsenic due to the property of Electric Potential diagram, so it remains 99% in the chamber as Arsenic

Do you have a permitting and operation estimated timeline for UMCDF?

A. Yes, we expect that we will finish the operation before march 2012. We have recommended the higher-throughput Davinch (DV200) to accelerate the operation rate in case there is some delay on the contract. DEQ has stated that they anticipate no permitting issues with a controlled detonation system of this type. We expect that EPA would confirm that this is a RCRA subpart "X" device, rather than subpart "O". We expect no major issues with DDESB as the emulsion explosives used are extremely safe and very common in the mining and construction industries. The ACWA project of the US Army is considering such a system (EDT) for use at their sites in Kentucky and Colorado, and the National Academy of Sciences has addressed these issues, including permits, in their Dec. 2006 evaluation for the Army Nonstockpile Project, and will again do so for the ongoing NAS/NRC study being conducted for ACWA at this very moment.

Other than RCRA, what other types of permits do you anticipate?

A. To be accurate, our U.S. partners, VERSAR/GEOMET, who have a lot of experience with permitting in various states in the course of their work for various US Govt customers, such as EPA, US Army Corps of Engineers, USAFCEE, and many states will prepare for you a summary of the Federal, State, and any other permits that will be required (DDESB). They will use their experience to provide estimates of timelines, if you so wish.

We are in dialogue with the DDESB (DOD explosive Safety Board) and TCES (Technical Center for Explosive Safety) to make sure all requirements are or will be met.

With regard to the design of DAVINCH detonation chamber, ASME new code case 2564 on impulsively loaded vessels was published and DAVINCH was recognized to meet the requirements of the new rule at the ASME PVP 2008 conference in Chicago, 28-31 July 2008.

Are there any certification documents available stating that the technology has met all requirements for chemical weapons disposal to meet the treaty requirements? If so, may I please have a copy?

A. Concerning the treaty requirements, we have already destroyed more than 2000 chemical weapons under inspection of and with approval by OPCW in Japan.

RAY Shilo

From: Karyn Jones [karynj@charter.net]

Sent: Monday, August 11, 2008 5:13 PM

To: DUVAL Rich; RAY Shilo

Subject: BAT Comment Attachment

Rich, This attachment was inadvertantly left off of our comments. I just realized it as I reviewed them. I am submitting them a few minutes late hoping that they will be accepted. Thank you. Karyn Jones

Has plasma arc successfully destroyed mercury contaminated hd?

A. The Davinch system itself is a Controlled Detonation system and is NOT a plasma arc system (as were one or more systems discussed in the early days of the ACWA project. For example, Startech, Burns & Roe, etc.). The plasma part of the Davinch is the "cold plasma" used to process the off-gas products of detonation, and just incidentally would destroy agent if there were any small residual amount (which has not been the case). Davinch detonation system is non-incineration process to destroy the chemical agent such as HD by the controlled detonation in the chamber with the energy of10GPa and3,000 degree K temperature and can achieve the high destruction efficiency more than 99.9999%. The main purpose of the plasma arc (cold plasma) is as an oxidizer is to destroy the CO and H2 which are the product gas of detonation chamber. But it may be considered to be the back up to destroy the chemical agent because it has an additional destruction efficiency more than 99.99%.

Have all of the environmental permit requirements been met in Belgium?

A. Yes . EU regulations, Belgian regulations as well as the local Flemish regulations, which is the strictest in Belgium, are met.

What happens to the secondary waste that is produced? Does it need further treatment?

Secondary wastes, liquid and solid, are confirmed that they are chemical agent-free, Especially, fragments can be confirmed by the AEL rule after cleansing shots.

Therefore, we believe that no secondary treatment is necessary and that these secondary wastes can be shipped directly to an off-site waste-management commercial firm, which is authorized to treat wastes containing arsenic and mercury. If you wish, we will identify such firms for you, but will discuss with DEQ to see if they have preferences.

Is water used? If yes, at what rate?

A. Yes Our rough estimation on Umatilla plant the water will be used 0.33m3 per one ton container (only summer season) . Though the liquid contents and the emptied TC with heel inside are to be destroyed separately, the water consumption mentioned here is calculated as the quantity per TC for easier understanding.

The water is used to cool down the equipment like vacuum pumps in a closed circuit, therefore the discharged water (used cooling water) can not be contaminated.

It is a fact each mustard ton container will have a different heel to liquid ratio and contain different chemical/heavy metals compositions. Will this effect operation?

A. NO it does not affect the destruction results. It only has to do with the detonation condition like donor charge amount or oxygen amount, for example, the donor charge amount will be adjusted if a very big amount of heel is found inside an emptied TC, when the TC is inspected (for example by X-ray) before destruction.

Do you have a cost estimate for UMCDF?

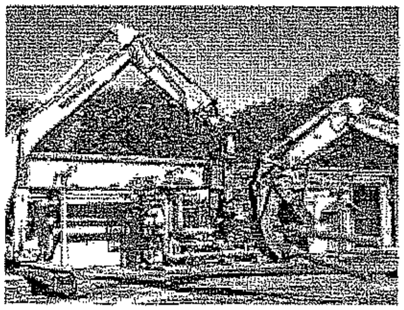
The Resource Conservation and Recovery Act (RCRA) permit issued by the state will take an additional few months to achieve before full closure. RCRA governs the construction, operation and closure of hazardous waste storage, treatment and disposal facilities. Since ABCDF is located on APG, its property and structures will remain under Army control after closure. Some of the equipment at ABCDF may be used at another CMA or government facility. The site will be re-used by APG.

Remaining disposal facilities are located in Anniston, Ala., Pine Bluff, Ark., Pueblo, Colo., Newport, Ind., Richmond, Ky, Umatilla, Ore., and Tooele, Utah. ABDCF is the second chemical demilitarization facility to close. Johnston Atoll Chemical Agent Disposal System completed closure operations in November 2000.

Army Neutralizes 1,623 Tons of Mustard Agent, Meets Requirements for Aberdeen Chemical Agent Disposal Facility Closure

Mar 13, 2007

BY Heather McDowell



Giant shears and a grapple begin tearing down the process neutralization building where containers of mustard agent were drained and neutralized at the Aberdeen Chemical Agent Disposal Facility in Maryland. Photo by Conrad Johnson

ABERDEEN PROVING GROUND, Md. (Army News Service, March 13, 2007) - The Army announced yesterday the completion of all requirements to close the Aberdeen Chemical Agent Disposal Facility. The command neutralized 1,623 tons of mustard agent, decontaminated and disposed of the steel containers used to hold the agent, and demolished buildings used during the disposal process.

"Today marks a significant achievement in the global chemical weapons disarmament effort. ABCDF is the first chemical weapons disposal facility in the continental U.S. to destroy its stockpile and decontaminate and demolish its plant," said Dale Ormond, Army Chemical Materials Agency acting director. "It is a model for all the other facilities that will follow suit."

The site has fewer buildings since the ton container cleanout facility and process neutralization building, the two structures dedicated to agent destruction activities, were demolished. Auxiliary buildings, such as the medical infirmary and administrative trailers have also been removed. In addition, all waste generated from closure has been decontaminated and disposed.

"Safety has always been the cornerstone of our project. We built, operated and now closed this facility with safety as the first priority. The fact that our safety record during closure is on par with banking institutions is testament to this," said Brian O\'Donnell, ABCDF site project manager.

3-3-3

NEUTRALIZATION

The commitment to safety led to a change in the facility's startup date, which had been scheduled for March 3. Record-setting snowstorms and equipment adjustments delayed some essential tests and the conduct of the integrated operations demonstration in which the proficiency of all four shifts in running the facility is evaluated, using water rather than mustard agent. The successful completion of this evaluation has certified that both personnel and equipment are ready to start mustard agent operations.

Public meetings were held, most recently in January, to explain the accelerated neutralization process, and information is always available to the public. For details on the process, call the Edgewood Chemical Stockpile Outreach Office, 410-676-6800, or go to the Chemical Materials Agency (Provisional) website, www.cma.army.mil, for information and fact sheets.

NEUTRALIZATION

The project includes a diverse team of government personnel, including the Army Corps of Engineers, and contractors. Bechtel Aberdeen, the contractor responsible for the project, heads a team of more than 400 people to destroy the aging mustard stockpile. Mustard, a syrupy blister compound with the consistency of molasses, has been safely stored and monitored for more than 60 years at the Chemical Agent Storage Yard, under the supervision of the Edgewood Chemical Activity, located in the Edgewood Area of APG.

"We have an impressive team of individuals supporting this mustard agent neutralization process," said Lt. Col. Gerald Gladney, Edgewood Chemical Activity commander. "Every team member has received extensive training and is ready to execute this critical mission in an extremely safe and highly competent manner. It is abundantly clear to everyone involved in this process that each individual has a personal responsibility for considering safety first and safeguarding the workers, our community and the environment always."

Members of the U.S. Army Technical Escort Unit, an Army organization with 60 years of experience in the movement of hazardous chemicals, will move the large steel containers of mustard to the neutralization facility.

The Army worked closely with representatives from the U.S. Environmental Protection Agency and the Maryland Department of the Environment, who approved the plans and procedures for the neutralization facility. Employees will work around the clock for the next six months to destroy the agent. Following a gradual ramp-up of the process, the facility is expected to drain and neutralize an average of 12 containers per day.

Bechtel Aberdeen project manager Lee Smith noted that the plant essentially has been open and operating on a 24-hour-a-day, 7-day-a-week test, training and evaluation schedule since early December, with workers compiling thousands of hours of hands-on experience in the months leading up to neutralization start-up.

"We take worker safety very seriously," he added. "Everyone who works here is not only proficient at their job, but also in maintaining the highest standards of personal and plant safety. Our goal is to perform our mission while protecting our workforce, our community and the fragile environment of the Chesapeake Bay watershed."

-MORE-

ABCDF
Aberdeen Chemical Agent Disposal Facility

Press release

FOR IMMEDIATE RELEASE
For more information, call Jeff Lindblad, 410-436-4555, or Barry Napp, 410-436-6137, Chemical Materials Agency (Provisional) Public Outreach and Information Office

April 22, 2003

APG TO BEGIN NEUTRALIZING CHEMICAL AGENT STOCKPILE

ABERDEEN PROVING GROUND, Md. – The process of destroying the bulk mustard agent stockpile at Aberdeen Proving Ground, Md., will begin April 23, 2003, under the accelerated program implemented by the Army following the Sept. 11, 2001, terrorist attacks.

"We are safely accelerating the destruction of the mustard agent stockpile by more than two years," said Kevin J. Flamm, the Army's Project Manager for Alternative Technologies and Approaches. "I'm proud of this team and what it is doing for our community and our country."

Destruction had been scheduled for completion by the year 2006, but security concerns after the terrorist attacks led to "Speedy Neut," a project that reordered the sequence and design of the original neutralization process. Now the Aberdeen Chemical Agent Disposal Facility (ABCDF) will remove the greater risk by destroying the mustard agent first. Later, after all of the agent has been destroyed, the empty steel containers will be decontaminated and cut in two for recycling off-site.

"This plan was made possible because of the dedicated team already in place working on the original destruction facility," said Joseph Lovrich, ABCDF site manager. "The team reworked the existing plans to find a solution that would dispose of the agent sooner, without compromising safety or security."

"We put a great deal of time into training and preparation, and have been working in concert with federal and state regulators and the community," he added, "so that a project of this magnitude would meet all state, federal and military requirements."

-MORE-

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Table Attachment D-1-2. Building and Room Ventilation Categories

Building	Room	Ventilation Category
MDB	Munitions Demilitarization Room	A
MDB	Toxic Room	A
MDB	Agent Neutralization Room	A
MDB	Explosive Containment Room	A
MDB	Toxic Maintenance Area	A
MDB	Agent Neutralization Room	A
MDB	Explosive Containment Vestibule	A/B
MDB	Metal Parts Treater Room	B
MDB	Waste Shredding Room	B
MDB	Loading Area	C
MDB	Unpack Area	C
MDB	Projectile Reconfiguration Room	C
MDB	Hydrolysate Tank Room	C
MDB	Energetics Neutralization Room	C
MDB	Continuous Steam Treater Room	C
MDB	Offgas Treatment Room	C
MDB	Condensate Tank Room	C
MDB	Hydraulic Equipment Room	C
MDB	Observation Corridor	C
MDB	Residue Handling Area	D
MDB	Electrical Rooms	D
MDB	Battery Rooms	D
MDB	Mechanical Equipment Room	D
MDB	Control Room	E
PAB	All Rooms	D

Notes:

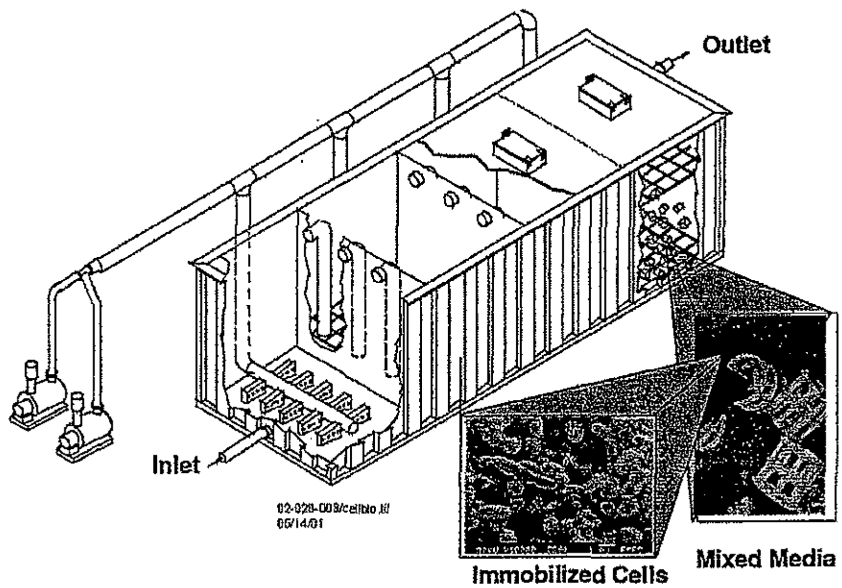
MDB = Munitions Demilitarization Building
PAB = Process Auxiliary Building

Table Attachment D-1-1. Ventilation Categories

Description	Tag Number	Location: Building	Location: Room	Ventilation Category
Unpack Area	--	MDB	UPA	C
Propellant and Primer Removal	--	MDB	PRR	C
WHEAT Projectile/Mortar Disassembly Machine	010-WPMD-101/102	MDB	ECR-1/2	A/B
Energetics Rotary Deactivator	010-ERD-101/102	MDB	ECR-1/2	A/B
Burster Washout Machine	010-WASH-101/102	MDB	ECR-1/2	A/B
Energetics Shredder	010-CRSH-101/102	MDB	ECR-1/2	A/B
Energetics Neutralization Reactors	050-RCTR-101 to 103	MDB	ENR	C
WHEAT Multipurpose Demilitarization Machine	020-WMDM-101/102	MDB	MDMR	A
Rotary Washout Machine	020-RW-101/102	MDB	MDMR	A
Agent Hydrolysers	040-RCTR-101 to 106	MDB	ANR	A
Rotary Metal Parts Treater	070-MPT-101	MDB	MPTR	B
Batch Metal Parts Treater	076-MPT-101	MDB	MPTR	B
MPT Quench Tower	070-TOWR-101	MDB	OTR	C
Plastic Material Shredder	120-SHRD-101	MDB	WSR	B
Wood Material Shredder	120-SHRD-102	MDB	WSR	B
Continuous Steam Treater	075-CST-121	MDB	CST	C
CST Quench Tower	075-TOWR-121	MDB	CST	C
MPT CATOX Treater	080-CATX-101	MDB	OTR	C
CST Offgas CATOX Treater	085-CATX-101	MDB	CST	C
ICB Offgas CATOX Treater	087-CATX-101/102/103/104	BTA	A, B, C, D	
Brine Reduction Package	100-PKG-101	PAB	All	D

Notes:

ANR = Agent Neutralization Room
BTA = BioTreatment Area
CATOX = catalytic oxidation
CST = Continuous Steam Treater
ECR = Explosive Containment Room
ENR = Energetics Neutralization Room
MDB = Munitions Demilitarization Building
MDMR = Munitions Demilitarization Machine Room
MPT = Metal Parts Treater
MPTR = Metal Parts Treater Room
OTR = Offgas Treatment Room
PAB = Process Auxiliary Building
PRR = Projectile Reconfiguration Room
UPA = Unpack Area
WHEAT = Water Hydrolysis of Energetics and Agent Technologies
WSR = Waste Shredding Room



1 Figure Attachment D-1-8. Immobilized Cell Bioreactor ICB™

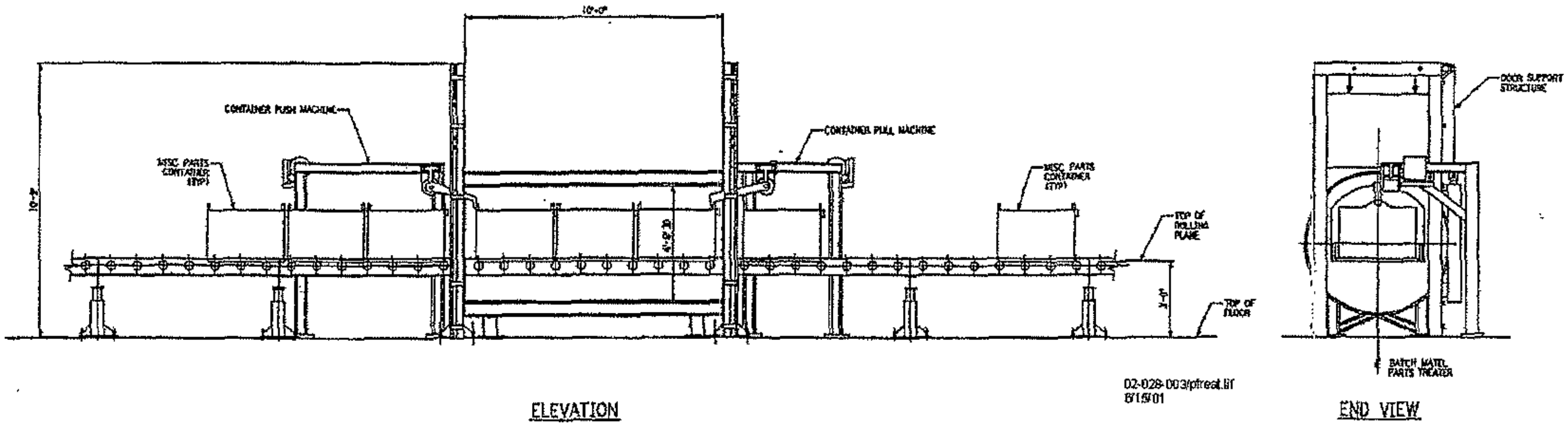


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Figure Attachment D-1-7. Batch Metal Parts Treater

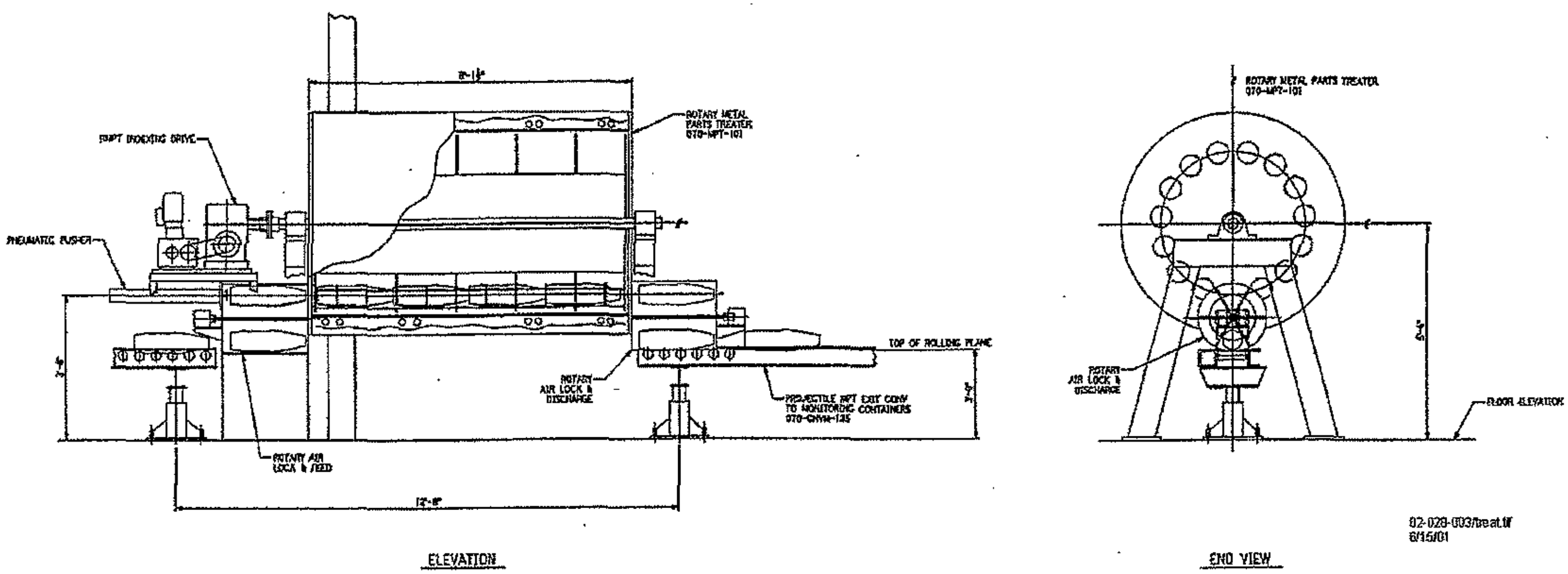
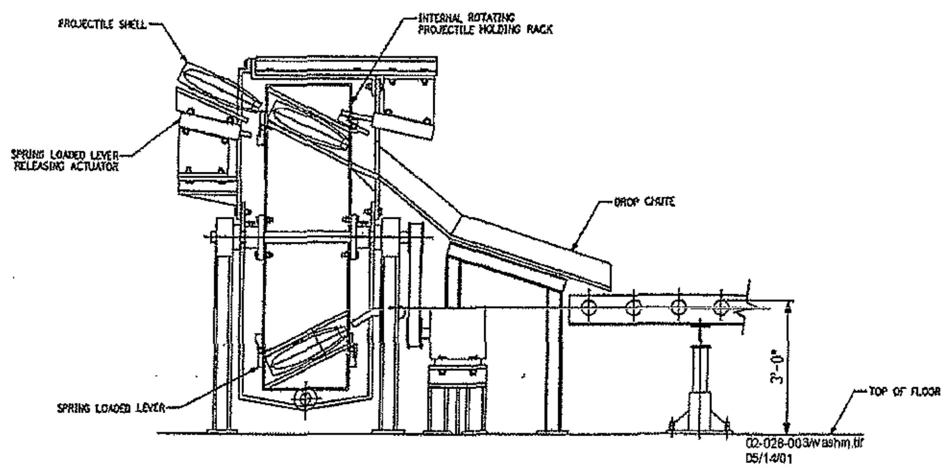


Figure Attachment D-1-6. Rotary Metal Parts Treater



1 Figure Attachment D-1-5. Projectile (Rotary) Washout Machine

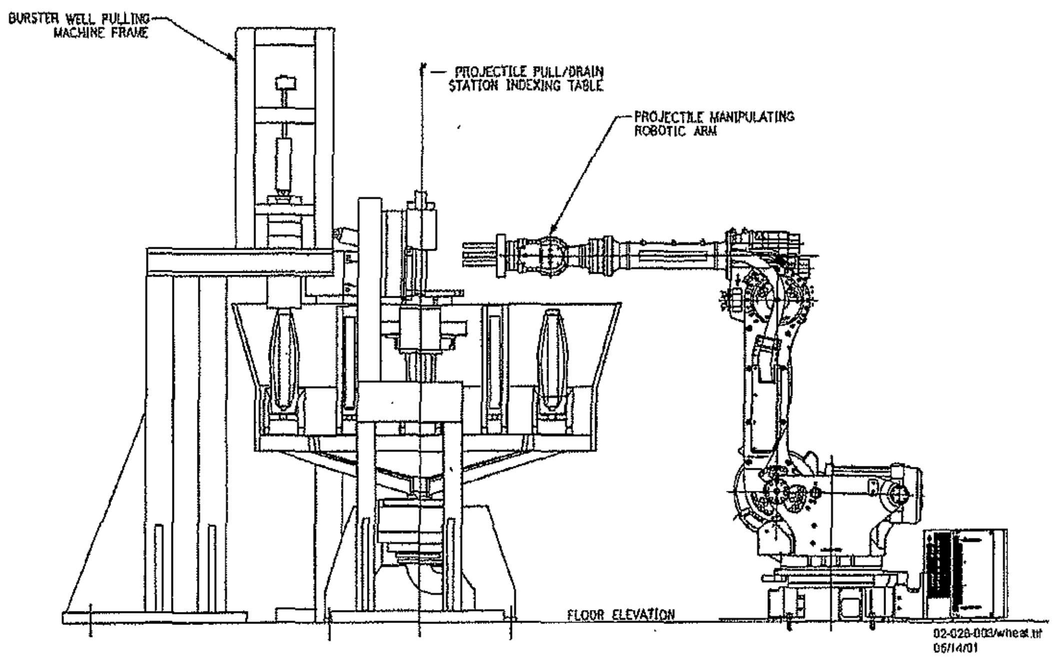
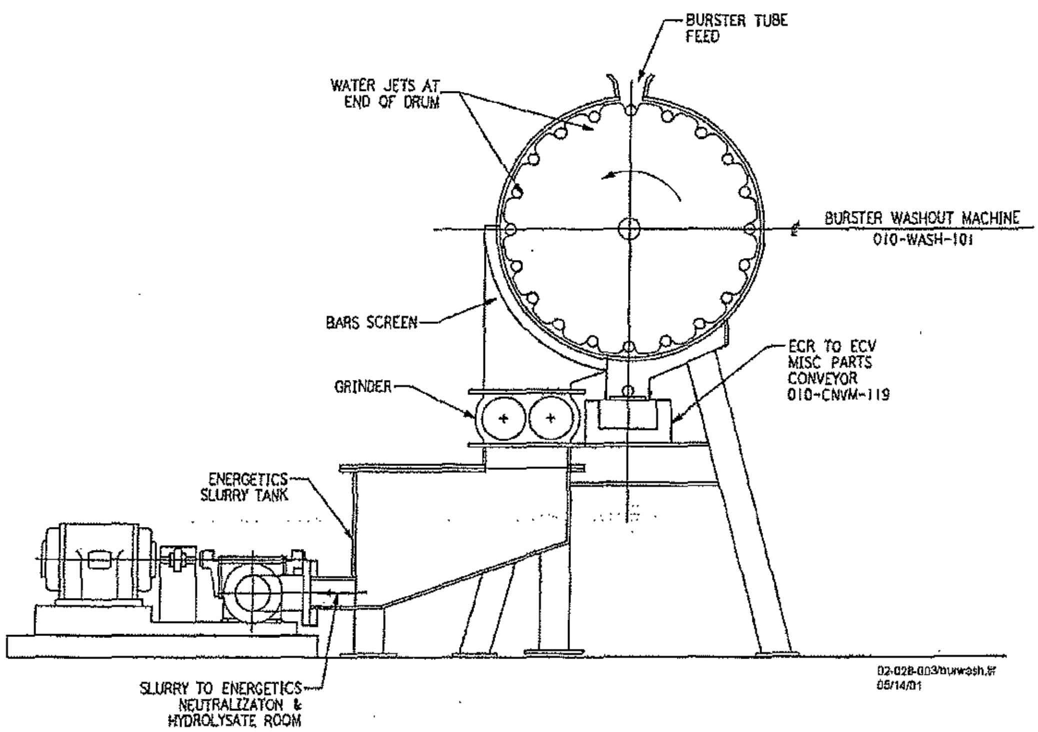
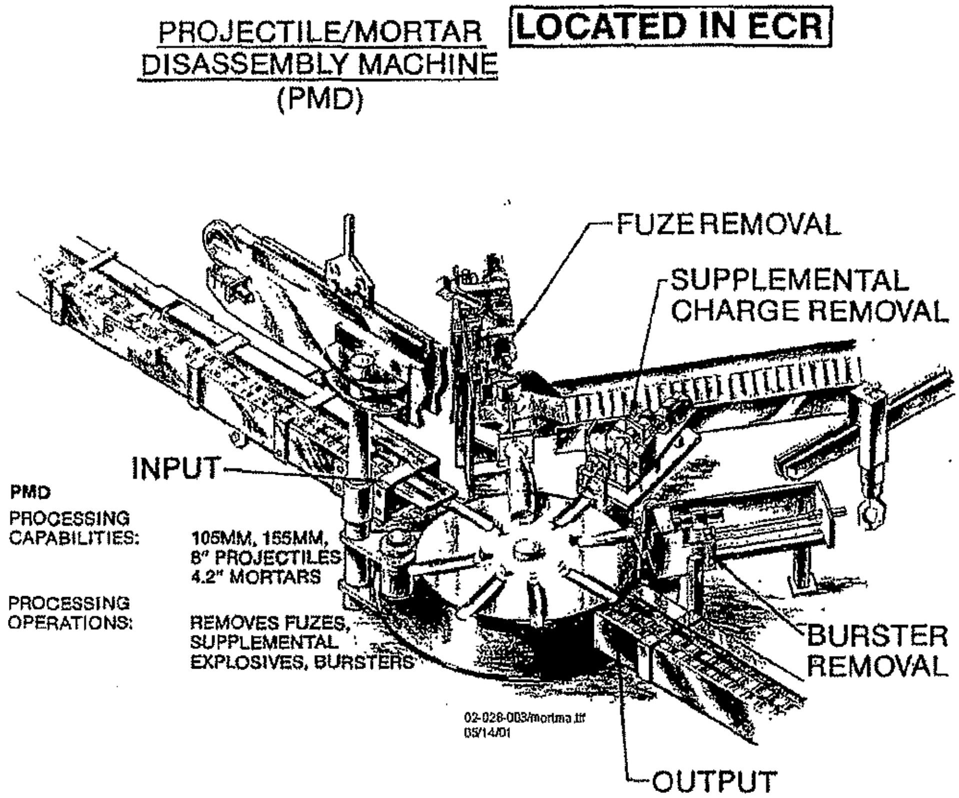


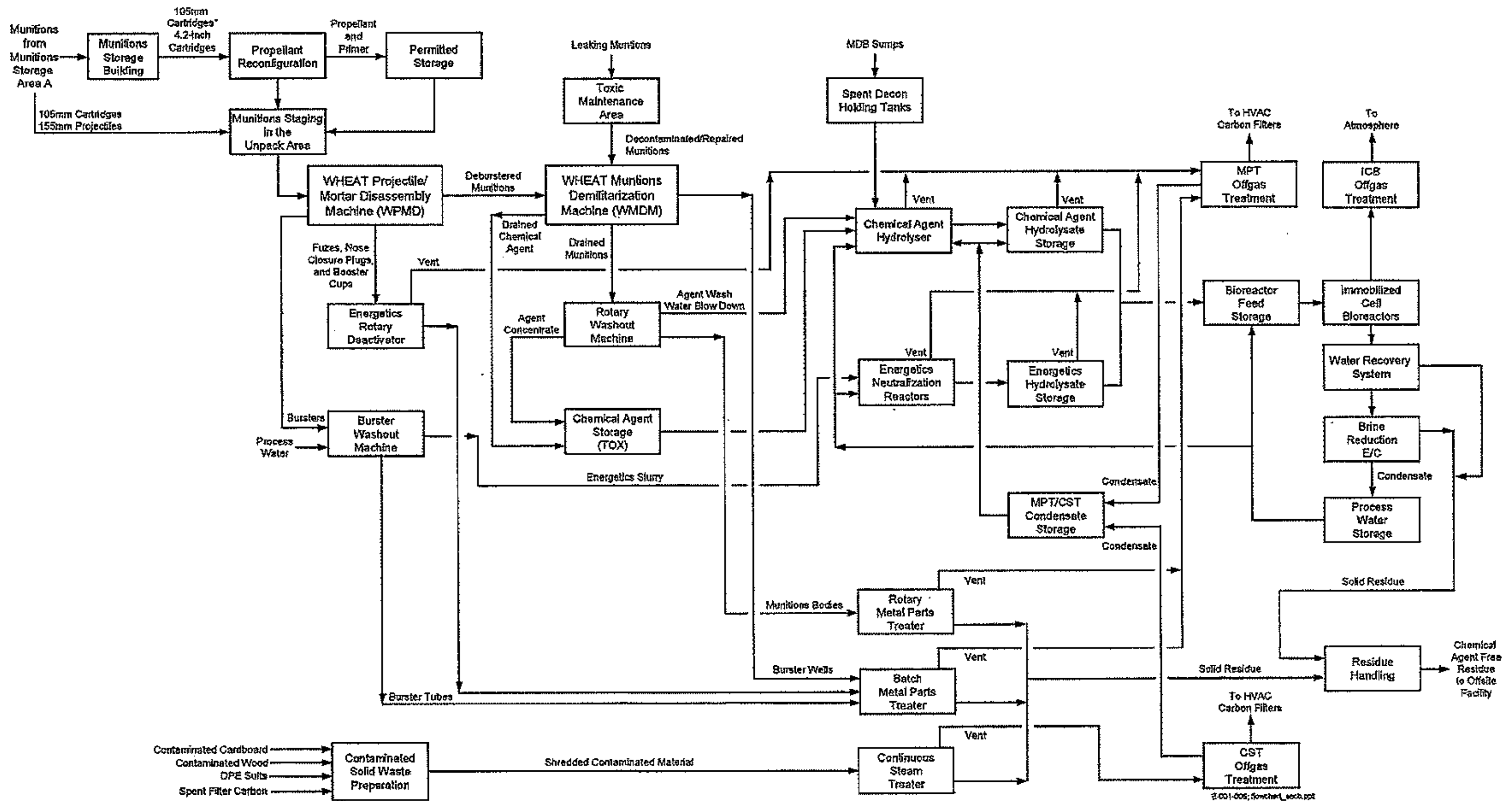
Figure Attachment D-1-4. ACWA WHEAT Munition Demilitarization Machine



1 Figure Attachment D-1-3. Burster Washout Machine



1 Figure Attachment D-1-2. WHEAT Projectile/Mortar Disassembly Machine



* Some 105mm cartridges contain propellant and require reconfiguration prior to processing.

Figure Attachment D-1-1. Pueblo Chemical Agent Pilot Plant Process Flow Diagram

9.0 WASTE STREAMS

For a description of waste streams from the PCAPP system, refer to Section C-1, Waste Characteristics.

through the plant on a closed loop system, with boiler blowdown fed to the Evaporator Feed Tank (090-TANK-101) to be reclaimed in the Brine Reduction Package.

8.0 BULK CHEMICAL STORAGE

Bulk chemical storage will be designed for a minimum of 2 weeks storage capacity for the chemical consumption, based on operation at 80 percent of maximum rate or slightly over 11 days of storage. The Decon Supply Tank will be sized for the full 14 days. Bulk chemical storage will be located in the PAB, and each tank will have a vent that discharges inside the building.

8.1 Sodium Hydroxide

The 50% Sodium Hydroxide Tank (110-TANK-101) will require a working capacity of 10,000 gallons with a design capacity of 12,600 gallons. The tank will be made of stress-relieved carbon steel with design conditions of 3 inches of water column at 225°F.

The 18% Sodium Hydroxide Tank (110-TANK-102) will require a working capacity of 5,600 gallons with a design capacity of 7,050 gallons. The tank will be made of carbon steel with a 5,600-gallon working capacity and design conditions of 3 inches of water column at 225°F. The 18 wt.% solution will be 50 wt.% solution that has been diluted with process water in the Bulk Chemical Storage Area.

8.2 Sodium Hypochlorite

The 12% Sodium Hypochlorite Tank (110-TANK-103) will require a working capacity of 8,000 gallons with a design capacity of 10,000 gallons. The tank will be made of HDPE or fiberglass reinforced plastic with design conditions of 3 inches of water column at 125°F.

8.3 Central Decontamination Supply

The Decontamination Tank (110-TANK-105) [5.5 wt.% sodium hypochlorite (NaOCl)] will require a working capacity of 5,600 gallons with a design capacity of 7,050 gallons. The tank will be made of HDPE with design conditions of 3 inches of water column at 125°F. The 5.5 wt.% NaOCl solution will be 12 wt.% solution that has been diluted with process water in the Bulk Chemical Storage Area.

coils. The Demineralized Water Air Coolers will be designed to supply 900 gpm cooling water on a closed loop system with a supply temperature of 90°F and return temperature of 100°F.

6.0 PROCESS WATER

Demineralized water will be used as initial fill and makeup water for the Process Water Tanks. During normal operation, the Process Water Tanks will receive water recovered by the Brine Reduction Unit. The two Process Water Tanks will have a capacity of 72,000 nominal gallons each. Process Water will be supplied to:

- Polymer Preconditioning
- Bulk Chemical Storage
- Demineralized Water Air Cooler
- Boiler Feed and Makeup
- Hot Process Water
- Utility Stations
- Decon Hose Stations
- Decon Showers
- Pump Seals
- Gloveboxes.

6.1 Hot Process Water

Process water will be supplied to the Hot Process Water Tank. This 15,650 nominal gallon tank will be equipped with an internal heating coil. The coil will be heated with plant steam. The tank will supply 194°F to the Agent Hydrolysers and the Energetics Neutralization Reactors.

7.0 STEAM SYSTEMS

Two steam boilers will supply saturated steam at 50 psig to the plant. Each boiler will be rated for 16.0 MMBTU/hr duty. They may run simultaneously, depending on plant steam demand. Normally they will be fed natural gas as fuel, with liquefied petroleum gas/air mixture as backup. The boilers will be fed process water, combined with condensate return. The boiler water will be chemically treated with phosphate, sulfite, and amine to control corrosion and scaling. Steam and condensate will circulate

Prefilters and HEPA filters will be changed when the pressure drop across the filter element exceeds a 10-inch water column. Carbon filters will be changed according to the following pattern:

- When chemical agent is detected at the allowable stack concentration between the second and third carbon banks, the first and second carbon banks will be changed within 3 months.

- When chemical agent is detected at the allowable stack concentration between the third and fourth carbon banks, the first three carbon banks will be changed immediately.

5.0 COOLING WATER SYSTEMS

5.1 Process Cooling Water

City water will be used to initially fill the Combinaire Cooling Tower basin and provide makeup water to the cooling tower as needed. The cooling water system will be closed loop through the process, with losses on evaporation. Cooling water will be recirculated from the cooling tower basin to process users and back to the cooling tower at 1,100 gallons per minute (gpm) during normal operation. Cooling water will be supplied to the plant at 60°F and returned to the cooling tower at 101°F.

5.2 Chilled Water

The composition of chilled water will be 40-volume % glycol, balance water. Two chillers will be provided, which will be housed in the PAB. Each chiller will have a heat duty of 0.44 MM BTU/hr. One chiller will be online at a time. During normal operation, 220 gpm of glycol solution will be circulated through the plant users and chiller in a closed loop system. The chillers will be designed to supply 35°F chilled water to the plant with a 45°F return temperature.

5.3 Demineralized Cooling Water System

City water will be demineralized in a package water treatment unit. The demineralized water will be pumped to the two Process Water Tanks for the initial fill and as makeup later on. Among other users, the Process Water Tanks will supply initial fill and makeup water to the Demineralized Water Air Coolers. These cooling towers will supply cooling water to the ERD, BMPT, RMPT, and CST induction

4.0 FILTRATION SYSTEM

Specific areas of the MDB and PAB will be kept under negative pressure in such a way that the areas of the highest potential contamination will be at a greater negative pressure that the lower contamination level area. Thus, the air will always flow from cleaner areas to the more contaminated areas. Finally, the air will be collected from the more contaminated areas and pass through a ventilation filter system before being exhausted to the atmosphere via a stack that will be common to all ventilation filter units. The ventilation filter system will use a series of filter units, with each unit containing a filter train and a motor/blower. The filter train will consist of prefilters; HEPA filters; six banks of activated carbon filters; and finally, a second bank of HEPA filters. Each filter bank will be provided with gauges to indicate pressure drop across the filters. Chemical agent sampling ports will be provided between certain banks of carbon filters and before the exhaust stack. Category E areas will be positive pressure with carbon-filtered supply air. Category D areas will be provided with standard industrial ventilation.

Ventilation flow requirements will vary with each process area. The filter units specified will be a common type for all areas. Air exhausted from the MDB process areas will be collected in a common exhaust duct and will be routed to a bank of parallel filters. The basic filter unit will be a skid-mounted design with welded housing, access doors, interior lighting, and observation and sample ports. This basic unit will be designed to handle a nominal 156,500 acfm at a 5-inch water column pressure drop across each element.

Carbon adsorption has been the historical method of choice for treating air-contaminated chemical agent vapors. The reason for choosing carbon is its high capacity to adsorb and retain the chemical agent vapors.

Pressure drop across each prefilter and HEPA filter element will be measured continuously and inspected daily. Chemical agent monitoring will be performed between the second and third carbon banks, the third and fourth carbon banks, and the fourth and fifth carbon banks. Chemical agent monitoring will be conducted by a single Automatic Continuous Air Monitoring System, connected to a manifold that will sample each location between carbon banks sequentially. The sample locations will be designed to sample the space between carbon banks at 16 points spaced around the frame of the filter housing. This will provide a representative sample of the entire gas stream.

backup to avoid agent breakthrough in the event the first carbon bank becomes saturated. The final bank will be a HEPA filter to collect any fine particles that erode from the carbon filters.

Prefilters and HEPA filters will be changed when the pressure drop across the filter element exceeds 10 inches of water column. Automatic Continuous Air Monitoring System (ACAMS) will sample for agent between the first and second banks of carbon filters in each train. When the ACAMS alarm, the carbon filters are changed. Redundant analyzers will be provided at the second, third, fourth, and fifth banks of carbon filters, as well as at the common exhaust discharge stack to warn of agent breakthrough in the event that a filter unit mounted analyzer fails. The MDB ventilation stack will be designed to handle a nominal 156,500 acfm at 5 inches of water column pressure drop across each filtration train.

Category D areas will be provided with independent standard industrial HVAC systems.

Category E area HVAC systems will provide positive pressure to the room or building they service. The air supply will be filtered with activated carbon.

Engineering drawings for the MDB ventilation systems are provided in **Attachment D-3,** Engineering Drawings.

3.2 Chemical Laboratory Ventilation Systems

The Chemical Laboratory (LAB) ventilation air supply and exhaust systems will be similar to the systems provided for the MDB. The MDB process area routinely will be exposed to chemical agents during operations. The carbon filter system for LAB exhausts will undergo only intermittent exposure to low concentrations of chemical agents. The LAB will be an insignificant source of air emissions.

3.3 Personnel and Maintenance Building Ventilation Systems

The Personnel and Maintenance Building will be equipped with particulate and carbon filtration of air supply and exhaust. This filtration will be in place for personnel protection in the event of an agent leak. This building will not be a source of air emissions.

- Provide a negative pressure within the work areas to eliminate escape of chemical agent vapors.

Carbon adsorption has been the historical method of choice for treating air-contaminated chemical agent vapors. Carbon has a high capacity to adsorb and retain the chemical agent vapors.

3.1 MDB Ventilation Systems

The MDB will have areas ranging from hazard Category A to E. Category A-C areas of the MDB will be kept under negative pressure in such a way that the areas of the highest potential contamination will be at a greater negative pressure than the lower contamination level area. Thus, the air always will flow from cleaner areas (hazard Category C) to the more contaminated areas (hazard Category A). Finally, the air will be collected from the more contaminated areas and pass through a ventilation filter system before being exhausted to the atmosphere. The MPT and CST Offgas Treatment Systems will discharge to rooms that are filtered through the MDB ventilation filtration system. This exhaust stack will be a source of significant emissions.

The walls, floors, and ceilings of the MDB will be sealed to prevent migration of vapor or liquid agent. Contamination spread through doorways will be prevented by the use of airlocks. Category A-C areas will have special coatings applied to building surfaces for protection from agent and subsequent decontamination solution. Area layout will conform to the human factors engineering requirement for personnel in DPE.

MDB hazard Category A-C areas will have air supply and exhaust HVAC systems. Air supply will be taken directly from the outside through an air-tempering hot water coil. The air then will be passed through two particulate filters. Next, the air will be heated by a hot water coil or cooled by chilled water to the temperature desired for discharge to the Mechanical Equipment Room. Air will be supplied to other areas via ductwork.

The exhaust HVAC system will have twelve filtration trains in parallel, 10 in operation at any given time, one assumed to be undergoing maintenance, and one spare on standby. Exhaust air will be ducted from the MDB through a manifold, then to the exhaust filter trains. The first bank of each filter train will remove any gross particulates. The second bank will be a high efficiency particulate air (HEPA) filter. An activated carbon filter bed will be third. The second through sixth activated carbon banks will be

The MDB and PAB will be divided into areas defined by hazard categories based on the anticipated type and degree of contamination as follows:

Category A: Areas that have a high probability of contamination, either liquid or vapor agent, negative pressure relative to atmosphere.

Category A/B: Areas with a high probability of agent vapor contamination and under certain process operating conditions assumed to be contaminated with liquid agent, negative pressure relative to atmosphere.

Category B: Areas with a high probability of agent vapor contamination resulting from routine operations, negative pressure relative to atmosphere.

Category C: Areas with a low probability of agent vapor contamination, negative pressure relative to atmosphere.

Category D: Areas that are unlikely to ever have agent contamination, atmospheric pressure.

Category E: Areas kept free from any chance of agent contamination barring a major event, air supply to the building or room is filtered through activated carbon to protect workers in the event of an accidental release of chemical agent, positive pressure relative to atmosphere.

Buildings with areas defined as hazard Category A-C will have ventilation systems for air supply and exhaust. In addition to controlling room temperature, room pressure and air flow, these HVAC systems will confine contaminants to specific areas and minimize contamination spread due to agent leak. These ventilation systems will:

- Collect, treat, and monitor ventilation from the work area that may contain chemical agent vapors prior to being exhausted to the ambient air

- Provide mixing of air that is essential for monitoring work areas with chemical agent detection devices

2.2.21 Spent Decon Holding Tank System (030-TANK-105/106/107); Drawings APU-01-D-534 and APU-01-D-535

The Spent Decon Holding Tank System consists of three Spent Decon Holding Tanks (030-TANK-105/106/107), three Spent Decon Holding Tank Agitators (030-AGIT-105/106/107), and six Spent Decon Feed Pumps (030-PUMP-105/106/107/115/116/117).

The sumps used to collect the spent decontamination solution will be located in the equipment decontamination/access airlocks, Toxic Room, ANRs, hydrolysate tank room, Munitions Demilitarization Machine area, TMA, ECR, ECR Vestibule (ECV), ENR, MDB Laboratory area, MPT room, MPT Offgas Treatment System, CST room, CST Offgas Treatment System, PRR, UPA, [Hydraulic Equipment Room and compressor], and MPT/CST condensate tank room. Each sump will have an actual capacity of 200 gallons. The spent decontamination solution will be pumped from these sumps by the corresponding sump pumps to the ANR Spent Decon Holding Tanks. In the Toxic Room, the sump also will be pumped to the Agent Surge Tank in case of a chemical agent spillage. The spent decontamination solution will be processed through the chemical agent hydrolysis reactors, as needed.

The Spent Decon Holding Tanks will be aboveground tanks constructed of high density polyethylene (HDPE) plastic and lined with carbon steel. One Spent Decon Holding Tank will be located in each of the three ANRs of the MDB.

3.0 VENTILATION SYSTEM

Each building at the PCAPP will have an HVAC system. Personnel buildings will have standard rooftop or central HVAC units. The design of each HVAC system servicing a process building or room will depend on the hazard category of the building or room. **Table Attachment D-1-1**[2] depicts each PCAPP unit or area discussed in this attachment, its location, and corresponding ventilation category. **Table Attachment D-1-2** depicts the MDB and PAB, their corresponding rooms, and the rooms' ventilation categories.

[2] All tables are located at the end of this attachment.

brine is discharged into the Evaporator/Crystallizer (EVP-101) steam will flash off. The steam will be withdrawn from the top of the Evaporator/Crystallizer by the Vapor Compressor (COMP-101). Note that a mist eliminator (or valve tray) will be provided in the top of the Evaporator/Crystallizer to prevent solid salt carryover to the compressor. The Vapor Compressor compresses the steam to approximately 15 psig, superheating it. The superheated steam will be used as the heat transfer medium in the Evaporator Regenerative Heat Exchanger (EXCH-102). In this exchanger the steam will lose its superheat, condense, and through a collecting pipe will be transferred to the Condensate Tank (TANK-101). The tank will be connected to the Vent Condenser (COND-101) that will condense most of the vapor released from the tank and return it to the tank. The remaining vapor that will consist of mainly noncondensable gases will be discharged to the ICB™ CATOX® system.

Once steam flashes off forming the Evaporator/Crystallizer (EVP-101) top product, the salt concentration in the remaining brine is high enough to form salt crystals. This brine slurry falls to the bottom of the Evaporator/Crystallizer (EVP-101). From there it is pumped to the Slurry Tank (TANK-105), where it is stored as feed for the Solids Dewatering Unit (FILT-101/102).

Organics present in the ICB™ effluent will be high boiling point components that are expected to end up in the solid cake produced in the unit. However, the combined vent stream from the Evaporator/Crystallizer unit will be directed to the suction of one of the ICB™ CATOX® units. So that any trace of noncondensable organic compounds present in this stream will be destroyed by the CATOX® prior to discharge to the atmosphere.

2.2.20.3 Solids Dewatering Unit (FILT-101/102); Drawing AAC-44-F-100, Sheet 2

The solid separation unit considered for this process at this stage will be a pressure filter. The Oberlin or an equivalent pressure filter is common in the industry for separation of solids in water treatment facilities. The system will consist of a Slurry Tank (TANK-105), the Solids Dewatering Unit (FILT-101/102), a Filtrate Tank (TANK-102), Filtrate Pump (PUMP-103), and roll-off bin or dump truck for collecting the solids. The slurry will flow from the Slurry Tank (TANK-105) to the filter (FILT-101/102) via the Slurry Pump (PUMP-106). The recovered liquid will be collected and drained out to the Filtrate Tank (TANK-102) and returned to the evaporator column via the Filtrate Pump (PUMP-103). The solids will contain about 30 wt.% moisture as they leave the filter. The solid cake will be conveyed to a roll-off container and stored at the RHA, pending shipment offsite to a permitted TSDF.

condenser, shell side. The salt solution will fall downward through the vertical tubes, absorbing heat from the steam condensing on the tube walls. The hot solution will pass through the demister entering the flash drum.

The condensed steam will flow down the outside of the vertical tubes to the bottom of the tube sheet. The steam condensate will flow to the Condensate Drum exiting the Brine Concentrator.

The flash drum will contain brine. It will be heated by the hot solution flowing down from condenser tubes. This will produce steam inside the flash drum. The steam will rise to the vapor space of the flash drum, past the demister. A compressor will draw steam from the flash drum vapor space. The steam will be discharged from the compressor into the top of the condenser, shell side, where it will join fresh plant steam in heating the solution in the tubes.

The hot water in the Condensate Drum will be a combination of recovered water from the brine and fresh plant steam condensate. The hot water will be pumped from the Condensate Drum through the Feed Preheater, where it will be cooled by the brine feed. This recovered water will continue to the Process Water Tank.

The flash drum will contain brine with a much higher salt concentration than the original Brine Concentrator feed. The flash drum bottoms will be pumped either to the condenser tubes or to the Evaporator/Crystallizer Feed Tank.

2.2.20.2 Evaporator/Crystallizer; Evaporator Feed Heat Exchanger (EXCH-101), **Evaporator/Crystallizer** (EVP-101), **Evaporator Regenerative Heat Exchanger** (EXCH-102); Drawing AAC-44-F-100, Sheet 2

The concentrated brine from the Brine Concentrator unit will be fed to the Evaporator/Crystallizer (EVP-101) via the Evaporator/Crystallizer Feed Tank (TANK-108) to recover the remaining water in the brine and to crystallize the solids for dewatering. Feed to the Evaporator/Crystallizer will be pumped through the Evaporator Feed Heat Exchanger (EXCH-101) to the suction of the Recycle Pump (PUMP-101). In addition to the feed stream from the Brine Concentrator, the filtrate from the Solids Dewatering Unit (FILT-101/102) also will be pumped to the suction of the Recycle Pump (PUMP-101). The Recycle Pump (PUMP-101) will circulate the evaporator bottoms through the Evaporator Regenerative Heat Exchanger (EXCH-102) to exchange heat with the compressed vapors from the Vapor Compressor (COMP-101). The brine will reach the flashpoint of water in the heat exchanger. When the to the Clarifiers. The solids that build up on the filter press will be collected in roll-off containers, stored in the RHA, and sent offsite as solid waste.

2.2.20 Brine Reduction Package (100-PKG-101); Drawing AAC-44-F-100, Sheets 1 and 2

There will be one Brine Reduction Package (100-PKG-101) located in the Process Auxiliary Building (PAB). The Brine Reduction Package will consist of a Brine Concentrator Flash Drum (EVAP-102), an Evaporator/Crystallizer (EVP-101), a Solids Dewatering Unit (FILT-101/102), and related tankage. The Brine Reduction Package will accept the clear effluent from the top of each Clarifier. It will desalinate the water and recycle it to the Process Water Tank. Solids crystallized in the Brine Reduction Package will be dewatered, stored in the RHA, and sent offsite to a permitted TSDF. Dewatered solids leaving the Brine Reduction Package have approximately 30 percent water content and no free liquid. The designed system will produce water with a salt content of less than 250 parts per million (ppm).

To aid in description of the Brine Reduction Package, the package is divided into the Brine Concentrator, Evaporator/Crystallizer, and the Solids Dewatering Unit.

2.2.20.1 Brine Concentrator; Feed Preheater (EXCH-103), **Deaerator** (DEAT-101), **Brine Concentrator Condenser** (COND-102), **Brine Concentrator Flash Drum** (EVAP-102), **Vapor Compressor** (COMP-102); Drawing AAC-44-F-100, Sheet 1

The brine first will be fed to a Caustic Mixing Tank. Caustic (18% NaOH) will be added to adjust the pH of the solution to the neutral range. The solution will pass through a Feed Preheater, where it is heated to 210°F. The heating medium will be hot water recovered from the Brine Concentrator. The feed will pass through a Deaerator, which will be heated by the vent gases from the Condensate Drum. The Deaerator will vent to one of the ICB™ Offgas Treatment Systems. The salt solution will be gravity fed to the Brine Concentrator.

The Brine Concentrator will recover 80 percent of the water from the salt solution. It will consist of a falling film shell and tube condenser called the Brine Concentrator Condenser. The condenser will be mounted on top of a tank called the Brine Concentrator Flash Drum. A demister will be provided between the condenser and flash drum to prevent salt carryover to the Vapor Compressor.

The salt solution will be pumped into the flash drum. A portion of the flash drum bottoms will be pumped to the top of the condenser and discharged into the tubes. Steam will be fed to the top of the

2.2.18 BioTreatment System (Drawing AAC-40-F-060)

The BioTreatment System will consist of 16 Immobilized Cell Bioreactors (060-ICBR-101 to 116) arranged in 4 modules. Each module will be compromised of 4 ICB™ bioreactors, an ICB™ feed tank, an ICB™ Effluent Pump Tank, and an Offgas Treatment System. Each ICB™ bioreactor will have a 40,000-gallon liquid capacity and a residence time of 5 days. Each ICB™ will be fed 1,600 scfm of aeration air from an air blower common to the 4 ICB™ bioreactors in a module. Hydrolysate will be fed to an ICB™ bioreactor, along with nutrients and water. Air will be sparged through the bottom of the ICB™ bioreactor. Microbes in the ICB™ bioreactor will metabolize the organics in the hydrolysate, including the TDG. The waste produced by the microbes will consist of carbon dioxide, water, biomass, and sulfuric acid. Caustic (18 wt.% NaOH) will be added on a control loop to neutralize the sulfuric acid maintaining the pH in the neutral range. The products of the neutralization will be sodium sulfate and water. The ICB™ bioreactor is depicted in **Figure Attachment D-1-8.**

The ICB™ Modules will be located in the BioTreatment Area outside the MDB. Each module will vent excess air, carbon dioxide, and water vapor to the ICB™ Offgas Treatment System.

2.2.19 Water Recovery System (Drawing AAC-44-F-060)

A liquid effluent with dissolved salts (brine) and suspended solids will be produced by each ICB™ bioreactor. Normally in a water treatment process, the next step will be the water recovery. The Water Recovery System will separate the suspended solids from the brine. Testing has shown that the low concentration of suspended solids in the ICB™ bioreactor effluent will allow the water recovery step to be bypassed. The decision to delete the Water Recovery System will be made at a later date, so it is included in this process description.

A conditioning polymer will be injected into the effluent. The stream will pass through a static mixer and will be fed to one of two Clarifiers (060-CLAR-101/102). A clear liquid effluent will be withdrawn from the top of each Clarifier and pumped to the Evaporator Feed Tank (090-TANK-101), where it will be processed in the Brine Reduction Package. The suspended solids will settle to the bottom of the Clarifier. This sludge will be pumped through a static mixer to one of two Thickening Tanks. A preconditioning polymer will be injected into the sludge upstream of the mixer. The sludge/polymer mixture will be pumped through another static mixer to a filter press. A dewatering chemical will be injected into the sludge/polymer upstream of the mixer. The entire mixture will be processed through the Dewatering Filter Press (090-FILT-101/102). The liquid filtrate that will pass through the filter press will be recycled

The ICB™ Offgas CATOX® Treaters (087-CATX-101/102/103/104) will receive the heated gases from the ICB™ Offgas Reheater, and through the proprietary catalytic matrix, destroy residual VOCs and SVOCs. Four CATOX® Treaters will be required; each unit having a capacity of 6,400 scfm, 25-inch water column pressure drop, and dimensions of 4 feet 6 inch diameter by 4 feet 0 inch F/F.

Four ICB™ Offgas Blowers (087-BLOW-101/102/103/104) will transfer the cooled CATOX® exhaust and transfer the gas to the HVAC carbon filters. The exhaust blowers will provide enough flow and draw to keep the complete system at a pressure slightly less than ambient. Four blowers will be required; each will have a capacity of 6,400 scfm and be sized for 200 BHP, 250 HP.

Four CATOX® Offgas Economizers (087-EXCH-101/102/103/104) will be gas-to-gas heat exchangers used to heat the CATOX® feed with CATOX® effluent. Four exchangers will be required, each rated for 4.3 MMBtu/hr with design conditions of 75 psig at 1,000°F, and constructed of 1-1/4 chromium - 1/2 molybdenum carbon steel exposed.

2.2.17 Agent Holding Tank (030-TANK-101), Agent Surge Tank (030-TANK-102), and Agent Concentrate Tank (030-TANK-110); Drawing AAC-01-F-030

The Agent Holding Tank, Agent Concentrate Tank, and Agent Surge Tank will be located in the Toxic Room of the MDB. These three tanks will vent past a common carbon filter before discharging their vent streams into the Toxic Room.

The Agent Holding Tank will receive drained chemical agent from the WMDM after it passes through the Particle Reducer-Drained Agent. Chemical agent will be stored in this tank for destruction in the Agent Hydrolysers.

The Agent Concentrate Tank will receive chemical agent concentrate that has been separated out in the Agent Settling Tanks after it has passed through the Particle Reducer-Agent Concentrate. Chemical agent concentrate will be stored in this tank for destruction in the Agent Hydrolysers.

The Agent Surge Tank normally will not be used. It will provide overflow capacity for the Agent Holding Tank and Agent Concentrate Tank. It also will provide emergency storage in the event of Toxic Room tank failure. This tank will discharge to the Agent Hydrolysers.

The MPT Offgas Blower (080-BLOW-106) will transfer the cooled CATOX® exhaust and transfer the gas to the HVAC carbon filters. The exhaust blower will provide enough flow and draw to keep the complete system at a pressure slightly less than ambient. The blower will have a capacity of 1,260 scfm and be sized for 72 brake horsepower (BHP), 100 horsepower (HP).

2.2.16.2 CST Offgas Treatment: CST Offgas CATOX Treater (085-CATX-101); Drawing AAC-50-F-085

The CST Offgas Reheater (085-HEAT-106) will take incoming gases from the CST Condensate Surge Tank and heat the stream electrically to reduce moisture content and condition the gas streams to the CATOX® operating temperature. The unit will be a manufacturer's standard unit sized for 450 kW with a capacity of 1.0 MMBtu/hr and design conditions of 15 psig/full vacuum at 1,000°F.

The CST Offgas CATOX® Treaters (085-CATX-101) will receive the heated gases from the CST Offgas Reheater (085-HEAT-106), and through the proprietary catalytic matrix, will destroy residual VOCs and SVOCs. The unit will have a capacity of 1,040 scfm, 25-inch water column pressure drop and dimensions of 2 feet 0 inch diameter by 4 feet 0 inch F/F.

The CST Offgas Cooler (085-EXCH-102) will receive the heated air stream from the CATOX® Treaters and cool the stream prior to entering the HVAC carbon filters. The cooler will be rated for a duty of 1.0 MMBtu/hr with design conditions of 15 psig/full vacuum at 925°F (tubes). The tubes of the cooler will be constructed of 1-1/4 chromium - 1/2 molybdenum with a carbon steel shell.

The CST Offgas Blower (085-BLOW-106) will transfer the cooled CATOX® exhaust and transfer the gas to the HVAC carbon filters. The exhaust blower will provide enough flow and draw to keep the complete system at a pressure slightly less than ambient. The blower will have a capacity of 1,040 scfm and be sized for 60 BHP, 75 HP.

2.2.16.3 ICB™ Offgas Treatment: ICB™ Offgas CATOX Treater (087-CATX-101/102/103/104; Drawing AAC-40-F-087

The ICB™ Offgas Reheaters (087-HEAT-101/102/103/104) will take incoming gases from the ICB™ modules and Brine Reduction Package vents, and heat the stream electrically to reduce moisture content and condition the gas streams to the CATOX® operating temperature. Each of the four heaters will be 2.4 MMBtu/hr, with design conditions of 15 psig at 1,000°F.

generated by the biota in the reactor. Each bioreactor module (comprising four ICB™ units) will be equipped with a dedicated CATOX® offgas treatment system.

The three CATOX® systems will operate in the same manner. Incoming air streams will be heated electrically to about 800° to 840°F to bring the gas streams within the CATOX® catalyst active temperature. This active temperature can be lowered to about 700°F, if upstream process conditions impose a heavier than anticipated organic (or oxidation) load on the CATOX® unit. The maximum sustained operating temperature at the discharge of the catalyst bed will be 1,050°F. Operation at temperatures above this will result in gradual loss of catalyst activity, a situation that is to be avoided. Process control systems will be in place to maintain the system within the operating limits. The proprietary catalytic matrix will destroy the organic materials.

The bioreactor CATOX® units will discharge directly to the atmosphere. The MPT and CST system will vent CATOX® unit(s) discharge to the MDB Ventilation Filtration System as a precaution. The MDB Ventilation Filtration System will discharge to the atmosphere. The MPT Offgas Reheater (080-HEAT-106) will take incoming gases from the MPT chemical agent condensate surge tank vent, the Agent Hydrolysers, and the chemical agent hydrolysate tank vents and heat the mixed stream electrically (by using electric induction coils) to reduce moisture content and condition the gas streams to the CATOX® operating temperature. The unit will be a manufacturer's standard unit sized for 450 kW with a capacity of 1.2 million British thermal units per hour (MMBtu/hr) and design conditions of 15 psig/full vacuum at 1,000°F.

2.2.16.1 MPT Offgas Treatment: MPT Offgas CATOX Treater (080-CATX-101); Drawing AAC-01-F-080

The MPT Offgas CATOX® Treater (080-CATX-101) will receive the heated gases from the MPT Offgas Reheater (080-HEAT-106) and through the proprietary catalytic matrix, destroying residual VOCs and semivolatile organic compounds (SVOCs). The unit will have a capacity of 1,260 standard cubic feet per minute (scfm), 25-inch water column pressure drop, and dimensions of 2 feet 0 inch diameter by 4 feet 0 inch flange-flange (F/F).

The MPT Offgas Cooler (080-EXCH-102) will receive the heated air stream from the MPT CATOX® Treater (080-EXCH-102) and cools the stream prior to entering the HVAC carbon filters. The cooler will be rated for a duty of 1.2 MMBtu/hr with design conditions of 15 psig/full vacuum at 925°F (tubes). The tubes of the cooler will be constructed of Alloy 20 with a carbon steel shell.

Trace pollutants in the process vent streams from the MPTs, the CST, reactors and hydrolysate tank vents, the ERD, and the ICB™ Module will be removed by catalytic oxidation. In theory, the reactant molecules [for example, volatile organic compounds (VOCs) and oxygen] will diffuse to the catalyst surface and will be adsorbed onto the catalyst. On the catalyst surface, the reactants will dissociate into fragments and atoms. Following surface reactions, the end products then will desorb from the surface back into the flow stream. Thus, the catalyst will facilitate the reaction by providing a low energy pathway for the reaction to occur (in other words, it will lower the activation energy).

The catalyst will be supported on straight channel, ceramic monolith substrates that provide higher catalytic efficiencies with minimum pressure drop. Typically, the monolith channels will be coated with a high-surface-area inorganic oxide (for example, aluminum oxide) "washcoat" to improve the dispersion and durability of the active component. The active component will be loaded onto the washcoat in an impregnation step.

The catalytic reactor will be designed to operate under external mass transfer rate control. That is, the rate of destruction will be determined by the rate the reactant molecules diffuse from the bulk flow stream to the surface of the catalyst. The actual surface reaction will occur much faster than the diffusion step. In this way, standard mass transport equations and fluid dynamics can be used to design the catalytic reactor to give a desired conversion and pressure drop for given inlet conditions.

In typical operations, the flow inlet will be brought to the desired temperature by heating. This heated air will be brought into the catalytic reactor where the trace pollutants will be destroyed. The reactor will be composed of a series of monolithic catalyst segments to improve mass transfer properties. The outlet air can then be passed through a heat exchanger to recover some of the energy and exhausted to the MDB Ventilation Filtration System.

The proprietary Honeywell catalyst formulation to be used was developed specifically for its resistance to common catalyst poisons such as halogens, sulfur, and phosphorus. This catalyst has been tested extensively against compounds containing common catalyst poisons and chemical agents and has shown high destruction efficiencies and durable performance. (ACWA Engineering Design Study CATOX® chemical agent challenge testing at 10 to 30 milligrams chemical agent per cubic meter of air was concluded successfully in October 2000. The test results and lessons learned will be incorporated in full-scale design pending publication of the test report and recommendations.) The bioreactors will be equipped with their own CATOX® systems. These are not anticipated to ever see chemical agent and are provided solely to deal with any VOCs stripped from the ICB™ feed by the bioreactor aeration or

2.2.15 CST Quench Tower (075-TOWR-121); Drawing AAC-50-F-075

The CST Quench Tower will receive the hot vent streams exiting the CST. This vent stream will be fed to the CST Quench Tower through a lower nozzle. The stream will pass through a sparger upon entering the column. Cool water will be sprayed down the column, contacting the hot vapor stream moving up the column. There will be three rows of spray nozzles in the top of the column. The top row of spray nozzles will receive fresh process water. The lower two rows will receive condensate from the CST Condensate Surge Tank (075-TANK-121).

Condensable vapor such as steam will liquefy and fall to the bottom of the column along with the water. The water that will be collected in the bottom of the column is called condensate. Non-condensable gases will continue to flow up the column. They will leave the top of the column, passing through the CST Condenser (075-EXCH-122) on their way to the CST Condensate Surge Tank. The condensate that will collect in the bottom of the column will flow by gravity to the CST Condensate Surge Tank.

The vent stream will be introduced into the top of the Condensate Surge Tank just under a demister. It will pass through the demister and continue on to the CST Offgas Treatment System.

The condensate in the CST Condensate Surge Tank will be neutralized with 18 wt.% NaOH. The condensate will be recycled to the lower two rows of CST Quench Tower spray nozzles after passing through the CST Quench Recirculation Cooler (075-EXCH-123). A condensate purge stream will be transferred to the MPT/CST Condensate Holding Tanks (030-TANK-103/104).

The MPT/CST Condensate Holding Tanks will provide storage capacity for condensate purged from the MPT and CST Condensate Surge Tanks. Each batch of the combined condensate will be collected and sampled for presence of chemical agent. If chemical agent is not detected, the condensate will be blended with material in the Agent Hydrolysate Tank. If chemical agent is detected, the condensate will be processed in the Agent Hydrolysers.

2.2.16 Offgas Treatment; Drawing AAC-01F-080

The PCAPP will use catalytic oxidation as a localized method of process offgas treatment, which involves six systems. These systems will be the offgas treatment systems for the MPTs, CST, and four ICB™ Module process vent gases. The ICB™ units are discussed further in Section 2.2.18.

- DPE Feed Case:

  Reaction 1:

  $C_2H_3Cl + 4H_2O \rightarrow 2CO_2 + HCl + 5H_2$

  Reaction 2:

  $C_2H_3Cl + 2H_2O \rightarrow 2CO + HCl + 3H_2$

The heat and material balance will be based on 1 percent conversion (or gasification) of the carbon fed to the CST, and 85 percent conversion for wood and DPE. In all three cases, it will be assumed that two-thirds of the gasified product will form carbon dioxide and hydrogen chloride, while the balance will be products of incomplete oxidation (in particular, carbon monoxide). These criteria will be verified upon completion of the CST testing.

The CST will be a horizontal cylinder. The dimensions of the CST will be 4 feet 8 inches ID by 11 feet 0 inch, with design conditions of 15 psig/full vacuum at 1,500°F. The CST will be constructed of Hastelloy® C-276. The shell is heated to 1,250°F by electrical induction with a heat load of 300 kW. Contained in the shell will be a rotating multibladed auger shaft. The solid feed will be fed into the CST through an airlock on top of the shell at the inlet end. Superheated steam (1,000°F) from the CST Steam Superheater (075-HEAT-122) will be fed at the opposite end of the heater. Note that prior to heating the CST, the process will be purged with nitrogen to remove oxygen. This will prevent thermal formation of NO_x and N_2O in the high temperature environment. The steam will act as a reactant and carrier gas, and will be fed at 50 percent excess of stoichiometric reaction needs. The solid feed will transit the length of the heater in approximately 1 hour (set by auger shaft rotation speed and blade pitch). Residual solids will exit the heater through a discharge airlock. The solids will fall out of the airlock into a screw conveyor. The screw conveyor will elevate the solids and drops them into the CST Discharge Classifier (075-CLAS-101). The solids will be a mixture of ash and intact aggregate. The ash will be a mixture of degraded dunnage pulp and disintegrated aggregate. The intact aggregate will be recycled as part of the feedstock. The ash will be containerized in 55-gallon drums and stored in the Residue Handling Area (RHA), pending offsite shipment to a permitted treatment, storage, and disposal facility (TSDF).

Steam and non-condensable gasses will be vented from the CST to CST Effluent Heater (075-HEAT-121). The CST Effluent Heater will heat the vent gas to 1,250°F, destroying any residual chemical agent. A chemical agent analyzer on the discharge of the heater will be used to confirm chemical agent destruction. Effluent heater discharge vent gases will continue on to the CST Quench Tower (075-TOWR-121).

2.2.14 Continuous Steam Treater (075-CST-121); Drawing AAC-50-F-075

Continuous steam treatment will be performed in the CST Room of the MDB.

The CST (075-CST-121) will be designed to achieve 5X decontamination for chemical-agent-contaminated plant non-process wastes and dunnage. Shredded wood pallets, cardboard boxes, spent activated carbon from the heating, ventilation, and air conditioning (HVAC) carbon filters, and shredded plastic (DPE with boots and gloves) will be decontaminated in the CST unit. The shredded dunnage will have the consistency of a pulp. Feed aggregate/carrier material (crushed tabular alumina or other suitable material) will be needed to provide bulk to shredded feedstock such as wood or plastic (DPE). The CST will operate in a continuous feed mode.

The CST design will be based on hourly feed ratios of 100 pounds wood:200 pounds aggregate; 15 pounds DPE:285 pounds aggregate; mixed feed at 15 pounds DPE:85 pounds wood:200 pounds aggregate. Aggregate attrition rate will be assumed to be 10 percent of the feed aggregate. This quantity will be recalculated based on CST testing results. Spent carbon will be fed alone (no aggregate) at 300 pounds per hour.

The following summary describes the decomposition reactions expected to occur in the CST system. Please refer to Section D-2.2.10 of this attachment for chemical agent destruction chemistry.

- Carbon Feed Case:

  Reaction 1:

  $C + 2H_2O \rightarrow CO_2 + H_2$

  Reaction 2:

  $C + H_2O \rightarrow CO + H_2$

- Wood Feed Case:

  Reaction 1:

  $CH_2O + H_2O \rightarrow CO_2 + 2H_2$

  Reaction 2:

  $CH_2O \rightarrow CO + H_2$

2.2.13 Contaminated Solid Waste Preparation: Plastic Material Shredder (120-SHRD-101) and Wood Material Shredder (120-SHRD-102); Drawing AAC-50-F-120

There will be two contaminated solid waste preparation lines, one for plastic material and the other for wood material. The lines will be located in the Waste Shredding Room (WSR) of the MDB. The area classification of the WSR will be B.

A typical operating scenario for contaminated solid waste preparation will consist of receiving contaminated wood pallets/boxes and demilitarization protective ensemble (DPE) suits by forklift/pallet trucks. The plastic suits and wood will be introduced into the shredding room through dedicated airlocks located on the west wall of the CST Room. The two dedicated shredders, one for wood and the other for DPE suits, will be located in the shredding room. Flexible screw conveyors will transfer the shredded material from the respective shredders to an enclosed belt conveyor through a surge bin/loss in weight feeder system.

All material being shredded will drop down to the bottom compartment of the shredder, along with any minor dust/small particles that may have been generated in this operation. The enclosed screw conveyor will transfer shredded material, along with settled dust/small particles, through a closed conveyor system to the CST (075-CST-121). A dedicated dust collection system will not be necessary for this type of system as very minimal dust will be generated in the shredding, and the dust that is generated will settle, along with the larger particles, at the bottom of the shredder.

Any metal, such as nails, generated from the wood shredding operation will be collected and placed in a miscellaneous parts container for transfer to the BMPT for treatment. The flex screw conveyor will transfer alumina as aggregate from the CST Alumina Storage Bin (075-STOR-101) onto the enclosed belt conveyor carrying shredded wood and plastic suits to the CST. The crushed tabular alumina will add bulk to the shredded material and act as a scouring agent for the CST shell. At the CST the material will be dropped through a double flap gate airlock valve into the CST and be thermally treated as it moves through the CST. The discharged mixture in the form of ash and alumina will be transferred to the CST Discharge Classifier (075-CLAS-101) for separation by a water-cooled screw conveyor. The CST Discharge Classifier (075-CLAS-101) will separate the ash form the alumina. The ash will be collected in bins through a gravity chute and the alumina will be fed directly back to the CST Alumina Storage Bin (075-STOR-101) for reuse.

2.2.12 MPT Quench Tower (070-TOWR-101); Drawing AAC-01-F-070

There will be one MPT Quench Tower (070-TOWR-101). It will be located in the Offgas Treatment Room (OTR) of the MDB. The quench tower will be made of Hastelloy® C-276 and designed for a vapor feed rate of 8,000 actual cubic feet per minute (acfm) [1,200°F, 12 pounds per square inch absolute (psia)], 15 psig/full vacuum at 175°F with tower dimensions of 1 foot 6 inches ID by 12 feet 0 inch tangent to tangent.

The MPT Quench Tower will receive the hot vent streams exiting the RMPT Effluent Heater, BMPT Effluent Heater, ERD, ENR, and Energetics Hydrolysate Tank. These vent streams will be combined and fed to the MPT Quench Tower through a common lower nozzle. The stream will pass through a sparger upon entering the column. Cool water will be sprayed down the column, contacting the hot vapor stream moving up the column. There will be three rows of spray nozzles in the top of the column. The top row of spray nozzles will receive fresh process water. The lower two rows will receive condensate from the MPT Condensate Surge Tank (070-TANK-101).

Condensable vapor such as steam will liquefy and fall to the bottom of the column along with the water. The water that will be collected in the bottom of the column is called condensate. The condensate that will collect in the bottom of the column will flow by gravity to the MPT Condensate Surge Tank. Non-condensable gases will continue to flow up the column. They will leave the top of the column, passing through the MPT Condenser (070-EXCH-102) on their way to the MPT Condensate Surge Tank.

The vent stream will be introduced into the top of the Condensate Surge Tank just under a demister. It will pass through the demister and continue on to the MPT Offgas Treatment System.

The condensate in the MPT Condensate Surge Tank will be neutralized with 18 wt.% NaOH. The condensate will be recycled to the lower two rows of MPT Quench Tower spray nozzles after passing through the MPT Quench Recirculation Cooler (070-EXCH-103). A condensate purge stream will be transferred to the MPT/CST Condensate Holding Tanks.

The MPT/CST Condensate Holding Tanks will provide storage capacity for condensate purged from the MPT and CST Condensate Surge Tanks. Each batch of the combined condensate will be collected and sampled for presence of chemical agent. If chemical agent is not detected, the condensate will be blended with material in the Agent Hydrolysate Tank. If chemical agent is detected, the condensate will be processed in the Agent Hydrolysers.

reforming of any residual chemical agent. There will be a chemical agent analyzer downstream of the effluent heater confirming that the chemical agent has been destroyed. The RMPT Effluent Heater will vent to the MPT Quench Tower (070-TOWR-101).

The design throughput for the RMPT will be 120 rounds/hour for 105mm and 4.2-inch munitions and 60 rounds/hour for 155mm munitions. The RMPT will use external induction coils as the primary heat source, with a process heat load of 250 kilowatt (kW) (installed duty 450 kW). The dimensions of the RMPT will be 4 feet 8 inches internal diameter (ID) by 15 feet 7 inches, with design conditions of 15 pounds per square inch gauge (psig)/full vacuum at 1,500°F. The RMPT will be constructed of Hastelloy® C-276.

The 5X munition bodies will continue on to be deformed and sent offsite as scrap metal. The RMPT is depicted in **Figure Attachment D-1-6**.

2.2.11 Batch Metal Parts Treater (076-MPT-101); Drawing AAC-50-076

Metal strapping from the UPA, burster wells from the WMDM, and miscellaneous parts discharged from the ERD and BWM collected in Energetics Parts Containers will be fed to the BMPT for 5X decontamination. The BMPT will be a horizontal cylindrical heater with an internal conveyor. There will be sealed doors on each end. Each batch will process three Energetics Parts Containers, each measuring 3 feet by 3 feet by 2 feet. The parts containers will be placed on a conveyor and positioned up against the inlet door of the BMPT. A push machine will feed the three containers into the heater. The BMPT will be heated to 1,250°F by electrical inductance coils. Superheated steam at 1,000°F will be fed to the BMPT. The materials will be heated for a prescribed time (15 minute minimum) under continuous superheated steam feed. Then, the BMPT will be purged with nitrogen. Sensors on the vent line will confirm chemical agent is not detected. The 5X metal parts will be removed from the BMPT and sent offsite as scrap metal.

The BMPT will vent to the BMPT Effluent Heater (076-HEAT-101), where the vent gas will be heated by electrical inductance to 1,250°F, causing steam reforming of any residual chemical agent. The BMPT Effluent Heaters, in turn, will vent to the MPT Quench Tower. The BMPT is depicted in **Figure Attachment D-1-7**.

The inner basket will continue to rotate, indexing the pusher to the next cage. Again, a round will be pushed into the cage at the inlet end of the RMPT, discharging a round from the same cage at the outlet end of the RMPT. The RMPT will be fed continuously in this manner.

Munitions leaving the RMPT will pass through one of the Munitions Monitoring Containers (070-MMC-101/102/103) where they will be monitored to verify 5X decontamination. After 5X decontamination has been verified, the munitions will be fed by conveyer to a press to be deformed before being deposited into a roll-off container for transportation to offsite waste disposal.

A nitrogen purge will remove oxygen from the RMPT system. This will prevent thermal formation of NO_x and N_2O in the high temperature environment. The shell of the RMPT will be heated to 1,250°F. Superheated steam at 1,000°F from the RMPT Steam Superheater (070-HEAT-103) will be fed countercurrently to the munition bodies. There will be an interlock preventing munitions discharge if the minimum required temperature (1,000°F) is not met. Two types of chemical agent destruction reactions are expected to occur in the RMPT system: hydrolysis and steam reforming. The hydrolysis reaction will form TDG and HCl, while the steam reforming reaction will form carbon dioxide, hydrogen chloride, and sulfur dioxide according to the following reaction equations:

- Hydrolysis:
  $C_4H_8Cl_2S + 2H_2O \rightarrow C_4H_{10}O_2S + 2HCl$

- Steam Reforming:
  Subreaction 1:
  $C_4H_8Cl_2S + 10H_2O \rightarrow 4CO_2 + 2HCl + 13H_2 + SO_2$
  Subreaction 2:
  $C_4H_8Cl_2S + 6H_2O \rightarrow 4CO + 2HCl + 9H_2 + SO_2$

The heat and material balance will be based on the criteria of hydrolyzing one-third of the MPT feed; the balance will be reformed. This will be achieved by maintaining high temperatures with excess steam inside the RMPT. This will result in an overall HD destruction and removal efficiency of 99.9999 percent. The Heat and Material Balances are located in **Attachment D-2**.

The steam also will act as a carrier gas. The RMPT will vent to the RMPT Effluent Heater (070-HEAT-101), where the vent gas will be heated by electrical inductance to 1,250°F, causing steam

The product leaving the reactor is called chemical agent hydrolysate, an aqueous solution of TDG and salts. The product will be stored in the Agent Hydrolysate Holding Tank (040-TANK-107), which will be common to all six reactors. From this tank, the hydrolysate will be pumped to the ICB™ Feed Tank, where it will be mixed with energetics hydrolysate and diluted with process water.

Each Agent Hydrolyser will be kept under a nitrogen blanket, and have a pressure indicator controller to control reactor pressure. A vent valve will be expected to open only during filling and water heating operations. The Agent Hydrolysate Holding Tank also will be equipped with a pressure indicator controller and vent value to control its pressure. The vents from all six reactors and the holding tank will be treated in the MPT Offgas Treatment System. This system is discussed in further detail in Section 2.2.16.1.

Heating and cooling water will be provided on a closed loop as part of the Agent Hydrolyser Heat Transfer Fluid System.

2.2.10 Rotary Metal Parts Treater (070-MPT-101); Drawing AAC-01-F-070

There will be one RMPT (070-MPT-101) located in the MPTR of the MDB. The RMPT will receive drained and washed munition bodies from the Rotary Washout Machine (020-RW-101/2). These munition bodies may be contaminated with residual chemical agent. The RMPT will be designed to meet the Army definition of 5X decontamination (for a minimum of 15 minutes at or above 1,000°F) for the munition bodies.

The RMPT will be a horizontal cylindrical heater with an outer shell heated by electric inductance coils and an inner rotating basket. The inner basket will hold 15 cages, evenly distributed around a 36-inch outer diameter. There will be three cage designs, one for each type of munition. Cages for the 4.2-inch cartridges and 105mm cartridges will be long enough to hold ten rounds. Cages for the 155mm projectiles will be long enough to hold seven rounds.

Drained and washed munitions from the Projectile (Rotary) Washout Machine (020-RW-101) will be transported by a conveyor system and loaded into the RMPT on a unit feed basis. Each round will pass through an airlock and be positioned in front of a pneumatic pusher. The pusher will feed the round into a cage, displacing another round from the opposite end of the same cage.

The water-washed munitions will be fed to the Rotary Metal Parts Treater (RMPT) (070-MPT-101) for 5X decontamination.

2.2.9 **Agent Hydrolysers** (040-RCTR-101 to 106); Drawing AAC-01-F-040

There will be six batch reactors in parallel, nominally 2,520 gallons each, which will be located in the Agent Neutralization Room (ANR) of the MDB.

The Agent Hydrolysers will receive drained chemical agent from the Agent Holding Tank, chemical agent concentrate from the Agent Concentrate Holding Tank, and spent decontamination solution from the Spent Decon Holding Tanks. They also will receive chemical-agent-contaminated condensate from the MPT/CST Condensate Holding Tanks.

Hydrolysis is the first step in the treatment process. In each batch, hot process water will be added to a reactor. This water charge will include a wash water purge from the Projectile (Rotary) Washout Machine. The reactor will be agitated and recirculated through an external heat exchanger and static mixer. The jacket and external heat exchanger will be used to heat the process water to approximately 194°F. Over a 30-minute period, chemical agent will be added to the reactor upstream of the static mixer. Once the exothermic reaction between chemical agent and water begins, the jacket and external heat exchanger will be switched to cooling water. The cooling water flows will be controlled to maintain an isothermal reaction temperature of approximately 194°F. The hydrolysis is represented by the following equation:

$$\text{Chemical Agent} + 2\ H_2O_{(excess)} \rightarrow \text{Thiodiglycol} + 2\ HCl$$

When the chemical agent charge is complete, the reactor will be recirculated and agitated for 75 minutes. Then, the reactor contents will be sampled. If the chemical agent concentration is greater than 20 parts per billion (ppb) by weight, the reactor will continue mixing at approximately 194°F for resample at a later prescribed time. If the chemical agent concentration is less than 20 ppb by weight, the process will be forwarded to the next step, neutralization.

In this step, 18 wt.% NaOH will be added to adjust the pH of the reactor contents to just under 12, neutralizing the HCl produced in the hydrolysis step. The caustic will be pumped from the Sodium Hydroxide (18% NaOH) Storage Tank into the vapor space of the reactor.

The two WMDMs will be aligned so that one receives the munitions coming from ECR-1 and the other receives munitions from ECR-2. The area category for the MDMR will be A. The WMDM will remove the burster well from the munition body, exposing the chemical agent. The round will be tilted, draining the chemical agent. Chemical agent will be collected in a basin under the WMDM and transferred via pipeline through a Particle Reducer-Drained Agent. The drained chemical agent then will be pumped to the Agent Holding Tank located in the Toxic Room. Burster wells will be placed in the Energetics Parts Containers for 5X decontamination in the BMPT. The BMPT is discussed further in Section 2.2.11. The WMDM will have a cutting station to counter the eventuality of a failed pull operation by cutting through the munition casing wall. Munition bodies continue on to the Projectile (Rotary) Washout Machine.

2.2.8 Projectile (Rotary) Washout Machine (020-RW-101); Drawing AAC-01-F-020

Any sludge or heel remaining in the munition after WMDM processing will be washed out in one of two Rotary Washout Machines (020-RW-101/2), which is depicted in **Figure Attachment D-1-5**. The resulting chemical agent/water mixture will be transferred to one of the two Agent Settling Tanks (020-TANK-102/104) via the Washed Agent and Booster Pump (020-PUMP-108/109/118/119). Once inside the Agent Settling Tank, the slurry will be allowed to settle into a heavier chemical agent phase and a lighter wash water phase.

The heavier phase will be agent concentrate. Chemical agent concentrate will be stored in the Agent Concentrate Holding Tank (030-TANK-110) located in the Toxic Room of the MDB. The Agent Concentrate Pump (020-PUMP-104/105/114/115) will transfer the chemical agent to the holding tank after passing it through the Particle Reducer-Agent Concentrate (020-CRSH-102/104). The composition of the chemical agent concentrate will be set at 90 percent (by weight) of chemical agent as a performance specification for the phase separation step of the washout operation. This performance specification serves the current design effort and is to be verified by testing the chemical agent washout system and the process design modified accordingly.

The lighter phase will be wash water that contains dissolved thiodiglycol (TDG), hydrochloric acid (HCl), and entrained chemical agent. Since chemical agent is only slightly soluble in water and the hydrolysis reaction will be slow below 194°F, the concentration of chemical agent, HCl, and TDG in the wash water will be expected to be low. The wash water will be recycled to the Projectile (Rotary) Washout Machines via the Wash Water Recirculation Pump (020-PUMP-102/103/112/113), Wash Water Recirculation Heat Exchanger (020-EXCH-101/102), and the Agent Water Jet High Pressure Pump (020-PKG-101/102/103). A wash water purge will be fed to the Agent Hydrolysers (040-RCTR-101/102/103/104/105/106).

Empty burster tubes, although not considered contaminated with chemical agent, will be deposited on a conveyor and placed in an Energetics Parts Container for subsequent 5X decontamination (15 minutes at or above at least 1,000°F) in the BMPT. The BMPT is discussed further in Section 2.2.11.

2.2.6 Energetics Neutralization Reactors (050-RCTR-101/2/3); Drawing AAC-50-F-050

There will be three Energetics Neutralization Reactors (050-RCTR-101/2/3) in the ENR of the MDB. They will be in parallel, nominally 300 gallons each. Two of the three reactors will be in operation, either receiving energetics feed or in process. The third reactor will be on standby, waiting to receive feed.

The energetics to be processed are tetrytol and tetryl. A propellant campaign will be run once the chemical agent campaigns are complete.

Water and antifoam will be initially charged to the reactor. Then 50 wt.% NaOH will be charged. The amount of NaOH added to the reactor will be a 4.5:1 molar ratio dry caustic to tetrytol or tetryl. The agitator and recirculation loop will be started. The temperature in the reactor will rise due to heat of dissolution. The caustic solution in the reactor will be heated to 194°F. The energetics slurry will be charged into the side of the reactor above the normal liquid level. The batch will be isothermally mixed at 194°F for 3 hours and then sampled for the presence of energetics. If the sample is within specification for energetics concentration, it will be pumped to the Energetics Hydrolysate Holding Tank (050-TANK-104), common to all three reactors. The energetics hydrolysate will be pumped to one of the ICB™ Feed Tanks (60-TANK-101/102/103/104), where it will be mixed with chemical agent hydrolysate and diluted with process water. Heating and cooling will be provided to the vessel jackets by the closed loop Energetics Heat Transfer Fluid System.

All three reactors and the Energetics Hydrolysate Holding Tank will vent to the MPT Quench Tower. The MPT Quench Tower is discussed further in Section 2.2.12.

2.2.7 WHEAT Munitions Demilitarization Machine (020-WMDM-101/102); Drawing AAC-01-F-020

The WMDM will receive munitions from the WPMD after all energetic components are removed. This machine is depicted in **Figure Attachment D-1-4**. There will be two Munitions Demilitarization Machines (020-WMDM-101/102) located in the Munitions Demilitarization Machine Room (MDMR) of the MDB. Each WMDM will have an associated Particle Reducer-Drained Agent (020-CRSH-101/103).

2.2.5 Burster Washout Machine (010-WASH-101/2) and Energetics Shredder (010-CRSH-101/102); Drawing AAC-50-F-010

There will be two BWMs (010-WASH-101/102) and two Energetics Shredders (010-CRSH-101/102), one in each of the two ECRs.

Bursters removed from the 4.2-inch cartridge, the 105mm cartridge, and the 155mm projectile will be processed through the BWM (010-WASH-101/102) to remove the explosive content. Bursters will be fed into the BWM at a minimum rate of one per minute for 105mm cartridges or 4.2-inch cartridges and one per 2 minutes for 155mm projectiles by a pick-and-place machine from the burster discharge conveyor of the WPMD. Except for the 4.2-inch cartridge bursters, the explosive charges will be encased in metal tubes whose fuze end provides direct access to the explosive. The 4.2-inch burster tubes will be attached to the fuzes, which when taken apart by the WPMD, also will provide direct access to the explosives. The end opposite the fuze will be the metal sealed end of the tube in all cases.

The BWM will have a rotary carousel with multiple burster holding receptacles. Bursters will be aligned with a multi-nozzle waterjet washout probe so that the jet will cut into the explosive charge axially from the open end. The width of the jet will be adjusted to obtain maximum coverage of the interior of the burster tube, ensuring that the walls will be thoroughly cleaned of explosive. The washout probe will be aligned with the open end of the burster and waterjet flow will be initiated at approximately 12,000 psi. The washout water will entrain the explosive particles and chunks and wash them clear of the burster casing and washout station spray. Upon reaching the metal end of the burster tube, the waterjet washout probe will be withdrawn.

The resulting energetics slurry then will pass through an Energetics Shredder (010-CRSH-101/102), which will reduce all particles to less than 1/8-inch diameter to facilitate transport and the hydrolysis reaction. The slurry will discharge from the shredder to the Energetics Slurry Tank (010-TANK-101/102), where process water will be added, diluting energetics concentration in the slurry to 20 wt.%. This will minimize explosion risk. Then, it will be pumped to the Energetics Neutralization Reactors using air driven double diaphragm pumps. The shredder and collection tank are expected to be physically integrated into the BWM. Energetics slurry volume will be kept to a minimum and will not be allowed to accumulate within the system. **Figure Attachment D-1-3** depicts the BWM.

Note: If a leaking round is detected during WPMD operation, munitions feeding into the ECR from the UPA will be stopped. Munitions already present in the ECR will continue to be processed. The contents of the Energetics Neutralization Reactor receiving the potentially chemical-agent-contaminated energetics will be tested for chemical agent destruction prior to discharge to the Energetics Hydrolysate Holding Tank. The WPMD machine and other equipment inside the ECR will be decontaminated with 18 weight percent (wt.%) sodium hydroxide (NaOH) prior to restarting the munitions processing line. The caustic decontamination solution will be collected in a sump and pumped to the Spent Decon Holding Tanks. Spent decontamination solution will be processed in the Agent Hydrolysers, and fed to the BioTreatment System following the normal chemical agent hydrolysate path. The Agent Hydrolysers and BioTreatment System are discussed further in Sections 2.2.9 and 2.2.18, respectively. The Energetics Neutralization Room (ENR) and Energetics Hydrolysate Holding Tank are discussed further in Section 2.2.6.

Fuzes, booster cups, and other miscellaneous energetic parts removed by the WPMD machine will be sent to the ERD (010-ERD-101/102), which will deactivate the energetic component in a nitrogen atmosphere.

The BWM will receive burster tubes from the WPMD. It will wash the solid energetics from the burster tube using a high pressure water spray.

The munition bodies will be transferred to the WMDM. The WMDM is discussed further in Section 2.2.7.

2.2.4 **Energetics Rotary Deactivator** (010-ERD-101/2); Drawing AAC-50-F-010

The two ERD machines—one in each of the two ECRs within the MDB—will receive parts removed by the WPMD machine. The ERD will be a horizontal cylindrical heater 2 feet 6 inches in diameter by 6 feet 0 inches long. A feed conveyor will carry the parts to the top of the ERD at the inlet end. The parts will be fed through an airlock, dropping into the ERD. These parts will be de-energized in the ERD via electric induction heating to approximately 650°F. The process will be performed under an inert (N_2) atmosphere to prevent thermal formation of nitrogen oxides (NO_x) and nitrous oxide (N_2O). After treatment, the de-energized parts leaving the ERD will be sent to the Metal Parts Treater (MPT) Room of the MDB for 5X decontamination in the BMPT (076-MPT-101). During the 155mm projectile campaign, the ERD will act as materials handling equipment to transfer the lifting lugs to the Energetics Parts Containers. The induction heating coils will not be activated. The BMPT is discussed in further detail in Section 2.2.11. Each ERD vents to the MPT Quench Tower, which is discussed in further detail in Section 2.2.12.

Within the ECRs will be the WHEAT Projectile Mortar Disassembly (WPMD) machine, the Energetic Rotary Deactivator (ERD), the Burster Washout Machine (BWM), the Energetics Shredder, and the Energetics Slurry Tank. These items are discussed in the subsequent paragraphs. The ECRs will be reinforced concrete enclosures designed to totally contain the effects of an accidental explosion.

2.2.3 **WHEAT Projectile/Mortar Disassembly Machine** (010-WPMD-101/2); Drawing AAC-50-F-010

The unpacked munitions first will be fed to one of two WPMD machines, each located in one of the ECRs. **Figure Attachment D-1-2** depicts a WPMD machine. The WPMD machine will remove all the explosive components from all calibers of munitions. The WPMD machine will be an eight-position, rotating-table machine with five main stations remotely controlled by a programmable logic controller (PLC). The main components of the WPMD machine will include the following:

- In-feed transfer station
- Nose closure removal station
- Miscellaneous parts removal station
- Burster removal station
- Discharge/output station.

The WPMD machines will perform four basic functions:

- Remove nose plugs or nose fuzes from projectiles. Fuzes with booster cups will be removed and punched to expose the explosive.

- Remove fuze cups, miscellaneous parts, and/or supplementary charges from projectiles.

- Remove burster tubes from projectiles.

- Feed bursters to the BWM for energetics removal.

If any of the functions cannot be completed, the round will be rejected and returned to the ECR vestibule. Burster tubes filled with solid energetics will be removed and sent to the BWM by conveyor.

and fed onto the process lines in the UPA. The lot number and quantity of munitions received (unloaded from the MAV) will be recorded on either DD-Form 1348-1, "Single Line Item Release/Receipt Document," or DA Form 4408, "Ammunition Transfer Record." Once the process line is ready (has been initialized) to receive munitions and the munition receipt paperwork has been completed, demilitarization operations will start.

Maintenance panels will be located at the processing equipment to allow maintenance personnel to operate the equipment locally. A hand-held pendant control until will be attached to the local panel to allow the maintenance personnel to operate the equipment. When the switch on the local panel is in the LOCAL position, control from the central process controller will be locked out, except for emergency stops. When the switch is in the REMOTE position, the system can only be controlled from the central process controller/Control Room.

A hardwire backup system will be used to handle critical functions in extraordinary situations. In monitoring critical functions, the control system will issue advance warning of alarms indicating that an alarm condition is developing so that an operator may take corrective action.

2.2 Munitions Processing

Munitions of each caliber will be processed in individual campaigns due to equipment tooling requirements.

2.2.1 Unpack Area

Pallets of munitions are stored in igloos at the PCD. They will be transported to the PCAPP by MAVs during daylight hours. Munitions will be off loaded at the MSB, a temporary storage area within the PCAPP. The MSB will hold a maximum of 24 hours worth of munitions processing.

The palletized munitions will be transported via MAVs from the MSB to the loading/unloading area of the Munitions Demilitarization Building (MDB). The munitions will be off loaded with forklifts and moved into the vestibule area of the MDB. Inventory check and inspection will be performed prior to moving them into the UPA. If a leaking munition is discovered, it will be isolated and overpacked. The overpacked round will be transferred to the Toxic Maintenance Area (TMA) for further treatment.

After confirmation of correct lot number and quantity, the munitions will be moved to the UPA. The UPA will be sized to provide a maximum of 4 hours staging capability.

2.2.2 Munitions Reconfiguration: Propellant and Primer Removal (010-DIPR-101); Drawing AAC-01-A-005

The majority of the munitions have been reconfigured, which means that their propellant and primers were already removed. Approximately 16 percent of munitions that have not been reconfigured (all of the 4.2-inch cartridges and 28,375 of the 105mm cartridges) will be moved to the Propellant Reconfiguration Room (PRR), adjacent to the UPA in the MDB. The PRR will consist of three Glove Box Tube Opening/Agent Sniff Stations, four Propellant Removal/Tail Disassembly Workstations, and two Munition Unload Stations. All of the work will be performed manually except for removal of flash tubes from the 105mm cartridges, which will be removed using the Ignition Cartridge Removal Machine (010-DIPR-101). This machine will be located in one of the Propellant Removal/Tail Disassembly Workstations. Before the munition is removed from its fiberglass container, it will be monitored and checked to ensure that it is leak free. This monitoring function will be performed inside one of the Glovebox Tube Opening/Agent Sniff Stations. If a leaking round is found, it will be isolated and overpacked. The overpacked round will be transferred to the TMA for further treatment. The munitions will be unpacked by cutting the steel strapping, removing the fiberglass tubes containing the projectiles/mortars from their wooden boxes, and loading the fiberglass container onto a transfer cart. The propellant and ignition cartridges are removed. A cabinet will be provided in the Propellant Staging Room for holding ignition cartridges and primer containers. Propellant and ignition cartridge containers will be placed on a pallet and sent for storage in an empty munitions storage igloo at the PCD for later processing during the propellant campaign. After reconfiguration, munitions will be moved back to the UPA.

The munitions will be placed on conveyers by the UPA operator to be moved to the Explosive Containment Rooms (ECRs) in the MDB.

All steel strapping will be collected in waste collection boxes for later treatment in the Batch Metal Parts Treater (BMPT). The BMPT is discussed further in Section 2.2.11. Chemical-agent-contaminated pallets and boxes will be placed in dunnage containers and moved to the Continuous Steam Treater (CST) Room in the MDB. The CST is discussed further in Section 2.2.14.

interlock occurs, the system will allow completion of a process step but will not allow a new function to be initiated.

Once programmed and started, the system will operate automatically without intervention of an operator, unless an abnormal condition arises. Sequencing of operations will be controlled automatically based on munition feed into the system from the Unpack Area (UPA) and completion of operations by the demilitarization machines.

The presence of a munition at locations throughout the process will be displayed on the automated graphic displays. In addition, the number of munitions into and out of processing areas will be totaled and the total displayed on the automated graphic displays. Cross-checks will be made to determine discrepancies in these counts. The total number of munitions processed will be determined and recorded.

Each programmed step will be monitored continuously for completion. If the system fails to complete a required step within a specified period of time, the system will halt that step and halt all process steps "upstream" of that function. The halt will continue until a continuation signal is given either by the operator or by the system upon eventual completion of the function that caused the halt. When a halt occurs, the operator will be informed in the Control Room. The operator will have three choices: (1) to initiate the function again through the keyboard and, if successful, continue the process; (2) to visually inspect by means of the closed-circuit television or by observing the machine itself to determine whether the function actually occurred and, if it actually occurred, continue operation by an entry into the keyboard; or (3) to halt further processing by entering a halt command through the keyboard.

A Process Data Acquisition and Recording System will be provided for acquiring operational data for analysis and historical recordkeeping. Data concerning measurements, sequence of operations, total munitions processed, process alarms, environmental data, chemical agent levels and alarms, and equipment run times will be acquired for generation of daily, weekly, and monthly reports. Reports generated and printed will include production totals, alarm shutdown summaries, Automatic Continuous Air Monitoring System alarms, preventive maintenance, filter operations, environmental reports, utilities status, and sequential events. In addition, selected data on alarms and operations will be collected on electronic media for historical data.

Following initialization of the process line equipment (proper valve line-up and interlock verification), munitions will be delivered from the Munitions Storage Building (MSB), then munitions will be unloaded from the Modified Ammunition Van (MAV), reconfigured in the Propellant Removal Room, if required, Each chemical agent/munition combination represents a processing run referred to as a campaign. Campaigns will be run serially, beginning January 2007. The design peak throughput rates will be as follows:

- 155mm projectiles 60 per hour
- 105mm cartridges 120 per hour
- 4.2-inch cartridges 120 per hour.

2.0 DESTRUCTION SYSTEMS AND DEMILITARIZATION OPERATIONS

The ACWA WHEAT process uses hydrolysis/neutralization, followed by biodegradation, to destroy the chemical agent and energetics contained within the weapons. This section provides an overview of demilitarization operations (decontamination of metal parts and dunnage), as well as an overview of chemical agent destruction operations. **Figure Attachment D-1-1**[1] depicts a block flow diagram of the ACWA WHEAT processing system.

Munitions destined for demilitarization, as designated by the Department of the Army, will be removed from the PCD's Chemical Surety Materiel Exclusion Area at a rate compatible with the operating schedule of the PCAPP. The movement of munitions within the PCD's Chemical Surety Materiel Exclusion Area will be observed by guards, and emergency response vehicles will be available on site.

The following description presents the overall flow of the demilitarization process for projectiles and mortars.

2.1 Automatic Control System

The processing steps, which are specific to projectiles and mortars, will be fully automated and computer driven.

Interlocks will be checked before starting and will be monitored continuously during munition processing by the program in the control system. Should any interlock fail, appropriate action will be taken, such as immediate shutdown, programmed shutdown, or operator-assisted shutdown. Two types of interlocks will be used. If a shutdown interlock occurs, the system will take immediate action. If a permissive

[1] All figures are located at the end of this section.

ATTACHMENT D-1
PROCESS DESCRIPTION

The objective of the Chemical Stockpile Disposal Program is to demilitarize the entire United States' stockpile of unitary chemical agents and munitions in a safe and environmentally acceptable manner. Although the United States ended its chemical weapons program in 1969, inventories of chemical-agent-filled weapons still are stockpiled at eight locations within the continental United States. One of these locations is the Pueblo Chemical Depot (PCD), located in Pueblo, Colorado.

The method proposed to destroy the chemical weapons stockpile is called the Assembled Chemical Weapons Assessment (ACWA) Water Hydrolysis of Energetics and Agent Technologies (WHEAT) process. The Pueblo Chemical Agent Pilot Plant (PCAPP), to be located within the PCD, is being designed and constructed to remove the chemical agent from mortars and projectiles; destroy the chemical agent and explosives; and decontaminate emptied munition bodies.

This attachment provides a general overview of the demilitarization process planned for the PCAPP and the associated support systems and facilities. Section 1.0 provides a description of munitions to be processed at the PCAPP. Section 2.0 describes the operations and process of the PCAPP. Section 3.0 gives an overview of the ventilation system; Section 4.0 gives an overview of the filtration system; Section 5.0 gives an overview of the Cooling Water System; Section 6.0 gives an overview of the Process Water System; Section 7.0 gives an overview of the Steam System; and Section 8.0 gives an overview of Bulk Chemical Storage.

1.0 CHEMICAL WEAPONS

The Army has initial plans to destroy the following stockpiled munitions located at the PCD:

- M60 (105mm) cartridges containing chemical agent
- M110/M104 (155mm) projectiles containing chemical agent
- M2/M2A1 (4.2-inch) cartridges containing chemical agent.

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ATTACHMENT D-1
PROCESS DESCRIPTION

Conclusion

- Safety and environmental protection are paramount
- Mustard stockpile destroyed as much as 4 years earlier than originally scheduled
- Destruction process will use neutralization rather than incineration
- Complies with context of all safety and environmental regulations

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Preparatory Activities and Public Outreach Strategy

D-Date	Activity
D-41	Meet with OR Environmental Office to Begin Preparation of Consent Agreement
D-34	Press Release, Information for Members of Congress (IMC) and Draft Cable Submitted for Interagency Approval
D-20	Cable Sent to The Hague
D-18	Technical Secretariat of the Organization for the Prohibition of Chemical Weapons (OPCW) Briefed
D-17	OR Congressional Delegation Briefed and IMC Issued
D-16	Workforce/CAC/CSEPP WIPT Briefed and Press Release Issued
D-15	Press Release Printed and Public Service Announcements Begin Running
D-08	Public Meeting Held
D-07	Consent Agreement & Record of Environmental Consideration (REC) Signed
D	FY02 Supplemental Funding Received
D+01	Issue Contract for PSN-OR Facility

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Oregon Environmental Regulatory Support

Proposed Environmental Compliance Strategy

– Working Integrated Product Team (WIPT) to develop Record of Environmental Consideration and Phased Consent Agreement:

- Phase 1: Construction of Proposed Facility
- Phase 2: Operations and Closure

– Army requests expedited hydrolysate delisting

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NRC Assessment of Accelerated Destruction

- **Briefed National Research Council (NRC) working group on Monday, 26 November 2001**

- **Letter report issued on 21 December 2001, supporting Army's proposed concept for expediting destruction of bulk mustard stockpile at Aberdeen Proving Ground**

- **Day-long site visit and facility tour by NRC working group, 27 February 2002 - complete satisfaction with program expressed**

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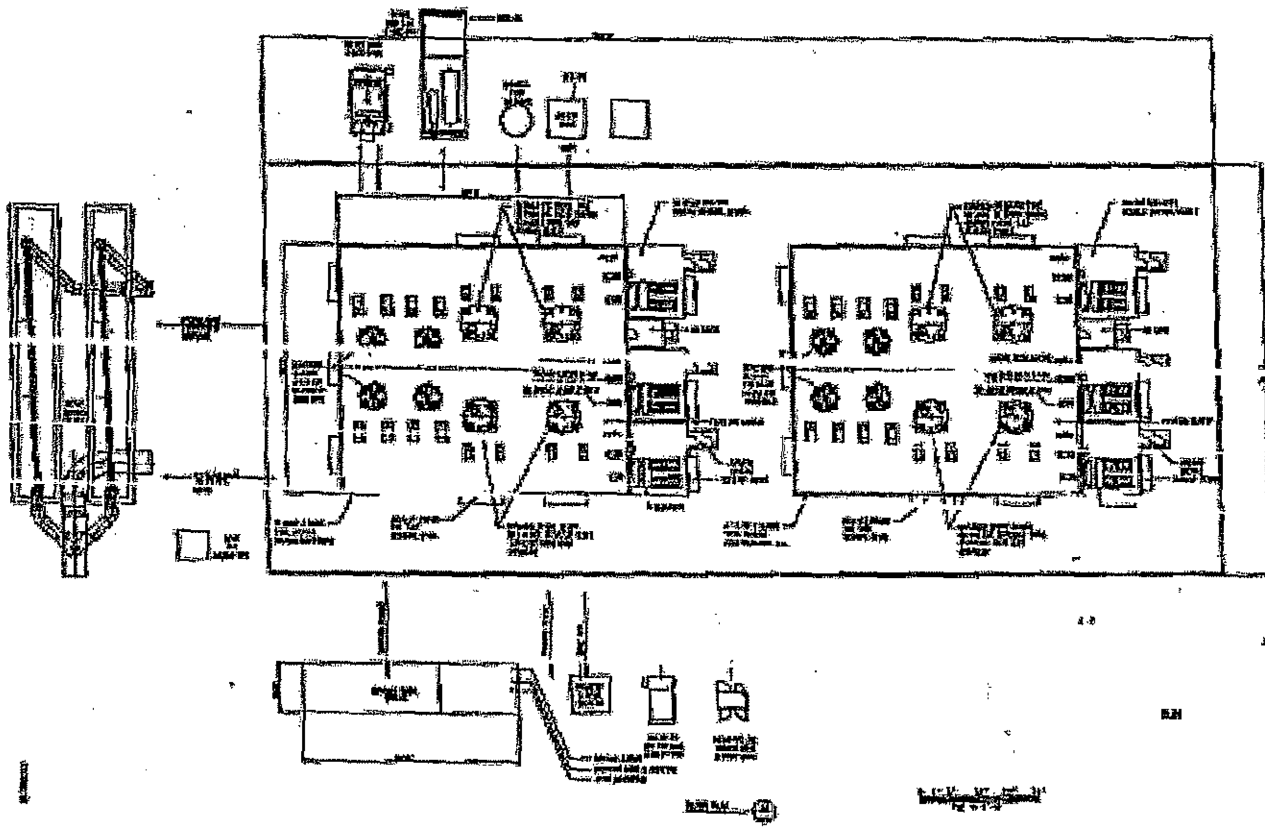
PSN-OR Neutralization Facility Conceptual Design



Ton Containers	2,635
Gallons of Agent	403,155
Reactors	8
Drain Stations	6
Days of Operations	122
Gallons of Hydrolysate	7,284,189

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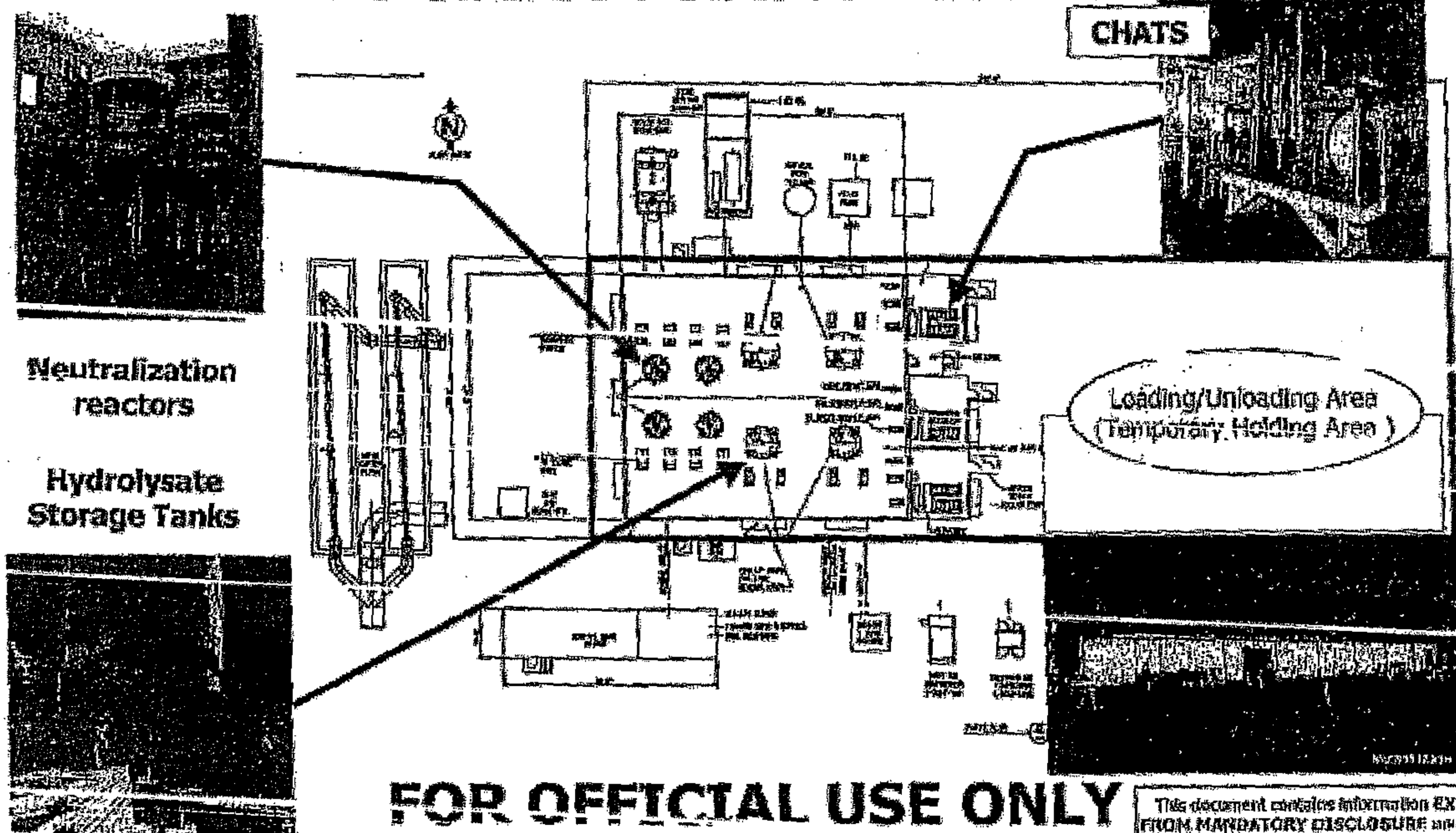
PSN-MD Destruction Facility Conceptual Design



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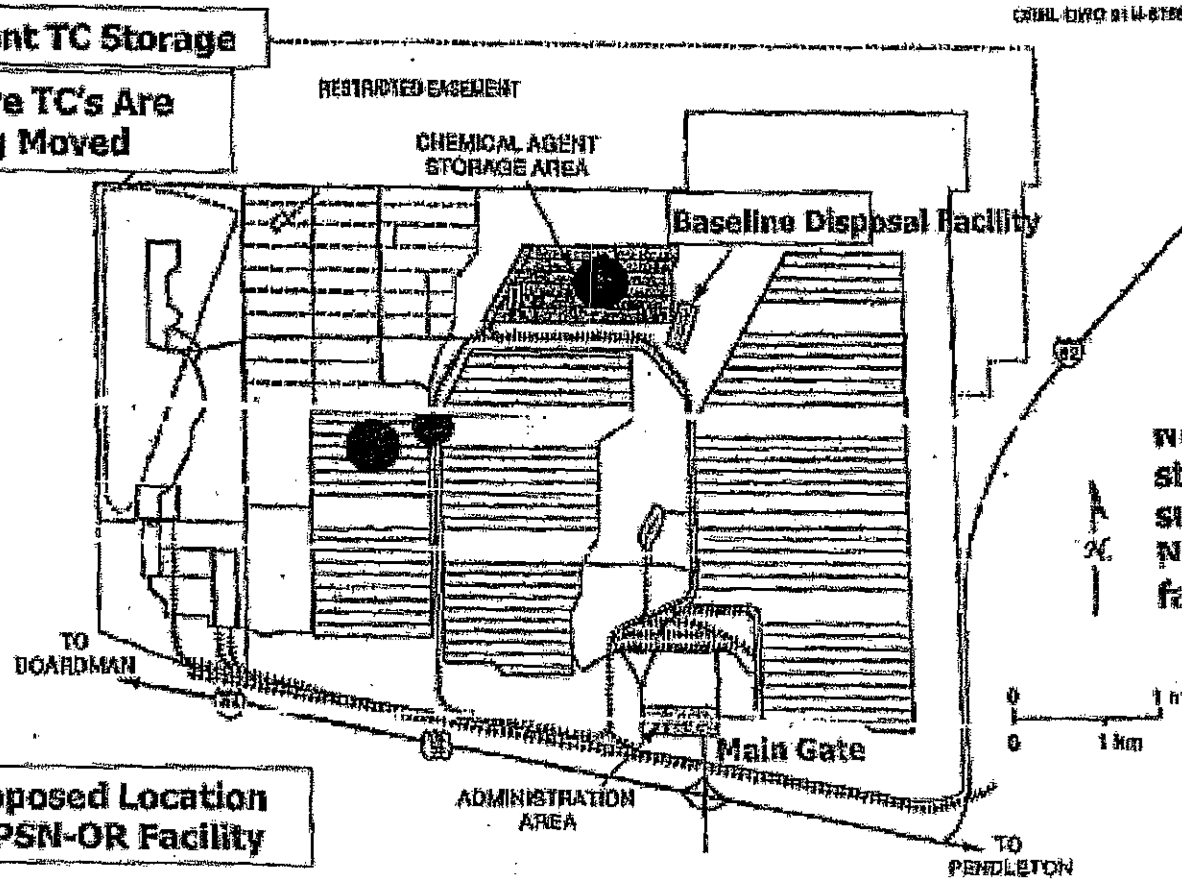
PSN-OR
Proposed Location

Current TC Storage

Where TC's Are Being Moved



Note: no existing structure is suitable for Speedy Neut destruction facility

Proposed Location of PSN-OR Facility

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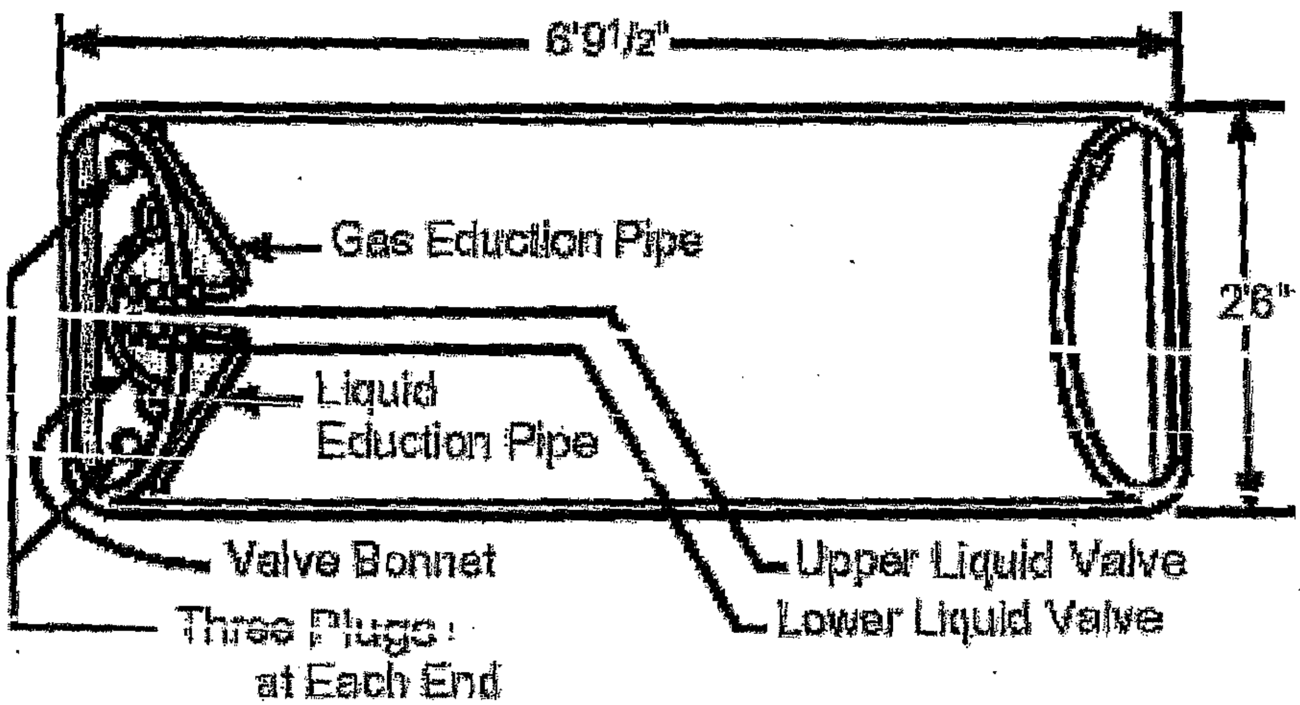
Ton Container Diagram



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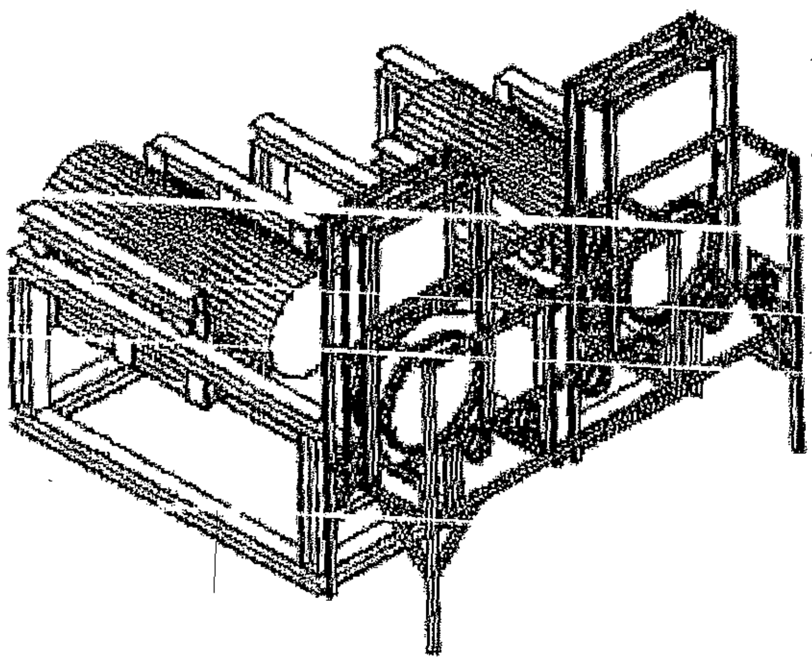
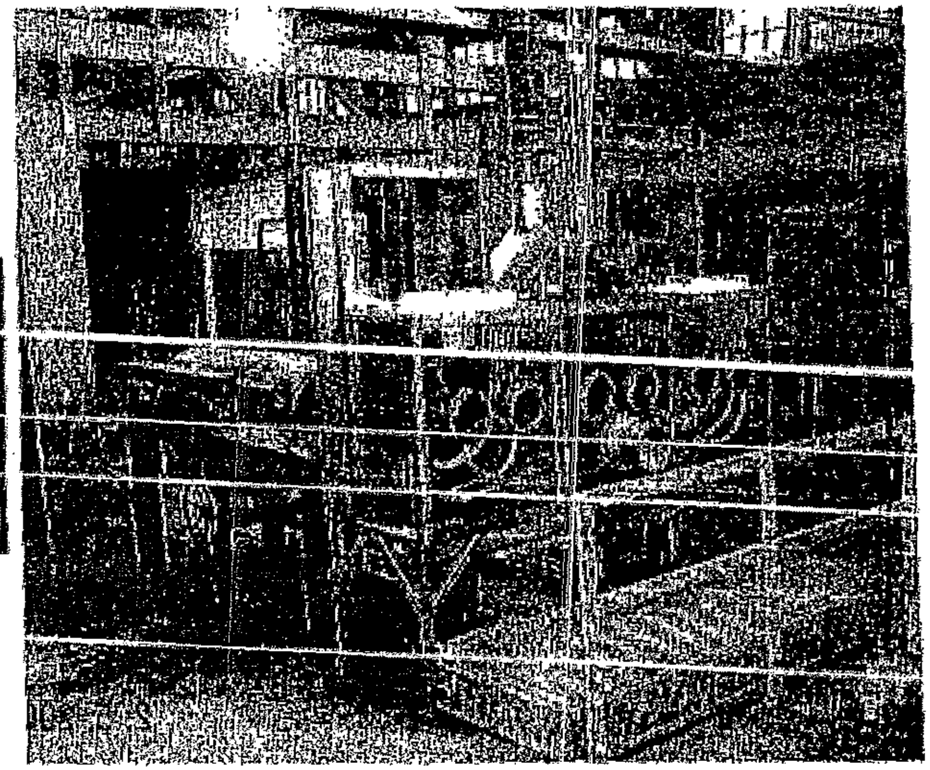
Chemical Agent Transfer System (CHATS)





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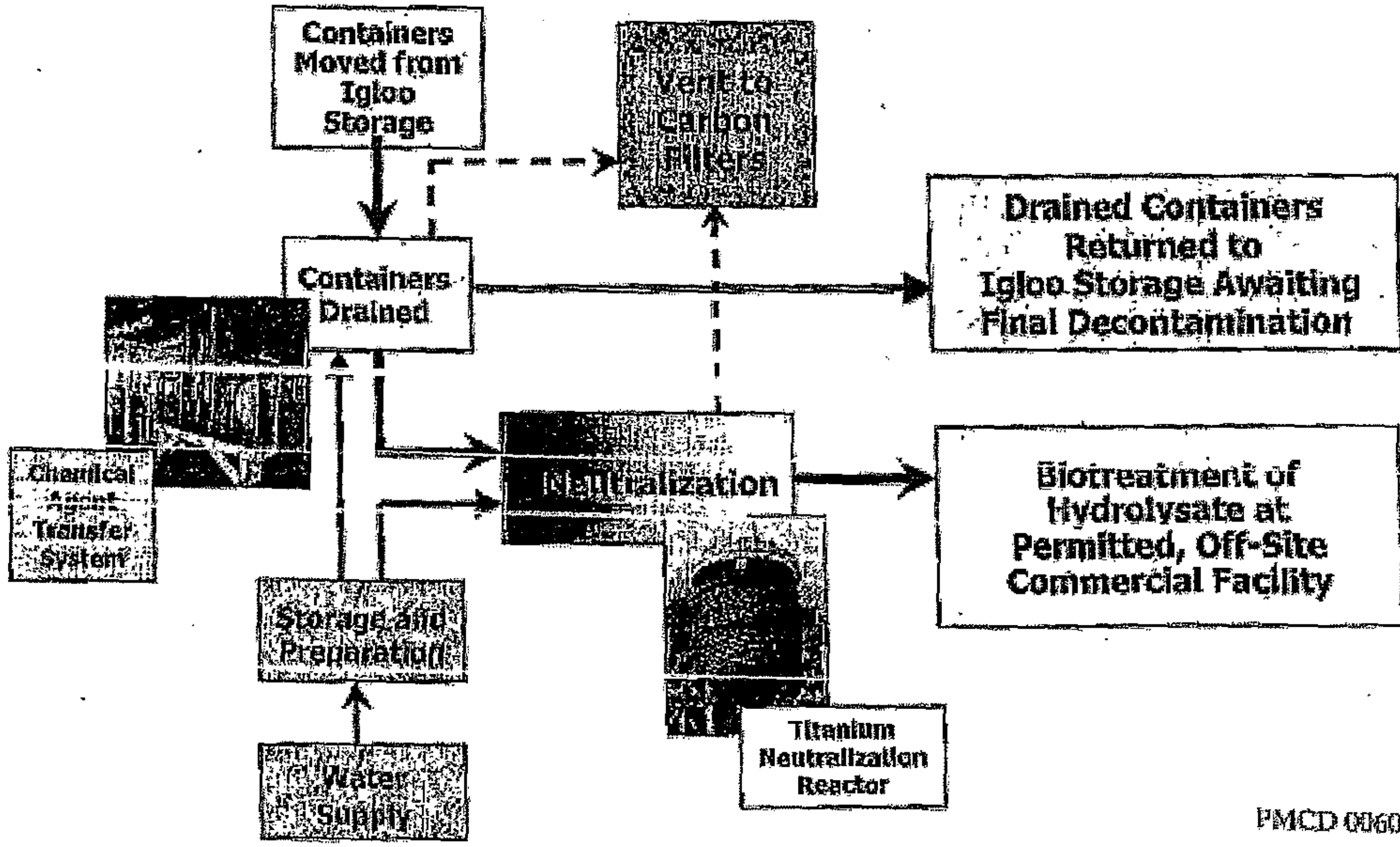
Neutralization Process



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Accelerated Destruction Operations Concept

- **Non-destructive draining of ton container**
  - Agent drained manually from ton container using Chemical Agent Transfer System (CHATS)
  - Ton container "triple-rinsed" & returned to storage
- **Destruction of chemical agent by on-site neutralization**
- **Hydrolysate disposal through off-site commercial post treatment**
- **Ton container disposal:**
  - Drained & rinsed Ton Containers processed through the Pine Bluff Chemical Agent Disposal Facility (PBCDF) Metal Parts Furnace

PMCD 006028

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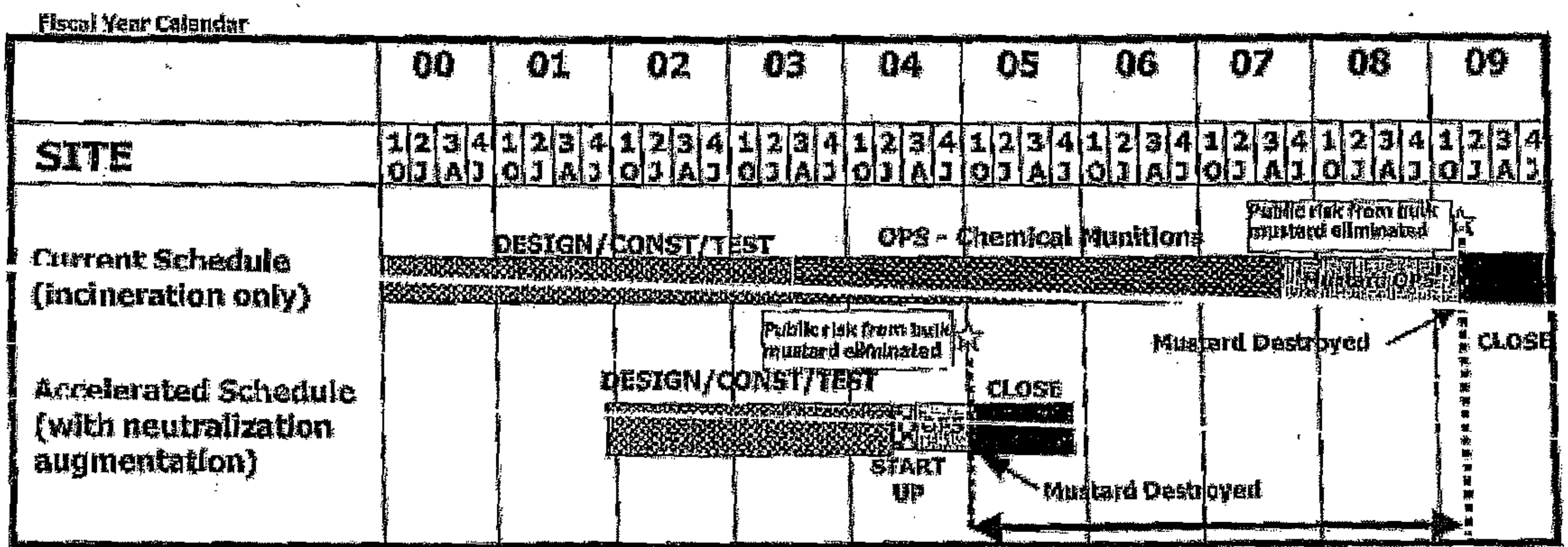
PSN-OR
Schedule Comparison



Basis: Obtaining Supplemental Funding 1 Oct 2002

4 Year+ Acceleration in Bulk Mustard Destruction

PMCD 006027

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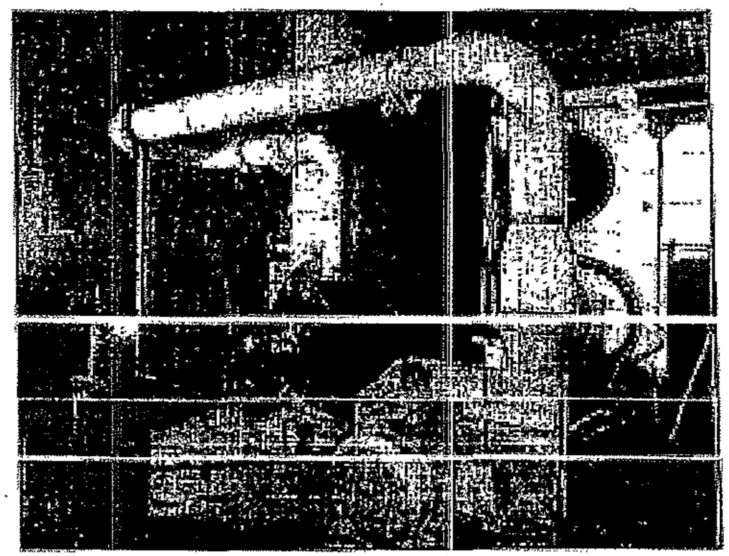
The Challenge

- **Bulk Mustard, chemical warfare blistering agent, known as "HD"**
- **2,340 Tons/2,635 steel containers**
- **Current Disposal Plan: Incineration**
- **Incineration Facility Status (as of February 2002):**
  - **Design/Engineering/ Construction - complete**
  - **Systemization - in progress**
  - **Testing - mid 2002**
  - **Mustard agent disposal operations scheduled to begin June 2006 and end May 2008**



Liquid Agent Incinerator

PMCD 006026

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Bottom Line

- Safety and environmental protection are paramount
- Mustard stockpile destroyed as much as 4 years earlier than originally scheduled
- Destruction process will use neutralization rather than incineration
- Complies with context of all safety and environmental regulations

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Purpose

- **Describe the plan for accelerating destruction of the mustard agent (HD) stored at Umatilla Chemical Depot**
- **Describe proposed regulatory path forward**
- **Describe proposed plan to inform the public**

Goal: To obtain understanding and support for proposed plan

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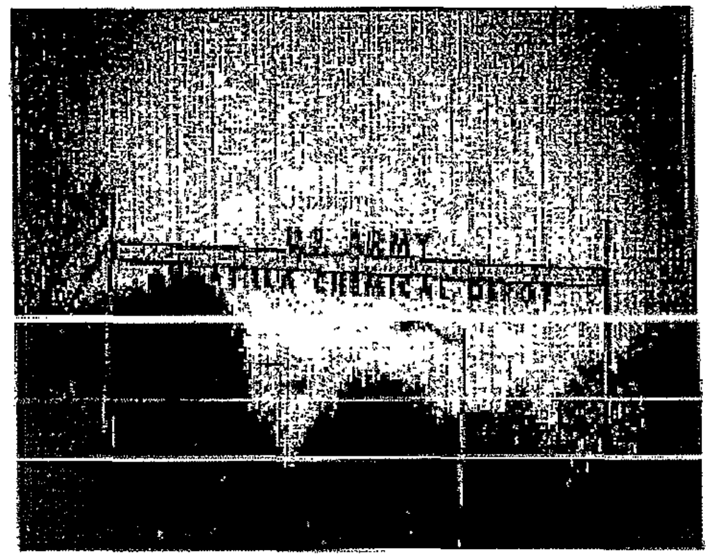
Project Speedy Neut - Oregon

Briefing for:
John Kitzhaber
Governor, State of Oregon



28 March 2002

Presented by:
Mr. Kevin J. Flamm
Project Manager
Alternative Technologies and Approaches
E-mail: Kevin.Flamm@us.army.mil
(410) 436-1438 (voice)
(410) 436-3767 (facsimile)

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4. In the PFS BAT Staff report, the DEQ states: "Basically, the EQC's order, based on Department recommendation (Reference 17), identified inclusion of the PFS in the UMCDF incineration process to be the best available technology without making a new, formal best available technology determination." Report at 8. How was the public notified that the EQC was going to determine the PFS filter system as BAT? Please provide evidence indicating proper notice and opportunity to comment on this important issue.

5. How many times has the bypass around the PFS been used during UMCDF operations? What were the types and quantities of emissions during those events?

6. In the PFS BAT Staff report, the DEQ mentions the concern about the release of cadmium during the M55 rocket incineration campaigns. How much cadmium was captured during the burning of the M55 rockets? How much was released? How much PCB was captured during the M55 campaigns? How much was released? What data supports your response?

7. If a fire occurs in the PFS carbon filter beds during the final days of the incineration of mercury-contaminated HD ton containers, how much mercury is likely to be emitted into the environment? What quantities of other contaminates will likely be released? Has such a scenario been considered in DEQ's BAT analysis?

8. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

9. We are requesting an extension of the comment period and point out that the EQC should not be making a determination that the PFS with sulfur-impregnated carbon is BAT for HD with high mercury until such time that Tooele completes construction of its PFS and demonstrates that it will work.

22. In addition to the May14th incident, how many other significant incidents have occurred during the testing and operation of UMCDF? Are these incidents described and analyzed in writing and will they be provided to the EQC?

23. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

24. In light of the success of the neutralization of the HD ton container stockpile in Aberdeen, Maryland, will DEQ and EQC reconsider the BAT determination for HD ton containers that are purported to not contain high levels of mercury? If not, why not?

25. What can concerned citizens due to insure that the DEQ and EQC reconsider BAT for HD ton containers that are purported to not contain high levels of mercury? Please be specific.

BAT FOR PFS CARBON FILTERS

1. Has DEQ performed a mass balance analysis (*i.e.*, measuring the total amount of a chemical of concern going in and measuring what amount is captured in the filter system) to determine how efficiently the PFS carbon filters are capturing agent and other hazardous wastes? If so, please provide the data. If not, why not?

2. Before allowing the incineration of HD from the ton containers will DEQ require tests to determine through testing with actual waste from a mercury-contaminated HD ton container whether mercury is captured at a sufficiently high rate in the sulfur-impregnated carbon filters? If not, why not?

3. Has the metals removal efficiency (MRE) noted in the staff report for trial burn conditions been tested or verified during actual operating conditions at UMCDF? If not, why not?

14. Do you know what specific neutralization approach (there are several) was studied in determining the $117 million cost for the small-scale neutralization system? Do you know if there are proven systems that would be less costly?

15. Do you know why it is that TOCDF's sulfur-impregnated carbon system to capture mercury is projected to cost $57 million and Umatilla' is project to cost $47 million? What information or references support your response?

16. Is it not true that a modified sulfur-impregnated carbon filtration system targets one specific heavy metal at the cost of reducing the capture capability of other heavy metals and toxics? What data does DEQ have regarding this issue?

17. What studies have been done to determine the ramifications of such a trade-off on public health and the environment?

18. Are you aware that there are proven treatment options for neutralized mustard secondary waste (hydrolysate) that would meet the LDR requirements?

19. The Court has noted "Petitioners were also able to adduce evidence that neutralization technologies have by now demonstrated their practical utility to the extent that the Army has used or plans to use neutralization technologies to destroy agent at Aberdeen, Blue Grass and Pueblo chemical weapons sites, and that the Army estimates a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration." *G.A.S.P., et al v. EQC, et al.*, Case No. 0009 09349 (Opinion & Order July 26, 2004) at 27.

Question: Has the DEQ taken into account the fact that (as the Army has admitted) there will be a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration?

20. Is it true that on May 14. 2008, an incident occurred that resulted in serious damage to and the shut down of the: liquid incinerator at UMCDF? What happened? How has DEQ investigated this incident? Has DEQ been on-site and witnessed the damage? Are there pictures or video of the damage? Will pictures and video of the damage be released to the public?

21. How has the May 14th incident been factored into DEQ's BAT analysis? Can you point out where it is referenced in any of DEQ written reports or other information released to the public?

8. It is a fact each mustard ton container will have a different heel to liquid ratio and contain different chemical/heavy metals compositions. Do you honestly believe that a trial burn using a specific ton container or a few specific ton containers with different heel amounts and different chemical/heavy metal compositions can be relied upon to accurately predict emissions for all mustard ton containers? If so, please explain your justification.

9. Are you aware that TOCDF spokesperson Alaine Grieser was quoted in the Deseret News on March 31, 2008 as saying, "Technicians conducting tests on the stockpile have found no patterns to help explain why some of the weapons and bulk containers are tainted with mercury and others are not."? Would you not agree, based on that statement, that it is ludicrous to rely on TOCDF results to determine Umatilla's mercury-contaminated mustard tons?

10. Does it not follow, that to get an accurate determination of the percentage of mercury contamination in each ton container at Umatilla, each ton container must be analyzed as is being done at TOCDF? Wouldn't such an analysis be costly and time-consuming and then it wouldn't even give you an accurate analysis of the mercury in the heels anyway, would it? Have those cost and schedule estimates been determined?

11. Are you aware that if Umatilla's mustard tons were to be neutralized, such an analysis would be unnecessary and it would be assured that no mercury would be released into the environment?

12. Why is the term "higher than expected levels of mercury" applied to the U.S. stockpile of mustard when the 2000 Operations Schedule Task Force Final Report noted (p. 27) that an SAIC study "MACT Rule: Impact Assessment and Programmatic Compliance Strategy, 10/09/00" indicated two areas of potential concern from a compliance perspective: semi-volatile metals and mercury. The Task Force Report then goes on to say "...several data points exist which indicate that higher mercury feeds should be anticipated, at least for some lots or sublots of munitions or containers." And then recommends "[G[iven the potential ramifications, this issue needs to be more intensively managed so that future sites (ANCDF, UMCDF and PBCDF) are prepared to address this issue in a consistent manner."

13. The report also noted the heel problems with the potential for through put rate ramifications that could be significant and recommended a more comprehensive understanding of the condition of the mustard ton containers. It even raised the possibility of an alternative process. Have you read this report?

Comments for DEQ hearing in Hermiston 24 July 08

The following comments and questions are submitted on behalf of G.A.S.P., Oregon Wildlife Federation (OWF), Government Accountability Project (GAP), Sierra Club, Karyn Jones, Debbie McCoy Burns, Susan Lee Jones, Robert Palzer, Jan Lohman, and Judy Brown.

BAT FOR DESTRUCTION OF MERCURY CONTAMINATED HD TON CONTAINERS

1. Will the BAT determination be based on pollutants discharged into the environment and their potential effects on human health and the environment as required by law?

2. If the answer to that question is yes, then why are we here? It is a universally known fact that neutralization releases orders of magnitude less pollutants into the environment than incineration releases. In light of the significant difference in emissions, how does DEQ justify utilizing incineration for HD ton containers contaminated with mercury?

3. Isn't it true that incinerators have a direct pathway to the environment and when incinerating mustard, toxics will be chronically discharged into the environment and that during upset/mechanical breakdown conditions even more toxics and agent will be released through this direct pathway?

4. Are you aware that the neutralization of Aberdeen's stockpile of Mustard tons was successfully completed without mercury releases into the environment?

5. Has a comparison been done between TOCDF operations (incineration) and Aberdeen operations (neutralization) at full rate processing of Mustard tons? If so, what were the results?

6. Are you aware of a 2002 White Paper presented to Oregon's Governor, which showed that, based on official regulatory documents, the average daily water usage for incineration is 260,000 gallons compared to 27,000 gallons per day water usage for neutralization?

7. Are you aware that there are a number of scientists who have determined that the amount of mercury in a gelled mustard heel can not be accurately predicted based on measuring the mercury found to be present in the liquid mustard? How will DEQ account for the amounts of mercury contained in the heels in the ton containers?

benefits as residents of Maryland, Indiana, Colorado, and Kentucky. There is no reason why Oregonians and Washingtonians should be subjected to many tons of hazardous wastes released from the stacks at UMCDF.

The DEQ's analysis generally asserts that non-incineration alternatives (neutralization and controlled-detonation) will take too long to construct and operate. However, no data is cited in support of this proposition and certainly no data independent of the Army is referenced that would support DEQ's position. Further, DEQ fails to discuss the Army's 2002 "Speedy Neut" approach which was proposed for UCD. Under this approach the Army argued that the entire mustard stockpile could be destroyed as much as four years earlier than would be the case using incineration. See, Army's Project Speedy Neut briefing document for then Governor Kitzhaber (Exhibit 2).

Moreover, the DEQ's analysis fails to discuss in any detail another proven alternative to incineration. The Davinch™ system is a controlled detonation system. The Davinch controlled detonation system process reportedly destroys chemical agent, such as HD, in a chamber with the energy of 10 GPa and 3,000 degrees K temperature and can achieve the high destruction efficiency more than 99.9999%. This system uses "cold plasma" to process the off-gas products of detonation which can also destroy agent if there were any residual amounts after detonation. The cold plasma is used as an oxidizer is to destroy the CO and H2 which are the product gases of the detonation chamber. This controlled detonation process is reportedly being successfully used for the destruction of chemical warfare agents in Japan and Belgium.

IV. CONCLUSION

In light of the referenced deficiencies, G.A.S.P. urges the DEQ and EQC to more fully analyze the alternatives to incineration and consider them fully before making a decision on the BAT to destroy mercury-contaminated mustard agent as well as the entire mustard agent stockpile at the Umatilla Chemical Depot.[6]

Respectfully submitted,

/s/ Richard E. Condit

Richard E. Condit
Counsel for G.A.S.P., *et al.*
richardc@whistleblower.org

[6] G.A.S.P. raised numerous questions/issues with DEQ that have not been addressed. These issues should be formally addressed by the EQC. See, Exhibit 5.

the subsistence farm child, resident child, as well as Native American adults and children.

Finally, the combination of the failure to complete a sufficiently protective risk assessment and the admitted cancer and non-cancer impacts of the incineration technology make clear that a BAT determination that favors baseline incineration is not supported by the record.

III. FLAWED ALTERNATIVES ASSESSMENT

The DEQ's alternatives assessment is also fatally deficient. In particular, the DEQ fails to compare the obvious and significant difference in quantity of the uncontrolled emissions of agent and hazardous chemicals from neutralization, controlled-detonation and incineration facilities. This is a significant omission because incineration produces far greater emissions[3] that will impact human health and the environment. This flaw is a rather obvious effort to artificially minimize the risks of incineration in order to continue to support that technology.

Neutralization has now been successfully used by the Army in Newport, Indiana[4] and Aberdeen, Maryland. Neutralization followed by a protective secondary process has been fully studied by the Army and has been utilized at Aberdeen and has been selected by the Army for the stockpiles in Kentucky and Colorado.[5]

At Aberdeen the Army began neutralization activities in April 2003. See, Exhibit 3 – Army Press Release. Just four years later, the Army not only completed neutralization of the mustard ton containers at Aberdeen, but it completed closure of the facility.

"Today marks a significant achievement in the global chemical weapons disarmament effort. ABCDF is the first chemical weapons disposal facility in the continental U.S. to destroy its stockpile and decontaminate and demolish its plant," said Dale Ormond, Army Chemical Materials Agency acting director. "It is a model for all the other facilities that will follow suit."

See, Exhibit 4 - Army News Report. There is no legitimate reason why Oregon and Washington State residents should not have the same environmental and public health

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[3] The Air Contaminant Discharge Report reflects that UMCDF incinerators will emit tons of hazardous wastes.

[4] While the neutralization of the agent at Newport was successful, the secondary treatment which relied upon incineration at a facility in Texas was not adequately protective of human health and the environment and would not meet Oregon environmental standards.

[5] For example, see, 1999 ACWA Supplemental report to Congress available at http://www.pmacwa.army.mil/ip/archive/publication/rtc/1999_supplemental_rtc.pdf

See, also, ACWA Neut Bio description, April 2002 (Exhibit 1).

Fifth, one of the additional problems with the PTBRA is the treatment of a large number of chemicals that were not specifically identified, termed the Total Organic Emissions or TOE. The work plan for the PTBRA calls for taking the total mass of these emissions, the TOE, and adjusting upwards the emissions of specific "surrogate" compounds to insert the TOE compounds into the emissions profiles. When this procedure is done, the emissions result in risks that exceed the regulatory benchmarks. Unfortunately, the risk assessment does not uniformly include the TOE in any fashion in all the risk estimates. The TOE must be included and if the surrogate method is not used, then an alternative one must be employed, but these emissions must be included in order for the assessment of risk to account for unidentified chemical emissions.

Sixth, the risk estimates for workers and wildlife on the site, labeled on-site receptors, are the highest risks for short term and long term exposure conditions, as expected. This result indicates that the land occupied by the UCD site will not be usable or habitable for many decades, if ever, due to the releases of a variety of compounds that either do not break down at all (metals) or breakdown so slowly as to be almost non-degradable (dioxins). The agent HD (sulfur mustard) is persistent and may remain active for years, depending on how it is released (NRC, 1999).

Seventh, a number of chemicals released from UMCDF cause permanent damage – they exert effects on physiological systems that do not compensate or recover from damage. Neurotoxicants (lead, mercury, PCB's) frequently cause permanent damage, especially to the fetus, neonate or young child. In addition, the effects are cumulative on the target organ, and such cumulative effects are particularly true for the neurological system. These effects are only give cursory consideration in the PTBRA via adding the hazard indices for the individual chemicals. The risk assessment does not consider that the effects of lead, mercury, and related chemicals on the developing brain will be permanent – *i.e.*, the child with elevated lead exposures will always have neurological effects, for the rest of their life.

Even with these shortcomings, the PTBRA indicates that the risks to human health and the environment will be exceeded. The Executive Summary acknowledges that cancer and non-cancer risks exceed the risk-based thresholds established for protection of human health. The hazard indices for ecological receptors exceeded the standards for environmental protection. These standards, 1 in 100,000 excess cancers and a non-cancer hazard ratio greater than 0.25, are the risk benchmarks that are used to protect the public and the environment. The first risk benchmark 1/100,000 is set by Oregon regulation and the latter, 0.25 hazard index (HI), is standard for use in hazardous waste risk assessments. The HI is set at 0.25 in order to account for uncertainty and exposures from sources in addition to the one under investigation.

Specifically, the PTBRA documents unacceptable levels of total excess lifetime cancer risks for certain populations, including off-site subsistence farmers and their children and Native American adults. Unacceptable non-cancer health risks are documented for

II. RISK ASSESSMENT DEFICIENCIES AND CONFIRMED HAZARDS[2]

The DEQ's BAT assessments did not utilize reliable and adequately protective calculations in assessing the risks to human health and wildlife associated with incineration of the mustard agent. For example, the analysis provided in the PTBRA clearly indicates that the UMCDF assessment has many deficiencies that likely underestimate or fail to estimate the risks to human health, wildlife and the environment.

First, the PTBRA does not deal with mixtures, has no evaluation of increased sensitivity of groups such as children, and provides no estimate of risks for people with elevated background risks. The problem with only estimating "incremental risks" is that people or animals already exposed to environmental pollutants or stresses often have a lower threshold for response. Thus, for already exposed individuals, a given exposure will cause a greater effect because their system has already compensated for existing stress conditions. The PTBRA does not consider the fact that local residents are already exposed to radiation from the Hanford facility, from pesticides or from emissions form the nearby coal-fired power plant. All these sources of chemicals add to the exposure burden that the population in the vicinity of UMCDF faces and to the resulting disease burden.

Second, the PTBRA fails to deal with combinations of exposures (multiple exposures) to all the chemicals at once. The risk assessment limits such evaluations to adding up the HI's for individual chemicals. Chemicals have interactions that are not perfectly captured by making the simple assumption that all effects are additive.

Third, the other group of conditions that were not considered in the PTBRA are those that the population faces as a result of the location and other activities. These factors all contribute to the cumulative risk in the local community. This cumulative risk includes exposure to the Hanford facility emissions, exposure to agricultural chemicals and exposure to already elevated dioxins and furans. All of these exposures create a long term cumulative risk that is greater than "average" for the U.S. population. These elevated exposures are not considered in the risk assessment.

Fourth, the risk assessment does not address operating conditions that would be described as upsets or non-normal events, such as occurred in May 2008 when the LIC operated improperly. Such upsets or accidents release chemicals that can be included in a risk assessment as an exposure in addition to the normal operations. Such additional exposures from upsets and accidents should be included because these events happen, as demonstrated in the operating record of the facility. Without adding these operating upsets as another exposure, the risk assessment will underestimate risk even more.

[2] Much of the analysis in this section was provided by Peter deFur, Ph.D.

G.A.P GOVERNMENT•ACCOUNTABILITY•PROJECT

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Website: www.whistleblower.org

Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program
256 E. Hurlburt Avenue
Hermiston, OR 97838

RE: Comments regarding UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers[1]

Dear Mr. Duval:

These comments are submitted on behalf of G.A.S.P., Oregon Wildlife Federation (OWF), Government Accountability Project (GAP), Sierra Club, Karyn Jones, Debbie McCoy Burns, Susan Lee Jones, Robert Palzer, Jan Lohman, and Judy Brown (collectively referred to for convenience as G.A.S.P.). In short, G.A.S.P. strongly disagrees with the DEQ's suggestion that baseline incineration and the proposed modified carbon filtration system (CFS) would be the best available technology (BAT) for the destruction of either mercury-contaminated mustard ton containers or any of the mustard ton containers. The bases for G.A.S.P.'s objections are stated in the passages that follow.

I. DATA PROBLEMS

The DEQ has not tested or required thorough testing of the ton containers to determine the actual number that have "high" levels or mercury or the actual number that have high levels of solid heels. In addition, no testing has been done of the heels in the ton containers to determine whether the heels contain high levels of mercury. Processing containers of uncharacterized or improperly characterized wastes would violate federal and state law.

No is evidence or independent documentation is offered to prove that the sulfur-impregnated carbon (SIC) filters will perform as described in real world conditions and during upsets and malfunctions. No analysis was done to determine the impact on human health and the environment from a filter fire.

[1] G.A.S.P., *et al.* agree with many of the comments offered by Morrow County and incorporate them in these comments by reference.

08-0869

RAY Shilo

From: Richard Condit [richardc@whistleblower.org]
Sent: Monday, August 11, 2008 4:59 PM
To: Duval.Richard@deq.state.or.us
Cc: Karyn Jones; RAY Shilo
Subject: GASP comments
Importance: High

Attached are GASP's comments and exhibits. Please contact me if you have any questions.

Richard Condit

Senior Counsel

GAP

1612 K Street, NW, Suite 1100

Washington, D.C. 20006-2819

Tel. 202.457.0034 x. 142

08-0868

RAY Shilo

From: Allison Cornett Cook [acornett@eotnet.net]

Sent: Wednesday, August 06, 2008 9:56 PM

To: CDP

Subject: Public Comment

Dear Richard Duval,

I would like to comment in favor of "best available technology" determinations for the Pollution Abatement System Carbon Filter System and for incineration of mustard ton containers at the Umatilla Chemical Agent Disposal Facility at Hermiston, Ore.

None of the alternatives outlined in the Department of Environmental Quality staff report appear to be ready to replace incineration as the preferred technology for mustard agent disposal. Continuing to study the use of sulphur-impregnated carbon filters to capture mercury is the best path forward at this point. Should it not prove to be effective, we can explore other options at that point.

As a former Hermiston resident who has family living near the Umatilla Chemical Depot, it is of utmost importance to me that we move this project forward to a conclusion as quickly and safely as possible.

Sincerely,

Allison R. Cook
Olympia, Wash.

08-0861

RAY Shilo

From: Russ dorran [rdorran@hermiston.or.us]
Sent: Saturday, August 02, 2008 10:54 AM
To: CDP
Subject: UMCDF Best available Technology determination

8/2/08

Richard C. Duval, Administrator
Chemical Demilitarization Program

Dear Richard ;

Please be advised that I support the UMCDF proposal for administrating the pollution abatement system carbon filter system and mustard- filled ton containers as the best disposal program.

Russell Dorran
960 S. W. 7th St.
Hermiston, OR 97838

Based on the Department's memorandum, while a modification to the existing incineration process might be considered for both the contaminated and non-contaminated mustard agent, and the cost seemingly reasonable (but still quite expensive) – the filters with the sulfur-impregnated carbon, are nonetheless problematic. Although of a different nature, in the past the Army found itself with a similar problem at their Newport, Indiana Facility in its disposal of the hydrolysate derived from an alternative technology process used to treat the chemical agent at that location. As also indicated in the Department's memorandum, other concerns are still evident with the Brine Reduction Area (BRA).

Consideration of "Neutralization," while once under considered for the UMCDF, carries with it local-area concerns for the amount of water that would be necessary to accommodate such processing and the concomitant waste, complex permitting considerations, and its extraordinary costs. Given the permitting considerations, generation of additional wastes, delays to processing and program costs, "neutralization" is not a logical path to follow.

The final method to be considered in the Department's memorandum, the "DAVINCH™ process," appears to have considerable merit as a demonstrated technology; although, not currently identified as a BAT, with consideration for mercury-contaminated mustard agent. In its favor is the enclosed treatment system, thus providing complete and assured containment of the mercury contaminant. Given that opportunities for technology transfer have been an important consideration of the Army's demil process, the portability of the DAVINCH™ process system would seem to fit well into the paradigm, as the system could find later use at the Army's remaining demil sites. This would not only be useful for processing of similarly contaminated munitions, but also for munitions that might somehow prove problematic for other abnormalities (leaker/overpacks, resistant to reverse assembly, etc.).

Given what the National Institutes of Health (NIH) now acknowledges as the risks of even low-level of exposures to mercury, it is reasonable and prudent that we should take all measures necessary (possible) actions to reduce or eliminate possible exposure to mercury in the environment for protection of public health. With that in mind, the reasonable and prudent course for the Department to take would seem to be to have the Army and it contractor to move toward a thorough and rapid investigation of the DAVINCH™ process system for application at the UMCDF. With the endorsement of the National Research Council (NRC) as a demonstrated technology in other countries and the Army's own non-stockpile program, the benefits for technology transfer to the remaining Continental U.S. (CONUS) demil sites would seem to be many. Also, utilization of this technology, in conjunction with existing incineration for non-contaminated mustard agent, would seem to allow for an increase in the rate of processing of mustard agent munitions, given that the two processes could be used simultaneously – thus, providing an even greater level of assurance that the Army might meet its Treaty date for destruction of all chemical weapons.

Thank you for consideration of my comments.

Sincerely,

David P. Trott (Dave), Mayor
City of Umatilla, Oregon.

08-0860

RAY Shilo

From: David P. Trott [dptrott92@hotmail.com]

Sent: Tuesday, August 05, 2008 4:05 PM

To: CDP

Cc: Larry Clucas; Meyers, Steve F.; Chris Brown

Subject: PUBLIC COMMENT : UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Containers;" Hazardous Waste Permit Number ORQ 000 009 431

Importance: High

05 August 2008

To: Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program
256 E. Hurlburt Avenue
Hermiston, OR 97838
Phone: (541) 567-8297 or
(800) 452-4011 (toll-free in Oregon)
Fax: (541) 567-4741
E-mail: cdp@deq.state.or.us

From: David P. Trott, Mayor
City of Umatilla
PO Box 130
Umatilla, OR 97882
Dptrott92@hotmail.com

Cc: Larry Clucas, City Manager
City of Umatilla

Re: "Public Notice : Request for Comments, UMCDF Best Available Technology Determinations: Pollution Abatement System Carbon Filter System and Mustard-Filled Containers;" Hazardous Waste Permit Number ORQ 000 009 431"

Dear Mr. Duval:

First, it is important to recognize the achievement of the Umatilla Chemical Agent Disposal Facility (UMCDF), which is almost four (4) years of safe operation in its the mission to destroy the munitions stockpile containing chemical nerve agent at the Umatilla Chemical Depot. Clearly, the Army and Washington Group International (now division of URS/EG&G), have been both protective of human health (the public) and the environment, and of the stockpile and demilitarization workers. The destructive process for the chemical weapons (incineration) has proven to be both safe and effective to date.

As the Army and its contractor move forward toward the International Treaty date for destruction of the chemical weapons, the information contained in the memorandum documenting the department's (DEQ's) analysis of best available technology as it pertains to treatment of high mercury mustard ton containers at the UMCD/UMCDF, does give reason to pause in consideration of other technologies that either have been considered and used at other demilitarization sites, and to technology not previously available for consideration at the time when the original Hazardous Waste Permit was first considered and subsequently approved. In view of the mercury contaminant, and what is presently known about the human health hazards of mercury, a more cautious approach to the final destruction of the mercury-contaminated mustard agent appears to be a very reasonable and prudent course of inquiry.

RAY Shilo

08-0859

From: Tim Mabry [tmabry@creditsinc.com]
Sent: Tuesday, August 05, 2008 5:29 PM
To: CDP
Subject: UMCDF BAT Determination

To Whom It May Concern:

As a "red zone resident" I cannot too strongly urge you to let the incineration process continue to completion.

I appreciate your diligence but the prudent course is to keep going.

Tim Mabry
78891 Doherty Rd.
Hermiston, OR 97838

Page 40, Paragraph 2, Text Stating: "*...the disposal of PAS brines may strain the ability of TSDFs in the region to manage such wastes...*"

Comment: The site is proposing to generate wastes that far exceed the regions capacity. The solution is to ship the material to other regions. The HD brine shipment transportation risk assessment must be updated to include this option.

Requested Action: The HD brine off-site shipment risk assessment must be updated with the new projections for destination of brine shipments.

Requested Action: The Army cannot rely on these uncertain values to determine Hg levels at the UMCDF. TC sampling at the UMCD fir both liquids and solids must be completed to better estimate the quantity of solids and Hg (and other co-contaminants) in the UMCD HD TC stockpile. Once an accurate value is determined this EA can be revised to reflect the actual levels of Hg to be processed.

Page 32, Paragraph 3, Text Stating: "*…If a 99% mercury removal efficiency is assumed…*"

Comment: See comments above on the removal efficiency and full-scale design.

Requested Action: The Army must prove the removal efficiency in pilot-scale testing with actual HD incineration before they can definitively claim a projected removal efficiency.

Page 33, Section 3.1.4: General comment.

Comment: The claims of meeting emission limits are premature as the Army does not know their feed composition nor the actual performance of the PFS filters with SIC under real processing conditions.

Requested Action: Re-do this analysis once proper processing and feed data has been collected.

Page 33, Paragraph 2, Text Stating: "*…shows the UMCDF's mercury emission limits in the RCRA Permit…*"

Comment: Based emissions for the LIC projected on Page 33 of the EA (12 lb over 1.5 years), the LIC will be in violation of the current RCRA permit limit of 3.1E-05 (g/s).

Requested Action: Install the SIC PFS on both LICs for HD processing.

Page 36, Paragraph 3, Text Stating: "*…the average concentration of mercury in those liquid brines would be 4.3 mg/kg…*"

Comment: The HD brine off-site shipment risk assessment only evaluated Hg at 0.0522 mg/kg. The risk of shipping HD brines with these higher concentrations has not been evaluated. This comment also applies to EA Section 3.2.3

Requested Action: The HD brine off-site shipment risk assessment must be updated with the new projections for the concentrations of Hg, As, and any other co-contaminant identified in TC sampling efforts.

3. Of the 99 lots stored at the UMCD, only 32 are in common with the DCD. This means that TCs from 67 lots stored at the UMCD have never been sampled. The Army is making the assumption that these lots are statistically similar to adjacent lots. This assumption is untested and unproven and so adds additional uncertainty to the mercury estimate.
4. No indication is given by the Army on the heterogeneity of the composition of the solids within a given TC. It appears from the 2004 sampling report that a single solids sample was pulled from each TC and they are making the assumption that this single sample represents the chemical composition of all the solids in the TC. Given the uncertain history of the formation of the heel, and its heterogeneous appearance, it is unlikely that the heel has a uniform chemical composition. For example, what if Hg were introduced from processing instruments in a free phase (See DEQ Item number 07-1100) and this material settled as free mercury in the bottom of the TC and slowly dissolved with time. If soils were forming at the same time, it is possible to envision Hg hot spots in the TC heel as the solid settled around the free phase mercury. The assumption of homogeneous solids composition adds uncertainty to the mercury estimate.
5. The Army has assumed that TCs with liquid levels of mercury below the PQL also have negligible amounts of Hg in the solids. Assuming a PQL of 0.55[10] ppm, and applying a linear regression for the high Hg data that showed liquid Hg between 1 and 4 ppm, this reviewer has estimated that there is an additional 230 lbs of Hg contained the "low-Hg, high-heel" TCs. The assumption of no Hg in containers with low liquid concentrations, but high-heels, adds uncertainty to the mercury estimate.

In conclusion, the army has generated this estimate from uncertain volumes of solids with uncertain concentrations in an uncertain number of TC. These three unknowns are then multiplied together to get the result. The total uncertainty of the result can be estimated by the following equation[11]:

$$Q = (\Delta TC)(C)(W) + (\Delta C)(TC)(W) + (\Delta W)(TC)(C)$$

Where Q represents the error in the estimated total mass of Hg in the ton containers at the UMCD, TC represents the estimate number of ton containers with high mercury (430), C represents the average Hg concentration in the solids (0.00244 lb/lb_{solids}), W represents the average weight of the solids in the ton containers (318 lb_{solids}). The delta (Δ) quantities represent the estimated error in each parameter. Assuming an error of just 10% in each parameter results in an overall error of 100 lbs Hg. Note this analysis ignores the error introduced by item 5 in the above list which already has introduced an error of 69% (230 lbs more than the estimated 335 lb Hg in TC solids) in the Hg estimate.

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[10] There is some inconsistency in the PQL level in Army's reports on this issue. The value may be as low as 0.24 ppm for Hg in liquids. The value of 0.55 ppm was selected to be consistent with CMA projections found in "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*"
[11] H.S. Mickley, T.K. Sheerwood, and C.E. Reed, 1957. Applied Mathematics in Chemical Engineering, McGraw Hill, New York, New York, pg 53.

should evaluate these additional mercury, arsenic, and any other co-contaminants in light of current mercury levels in the Columbia and Umatilla River basins and in conjunction with other emission sources in the area.

Requested Action: Please reevaluate the Human health and ecological risks of the proposed action as outlined in several place within these comments.

Page 30, Paragraph 4, Text Stating: "*This quantity of mercury therefore establishes the threshold at which any additional mercury introduced into the environment around the UMCDF would warrant further, detailed evaluation. The threshold value of 33.5 pounds is used in the following bounding analysis.*"

Comment: This analysis is based on the fact that this new addition of 33.5 pounds of mercury (and an unspecified quantity of arsenic and other compounds) is acceptable to the surrounds populations. It is not acceptable to the CTUIR who are currently dealing with mercury contamination in their Treaty reserved fish resources.

Requested Action: The Army must work with the CTUIR to apply the ALARA[9] principal to the processing strategy for incineration of mustard filled TC.

Page 32, Paragraph 2, Text Stating: "*By using the observed average value for the mercury in the TC sampled at DCD, the total quantity of mercury in the inventory of mustard agent at the UMCD has been estimated to be about 350 pounds.*"

Comment: The CTUIR has serious doubts about the accuracy of this estimate for the following reasons:

1. The estimate of the total quantity of solids in the TCs was developed based on depth sampling by inserting a stick into the TCs. The army is assuming they have accurately characterized the volume of the solids using this method. However, this method will not be very accurate given the irregular shape of the heels. The inaccuracy of the method has been verified by observation at TOCDF (Personal communication with UMCDF environmental staff). The assumption of a well defined volume adds uncertainty to the mercury estimate.
2. The average solids concentration has been estimated from samples taken from 98 out of the over 13,000 TC produced at the RMA. The Army is assuming these 98 TC accurately represent all TC in the stockpile. It is highly unlikely that this is a representative data set for the full population of the TCs since it does not even span all lots that are the most likely to contain high mercury (Lots 91 through 297, DEQ Item Number 07-1100). This assumption adds additional uncertainty to the mercury estimate.

[9] As Low As Reasonably Achievable.

Requested Action: The CTUIR does not agree that the desire to meet a schedule is a valid reason to increase the environmental contamination our homeland. The Army's HD TCs have been in existence for more than 60 years, and have been at Umatilla for 40 years. An additional one to five years in their destruction is small in comparison to the many generations that will bear the continual burden of mercury contamination in our lands. This EA should focus on evaluating alternatives based on the long-term environmental impacts of the alternatives.

Page 26, Section 3, Section Titled: HUMAN HEALTH AND ECOLOGICAL RESOURCES

Comment: This section is based on the 1997 HHRA which does not adequately represent UMCDF operations. The evaluation in this section should be redone using the 2008 CTUIR HHRA and ERA as its basis. In addition, this analysis should re-evaluate both the human health and ecological risks using the estimated new emissions for the common stack and BRA stack while the other modeling parameters are kept consistent with the values used by the CTUIR in their 2008 report. Finally, an evaluation should be completed that takes into account the cumulative impacts of mercury on the Umatilla River and Columbia River watersheds. This cumulative assessment must include background mercury levels along with other major mercury emission sources[8].

Requested Action: Please reevaluate the Human health and ecological risks as outlined above.

Page 30, Paragraph 4, Text Stating: "*This quantity of mercury therefore establishes the threshold at which any additional mercury introduced into the environment around the UMCDF would warrant further, detailed evaluation. The threshold value of 33.5 pounds is used in the following bounding analysis.*"
Comment: As stated previously, the 1997 HHRA was not site specific and is not the document that should be used as the basis for this analysis. The 2008 HHRA and ERA evaluation was based on a total mercury emission of 4.9E-06 g/s (sum of common stack and BRA stack). This emission rate is equal to a total mercury emission of 3.4 lb for the full projected 10 years of operation which is 10 times lower that the quantity quoted above. Applying this value to the analysis contained in this ERA would indicate that the proposed action will clearly surpass the levels shown safe by the risk assessment process. It should be remembered that the 2008 risk assessment predicted higher levels of risk at the UMCDF than the 1997 risk assessment because of differences in the modeled exposure patterns and because the 2008 analysis evaluate a larger suite of contaminants that have been measured at chemical demilitarization facilities. The combined effects of the full suite of emissions from the UMCDF, along with the new exposure scenarios and pathways established in the 2004 Risk Assessment Work Plan (RAWP) must be evaluated in this EA before any conclusions can be reached. In addition, the Army

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[8] For example, the PGE coal fired power plant near Boardman, OR which releases approximately 200 lb/year of mercury.

laboratory data show that significant desorption can occur. Give that feed conditions are variable for both the MPF and the LIC, it is not apparent to this reviewer that mercury adsorbed to the SIC under agent feeding conditions will remain on the SIC and not desorb and propagate through the furnace when only natural gas is being burned. Furthermore, the SIC has only been tested in laboratory scale tests. The tests to date used columns that are are approximately 1/4000th the scale of the PFS units[6] and were operated under very controlled conditions. Directly applying these results to the full-scale filters under the highly variable process conditions that occur at the UMCDF may not be appropriate. Standard engineering texts indicated that the maximum scale-up for packed columns is 100:1.[7]

Requested Action: The UMCDF should not serve as the pilot-plant for testing the SIC technology. The Army needs to evaluate this process in an approved pilot-test facility that is designed and instrumented properly and that can mimic actual operation of the MPF and LIC. Once true pilot testing has been completed the Army can re-evaluate this EA using a proven removal efficiency.

Page 15, Paragraph 4, Text Stating: "*Additional equipment would be installed at the BDS to break up and mobilize the solid heel in those TCs with a heel content greater than about 600 lbs.*"

Comment: The basis for this 600 lb cut-off is not clear to this reviewer. The current RCRA permit only allows heels of up to 85 lbs.

Requested Action: Please substantiate the proposed heel cut-off of 600 lbs.

Page 20, Table 2, Text Stating: "*Volumetric Flow at Exit Temperature (m^3/s) 14.70.*"

Comment: This flow rate seems high. The 2008 HHRA used a total common stack flow rate of 6.3 m^3/s. The RCRA permit material and energy balances show flow rates of approximately 3 m^3/s for both the MPF and LICs.

Requested Action: Please evaluate the validity of the flow rate.

Page 21, Section 2.3, Section Titled: ALTERNATIVES TO THE PROPOSED ACTION

Comment: The primary reason behind rejecting the actions in Sections 2.3.1. through 2.3.3 is the inability to meet a schedule requirement.

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[6] EERC, 2008. SAIC Mercury Control: Fixed-Bed Adsorption for Mercury Emission Control in the U.S. Army Chemical Demilitarization Incinerators, Phase 2B Draft Final Report, SAIC, Abingdon, MD.
[7] Peters, M.S. and K.D. Timmerhaus, 1991, Plant Design and Economics for Chemical Engineers, Fourth Edition, Mc Graw Hill, New York, New York.

Requested Action: Please reevaluate the indicated statement given that the TCs have higher than anticipated levels compounds other than mercury.

Page 13, Paragraph 5, Text Stating: *"Under the proposed action, SIC would only be installed in the PFSs for the MPF; the PFSs for the LICs are not expected to require SIC upgrades due to the plan to control the feed of mustard in the LICs so as to comply with applicable mercury emission limits and regulations."*

Comment: The Army should be concerned with both feed limits and emission limits. This reviewer has the impression that the site intends to increase feed levels to the point that emissions are near the permit limits[5]. This is an unacceptable approach to the CTUIR since the emitted mercury will reside in our environment and contaminate our resources and our peoples. The Army will leave in a few years, but the peoples of the CTUIR will remain and bare the burden of the contamination for generations. As such, the Tribe desires the Army to be a good neighbor and pursue a policy that drives down emissions to the lowest level reasonably achievable. In this instance an ALARA (As Low As Reasonably Achievable) approach would result in installing SIC filters for both the MPF and LIC.

Requested Action: Please use SIC filters for both the MPF and LICs to reduce mercury emissions to levels as much as possible.

Page 13, Paragraph 3, Section Title: Upgrades for the existing PFSs

Comment: This section only discusses upgrades necessary to remove mercury. Why has the Army neglected other hazardous constituents with elevated levels?

Requested Action: Please indicate what other system upgrades are needed to remove the other contaminants with elevated concentrations.

Page 14, Paragraph 1, Text Stating: *"The proposed SIC filter media is expected to remove at least 99% of the mercury from the exhaust gas stream."*

Comment: The analysis in this EA is based largely on the assumption of 99% removal. This removal efficiency has been demonstrated in laboratory experiments at the University of North Dakota Energy and Environmental Research Center. A review of the reports generated from this effort indicates that this research effort is both well planned and properly executed. The results, however, raises several outstanding questions associated with the stability of mercury removal. It is evident that acid gases have a large impact on the adsorption and desorption characteristics of SIC. Without these gases the

[5] Please note that this document states that feeds up to 32 ppm mercury are safe for the LICs. However, the current permit limits Hg feed to the LIC at an average of 0.78 ppm (calculated as [1.02E-03 lb-hg/hr]/[1305lb-HD/hr]).

<u>Page 10, Paragraph 6, Text Stating</u>: *"The preliminary findings of the in-progress HHRA indicate that there would be adverse human health impacts.... (USACHPPM, 2008)."*

<u>Comment</u>: The CTUIR is <u>strongly opposed</u> to the use of USACHPPM for any risk assessment work at the UMCDF. This organization was unreliable and unwilling to work collaboratively with the local community during the 2007-2008 risk assessment process. Their 2008 risk assessment report ignored the major risk driver (non-volatile TOE) and so presented erroneous conclusions.

<u>Requested Action</u>: Do not relay on USACHPPM to complete any risk assessment work associated with the UMCDF. This risk work should be based on the CTUIR/DEQ risk model and should involve the same collaborative team used to produce the 2008 HHRA and ERA.

<u>Page 13, Paragraph 2, Text Stating</u>: "*Baseline processing at the UMCDF is expected to be capable of destroying an estimated 60% of the TCs in storage at the UMCD (i.e. the TCs having both low-mercury and small solid heels).*"

<u>Comment</u>: Has the Army considered co-contaminants in the TC such as arsenic? Figure 6 indicates that there are many TC with heels less than 80 lbs that have low mercury, but high arsenic.

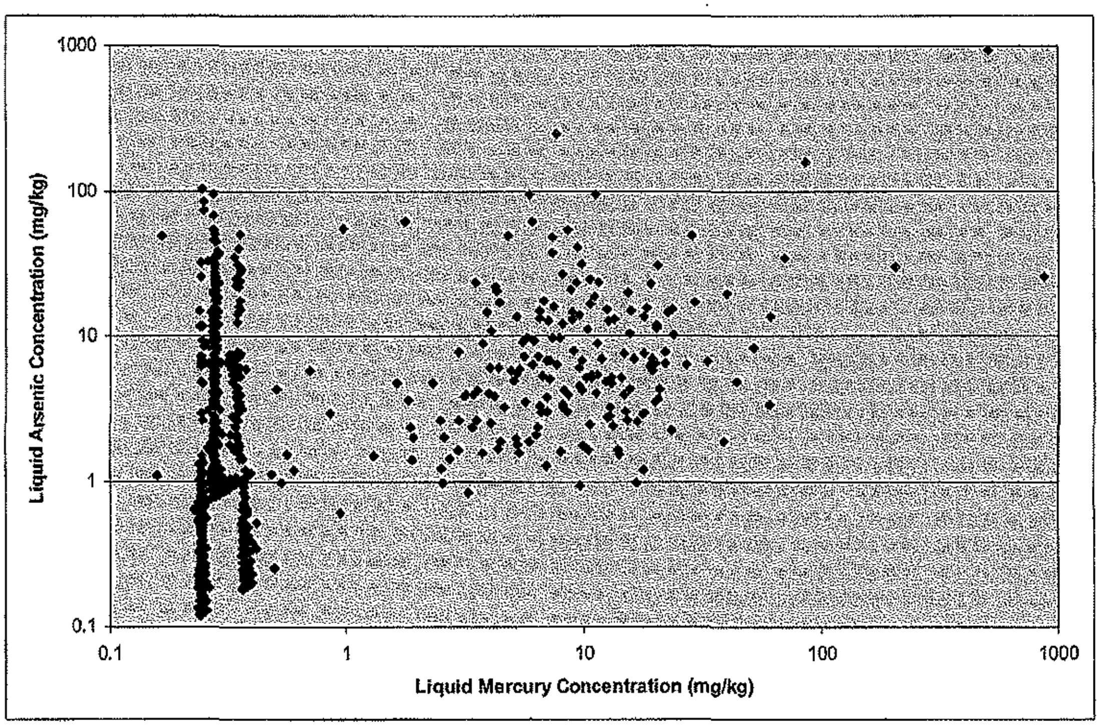

Figure 6: Liquid Arsenic concentration plotted against liquid mercury concentrations for individual TOCDF TCs with heels below an estimated 80 lbs (n=662).

Page 7, Paragraph 3, Text Stating: *"At this time, the TCs that appear suitable for baseline processing are those with little or no mercury contamination and with small heels (i.e...32 ppm mercury and 600 pounds of heel)."*

Comment: This statement is in conflict with the current RCRA permit which limits the heel to 85 lbs and the mercury concentration to 2.4 mg/kg (calculated as [2.06E-04lb-hg/TC]/[85lb-heel/TC]).

Requested Action: Please indicate why you are assuming these limits are suitable for processing when they far exceed the safe limit established in the RCRA permit.

Page 9, Paragraph 4, Text Stating: *"A human health risk assessment (HHRA) (Ecology and Environment 1997) was completed for the hypothetical atmospheric emissions..."*

Comment: The 1997 HHRA and Ecological Risk Assessment (ERA) were based on emissions estimates from the Johnston Atoll facility (JACADS) and did not include many site specific characteristics and exposure pathways. Both the HHRA and ERA have subsequently been updated to reflect measured emissions data at the UMCDF and site-specific exposure scenarios such as the Native American scenario. Results from the new risk assessments were very different from the 1997 evaluation and this EA should base evolutions on the 2008 HHRA and ERA. It is the opinion of the CTUIR that any risk assessment involving mercury emissions in our ceded lands, especially near the Columbia and Umatilla rivers, must include a cumulative analysis where background mercury levels are included along with other major emission sources (for example the PGE coal fired power plant near Boardman, Oregon which releases approximately 200 lb/year of mercury). At present, fish within the area already are showing elevated mercury levels (Columbia River Basin Fish Contaminant Survey [EPA-910-R-02-006], 1998).

Requested Action: Please use the 2008 CTUIR HHRA and ERA for the UMCDF as the basis for this EA. Also include a cumulative risk analysis for mercury that incorporates background mercury levels along with other major emission sources. Both central tendency and upper bounds of potential mercury emission must be evaluated. Also, the analysis must include an upset evaluation with the new projected levels of mercury and arsenic (and any other compounds which are anticipated to increase). Note that the CTUIR is opposed to the use of USACHPPM for this work since this organization was unreliable and unwilling to work collaboratively with the local community during the 2007-2008 risk assessment process.

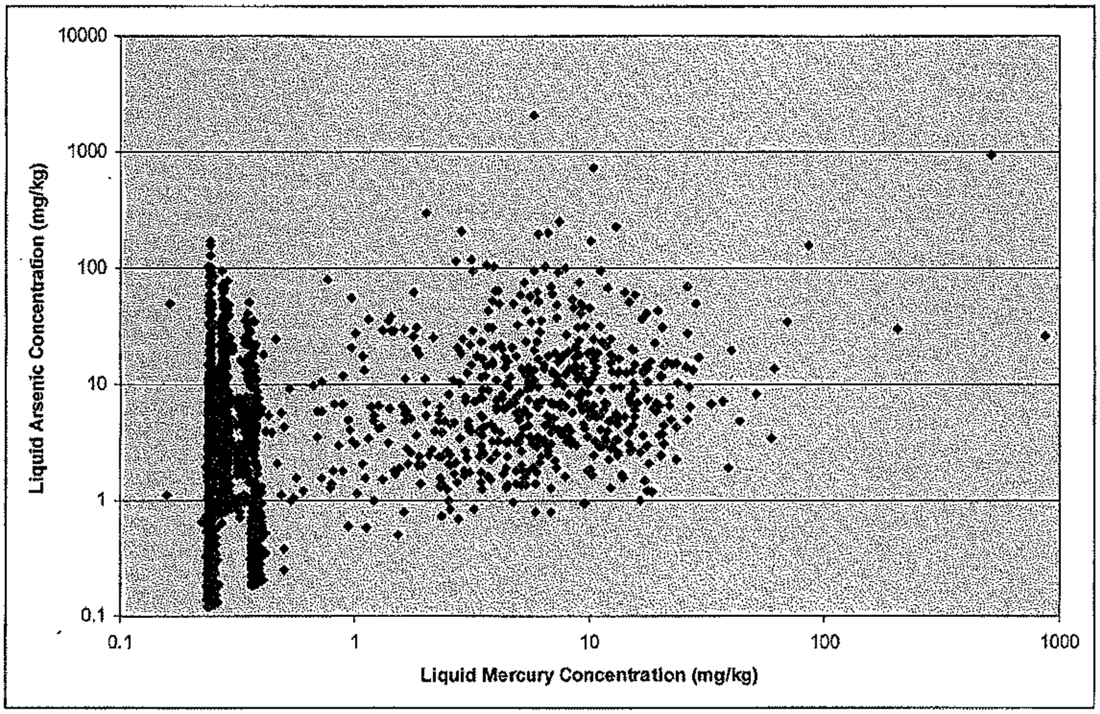

Figure 5: Liquid Arsenic concentration plotted against liquid mercury concentrations for individual TOCDF TCs.

Requested Action: Please identify ALL the compounds that will exceed current permit limits (feed or emissions limits) and include these in the Environmental Assessment.

Page 6, Last Bullet, Text Stating: "*Alternatives for management of liquid scrubber brines….would be shipped off site.*"

Comment: The UMCDF currently has requested a modification to the site RCRA permit to allow off-site shipment of HD brines. This request is backed by a report from the CTUIR showing that off-site HD brine shipments do not pose a large risk to the environment. This report, however, was based on evaluating the spill of a shipment of brine which had an estimated metals concentration equal to that measured in TOCDF when processing low-mercury HD. This analysis should be expanded to include the anticipated concentrations of mercury, arsenic, and any other compound that is anticipated to be in brines from the high mercury and high arsenic TCs.

Requested Action: Please revise the transportation risk assessment for HD brines to incorporate the anticipated brine composition for high mercury and/or high arsenic TCs. This analysis should be included in the EA.

Page 4, Paragraph 5, Text Stating: *"Based on the DCD data, a statistical model has been developed to predict the anticipated mercury concentrations in TC by lot number and serial number."*

Comment: This reviewer was not able to find data to indicate the variability of metals concentrations that are observed for the solid component within a given TC. The supposed statistical model referred to in the EA appears to be based on a single measurement of liquid and solid concentrations within a given TC. However, this reviewer would expect the heel to be highly heterogeneous. Has the Army evaluated the heterogeneity that exists within the solid heel?

Requested Action: Please provide information on the heterogeneity within the solid heel and the justification why the solids data collected for the 98 TC can be considered to be representative of the whole heel within the TC.

Page 4, Paragraph 6, Text Stating : *"Based on the sampling of TCs at the DCD, up to 30% (i.e. about 790 TCs) of the UMCD inventory would be expected to contain high solid heels that could present a challenge to the processing of these TCs in the MPF."*

Comment: As stated in the above comment, the UMCDF has TC from 67 lots that are not stored at the DCD. Hence, no representatives of these lots have been sampled and these estimates are only educated guesses.

Requested Action: An accurate assessment of the quantity of solids that must be processed in UMCDF TC can only be determined by direct sampling of all 2635 TCs stored at the UMCD. Such sampling must be completed before an adequate analysis of the environmental impacts can be determined.

Page 4, Paragraph 6, Text Stating: "“*...information obtained at the TOCDF about the processing of low-mercury, low-heel TCs and regarding the sampling of incineration exhaust gases has confirmed that the TOCDF can safely process those TCs.*"

Comment: I assume from the context of the paragraph the writer meant to say "*...the processing of low-mercury, high-heel, TCs...*" It is not clear from the information available at the time of this review that TOCDF evaluated arsenic emissions during the processing of high-heel, low-Hg TC. As indicated in Figure 5, many TC that contain low mercury have high levels of arsenic (based on liquid concentrations). Assuming that high liquid levels of arsenic translate to higher levels of arsenic in heels, this would indicate that the case of high-heel, low-mercury, high-arsenic must be evaluated to ensure environmentally safe operations.

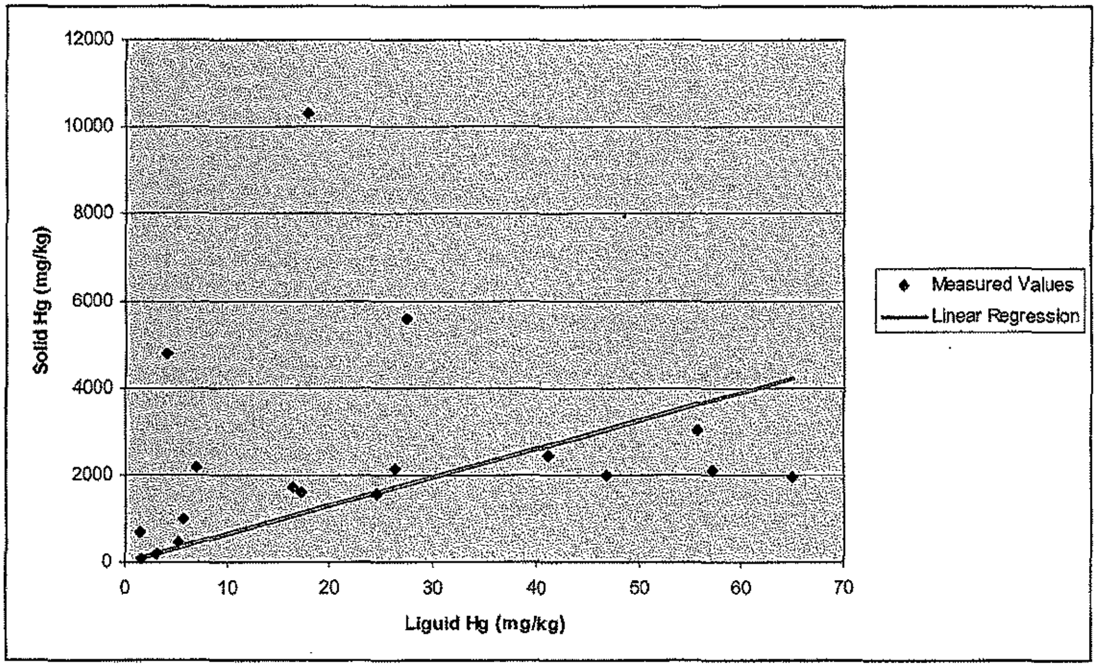

Figure 4: High Hg data from Figure 3 plotted on linear scale.

Again, it is evident from reviewing the data that it is impossible to obtain an accurate estimate of solid concentration of mercury from the liquid concentration. For example, a liquid value of near 5 mg/kg may correspond to a solids concentration of between approximately 400 and 4800 mg/kg. It should also be noted that, as with the low Hg data set, the highest solids concentration (10,300 mg/kg) was measured for a TC a relatively low Hg concentration in the liquid (17.8 mg/kg).

Requested Action: An accurate assessment of the quantity of mercury in TC (both in the liquids and solids) must be determined for the UMCD. This information can ONLY be accurately determined by directly sampling all 2635 TC stored at the UMCD. Without this data on individual TC it will be impossible to know the feed rate for mercury and other metals to the MPF. Not knowing these feed rate to the MPF means that the we can no longer apply the current regulatory strategy of establishing a maximum feed rate for individual compounds (under worst case emission conditions) and then verifying emission levels under these conditions in a trial burn. Furthermore, it is impossible to know if emissions will remain below levels determined safe through the risk assessment process.

associated with the *second lowest* liquid concentration (0.065 mg/kg). Finally, the high concentration data group is reproduced in the following table and graphed on a linear axis in Figure 4. A line indicated the best fit linear regression for this data is also provided on Figure 4 ($r^2 = 0.35$).

Table 1: Mercury Concentration for 18 TC with Hg above 1ppm (out of 98 Sampled for both solids and liquids).[a]

Data Point Number	Liquid ppmw)	Noncohesive Solids (ppmw)	Solid (ppmw)
1	24.5	2830	1580
2	41.1	1450	2440
3	17.8	861	10300
4	26.3	2120	2140
5	46.8	1560	2010
6	57.2	2580	2110
7	5.2	238	442
8	**1.47**	**101**	**694**
9	**1.62**	**343**	**95**
10	27.4	2910	5590
11	5.75	873	996
12	17.1	17.2	1600
13	16.3	1210	1740
14	65	1810	1960
15	6.96	621	2200
16	55.8	75.9	3020
17	**3.02**	**210**	**185**
18	4.06	1700	4780

[a]Bold values indicate liquid levels near 1 mg/kg

each TC without sampling each TC. Review of the data from the 98 TC in which both liquid and solid sampling was conducted reveals that there is no predictive correlation between liquid concentration and solid concentration. Figure 3 of "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*" has been reproduced here to illustrate this point.

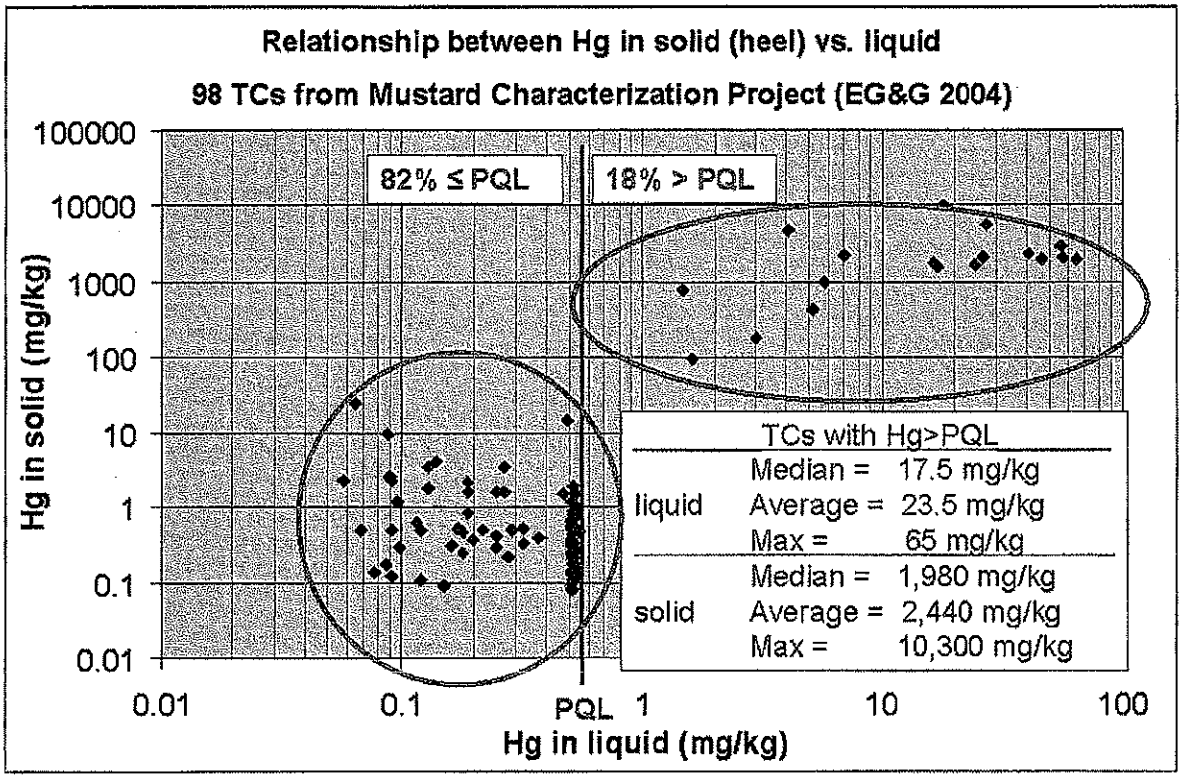

Figure 3: Reproduction of Figure 3 from DEQ Item Number 08-0594. Data is from 98 TC where both liquid and solid Hg levels were measured.

The Army used this figure to make the case that the data falls into two groups as indicated by the green and red circles. From the opinion of this reviewer, it is difficult to agree with this assertion given that only 98 out of 13,608 TC produced at RMA were sampled for both solids and liquids and that no data is reported for samples with liquid Hg levels between approximately 0.6 and 1.5 mg/kg (The full TOCDF HD liquid sampling identified at least 49 TC with Hg levels in this range (see Figure 2, above). Estimated heel weights for these 49 TC averaged 486 lbs (Range 0 to 875 lbs). Adding data in this range will likely close the visual gap between the two groups and remove the artificial distinction between "low" and "high" mercury TC.

The lack of a predictive correlation between the liquid and solid concentration is further indicated by the above figure where the cluster of values near 0.5 mg/kg (liquid) show solid concentrations ranging from approximately 0.09 mg/kg to 11 mg/kg. Also, consider that the highest solid concentration value in the "low" Hg (approximately 14 mg/kg) is

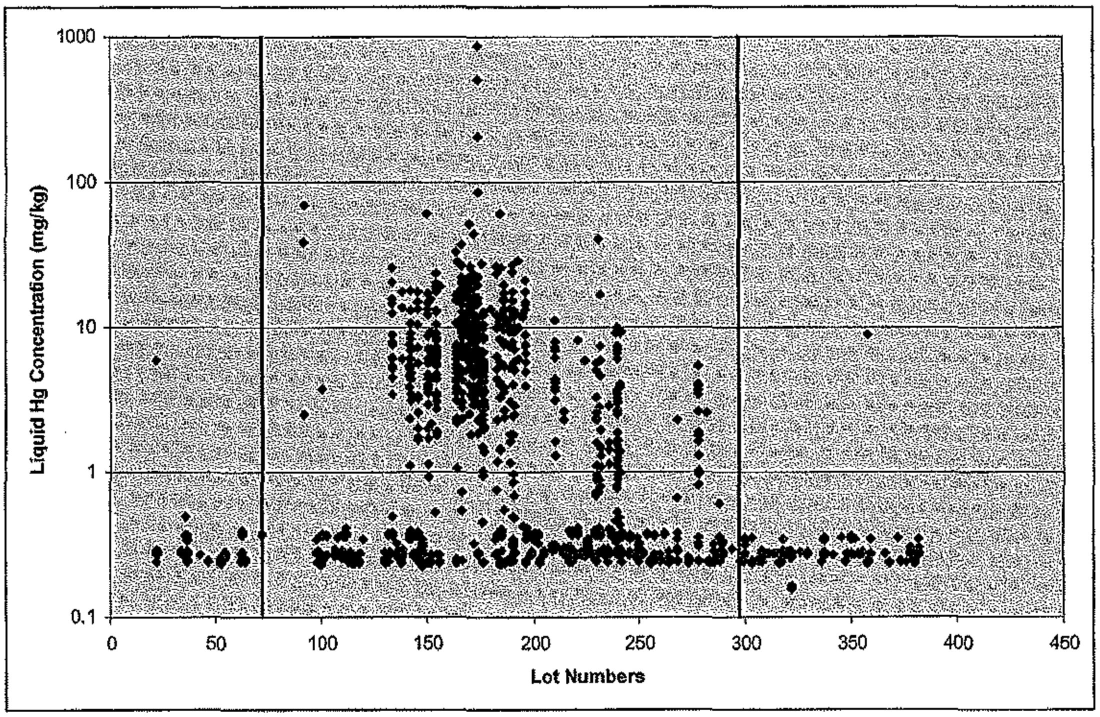

Figure 2: Mercury concentrations (mg/kg) in HD liquids in TOCDF TC.

__Requested Action__: Please identify ALL the compounds that will exceed current permit limits (feed or emissions limits) and include these in the Environmental Assessment.

__Page 4, Paragraph 5, Text Stating__: "*Based on the DCD data, a statistical model has been developed to predict the anticipated mercury concentrations in TC by lot number and serial number.*"

__Comment__: The CTUIR reviewed the report titled "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*" (DEQ Item Number 08-0594) in conjunction with this EA and has concluded that it is not appropriate to base the UMCD processing strategy on the DCD (Deseret Chemical Depot) ton container data for several reasons. First, of the 99 lots present at the UMCD, only 32 are also part of the DCD stockpile. The other 67 lots are unique to the UMCD and so have not been sampled. The Army is basing their heel and mercury estimates on the assumption that these 67 lots are similar to adjacent lots. However, because each lot represents a distinct, single, large batch, (created over 60 years ago) there may be unreported differences in the manufacturing or storage process that has created unforeseen differences between lots. Hence, the projects used in the EA for the number of TC with high heel content and/or high mercury content may not be accurate, making the basis for the assessment and resulting FONSI uncertain.

Furthermore, even if specific lot numbers and/or TC numbers could be identified as suspect based on historical data from the RMA (See DEQ Item Number 07-1100), there is still no way to know the liquid concentration, solid concentration, and solid content of

Environmental Assessment

Page 4, Paragraph 5, Text Stating: *"Based on the on-going sampling of TCs at the DCD, approximately 14% of the DCD inventory of TCs is expected to contain elevated mercury concentrations."*

Comment: Review of the document "Mustard Characterization Project Report for Deseret Chemical Depot Mustard Ton Containers" (EG&G, 2004) indicates that other compounds are also elevated in some TCs. For example, the 18 TCs with high Hg also had an average arsenic level of 2169 mg/kg in the solids (range was 33.4 to 12,900 mg/kg). Using the same calculation applied to Hg in the EA (to estimate 335 lb Hg is solids), this arsenic level equates to 298 lbs of arsenic. The current feed limit to the MPF for this compound is 0.0982 lb/tray which equates to a maximum heel of 45 lbs at the average arsenic concentration. A TC with a 600 lb heel would contain 1.3 lbs of arsenic. The presence of arsenic is further confirmed by TOCDF TC sampling. The following two figures provide the liquid concentrations of arsenic and mercury measured in 4048 TC at TOCDF.

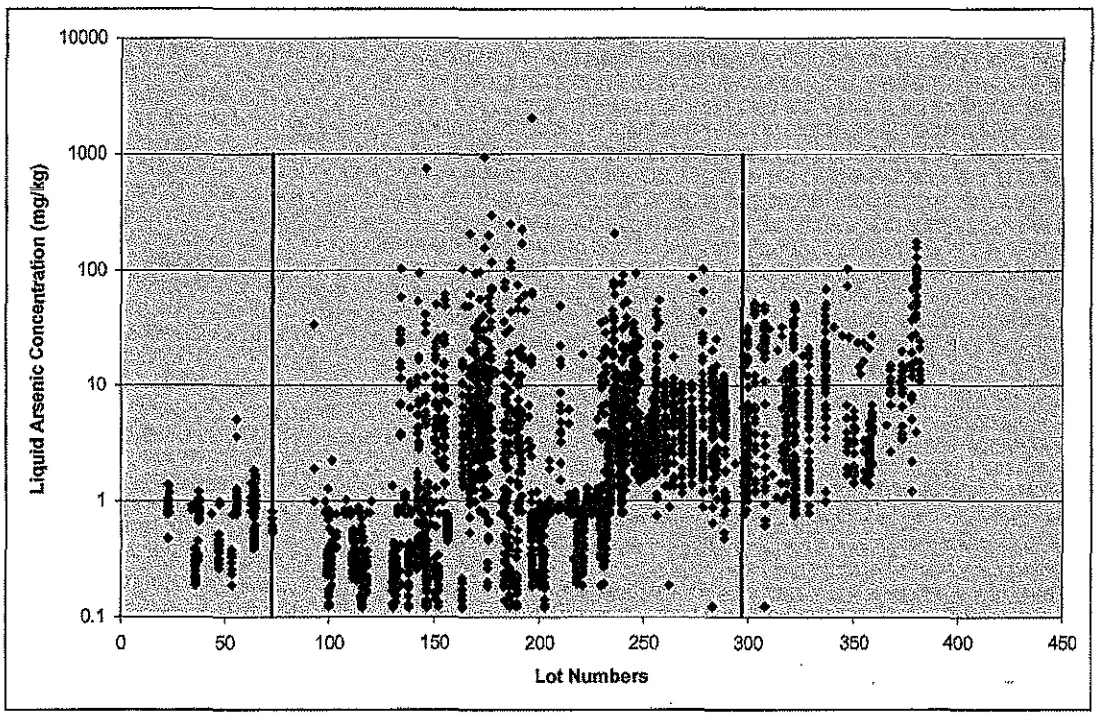

Figure 1: Arsenic concentrations (mg/kg) in HD liquids in TOCDF TC.

- Improper risk assessment analysis by the application of the 1997 pre-trial burn risk assessment and not the 2008 post-trial burn risk assessment.
- Neglecting contaminants other than mercury that have been observed in the HD TCs.
- Neglecting the cumulative impacts of mercury on the health of the surrounding region.
- Neglecting evaluation of off-site transportation risk of high mercury brines.
- The assumption that it safe to expose the surrounding populations to additional mercury contamination and that the surrounding population is willing to accept the additional contamination.
-

The CTUIR would suggest the Army cannot adequately complete this EA until they have accurately sampled the solids and liquids in the 2635 TC at the UMCD (both for volume and chemical composition) and adequately demonstrated Hg removal using SIC in a pilot-scale facility (at least 40 times greater that what has been currently operated, but 400 times would be more standard for scaling packed bed systems[4]). Finally, the EA should include a discussion of the proposed mercury monitoring strategy that would be coupled with the system to ensure compliance.

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.
Manager, CTUIR-EMP/DOSE

Cc:
Stuart Harris, Director, CTUIR DOSE
Mr. Rich Duval, Oregon DEQ
File

Enclosure

[4] Peters, M.S. and K.D. Timmerhaus, 1991, Plant Design and Economics for Chemical Engineers, Fourth Edition, Mc Graw Hill, New York, New York.

sample represents the chemical composition of all the solids in a given TC. Given the uncertain history of the formation of the heel, and its heterogeneous appearance, it is unlikely that the heel has a uniform chemical composition.

5. The Army has assumed that TCs with liquid levels of mercury below the PQL also have negligible amounts of Hg in the solids. Assuming a PQL of 0.55[3] ppm, and applying a linear regression for the high Hg data that showed liquid Hg between 1 and 4 ppm, it can be estimated that there is an additional 230 lbs of Hg contained the low-Hg, high-heel TCs.

The uncertainty generated by these assumptions creates an even greater uncertainty in the properties (amount and composition) of feed stocks to be processed in the MPF and LIC. As a result, it impossible to evaluate the accuracy of the emission levels calculated in this EA. It should be noted that the CMA (Chemical Materials Agency) has no experience processing large quantities of mercury laden heels and so does not really know how this highly heterogeneous material will release mercury (and other compounds) to the PAS. Once in the PAS the Army does not know how much material will be removed in scrubber brines and how much will remain in the gas phase. Finally, the performance of the PAS with SIC is also an unknown as the material has yet to be tested beyond bench-scale experiments. The scale tested to date is 1/4000th that of the UMCDF PFS based on the cross-sectional area of the carbon beds. In addition, these tests have been conducted using simulated gas feeds that may, or may not, represent the full suite of processing conditions that occur in the full-scale units.

Finally, this EA only evaluates the impacts of mercury contamination in the TCs. A review of the data generated from the 2004 sampling report for TOCDF TCs indicate that there are also elevated levels of arsenic, and possibly lead, manganese, and nickel in the TCs. The impact of these compounds must also be included in this assessment.

With regard to off-site shipment of HD brines, it is the CTUIR's official position that liquid waste be processed on-site. However, we recognize that processing of mercury laden brines has the potential to emit unacceptable levels of contamination onto land and resources the CTUIR holds as a treaty right. In light of these potential conflicting constraints, the CTUIR requests the Army complete an evaluation of the potential risks associated with both processing and shipping the mercury laden brines and engage in government-to-government consultation with the CTUIR on this issue. It should be noted that the HD brine shipment risk assessment recently completed by the CTUIR did not include the high levels of mercury, arsenic, and other co-contaminants found in the TC.

In summary, the CTUIR-DOSE finds this EA to be inadequate since it is based on:

- Imprecise estimates of the total quantity of heels and the concentration distribution of hazardous compounds within the heels.
- Unproven performance of the SIC in a full-scale PFS unit.

[3] There is some inconsistency in the PQL level in Army's reports on this issue. The value may be as low as 0.24 ppm for Hg in liquids. The value of 0.55 ppm was selected to be consistent with CMA projections found in "*Mercury Projections for Umatilla Distilled Mustard Ton Containers*"

process.[1] However, as you will see in our attached comments, it is clear the Army is proposing to increase emission levels far beyond what has been demonstrated in the 2008 risk assessment. The Army's choice to use the 1997 pre-trial burn risk assessment for the basis of the EA is inappropriate since the 1997 risk assessment did not include site-specific data such as emissions rates, emission conditions, processing schedule, exposure pathways, and the exposure profile for unique local populations such as Native Americans. Including this information in the 2008 analysis generated a very different risk profile than was observed in 1997. Furthermore, it is the opinion of the CTUIR that any risk assessment involving mercury emissions in our ceded lands, especially near the Columbia and Umatilla rivers, must include a cumulative analysis where background mercury levels are included along with other major emission sources (for example the PGE coal fired power plant near Boardman, OR which releases approximately 200 lb/year of mercury). At present, fish within the area already are showing elevated mercury levels (Columbia River Basin Fish Contaminant Survey [EPA-910-R-02-006], 1998).

Another major flaw the CTUIR has observed in this EA is that the analysis is based on very uncertain estimates of the contents of the HD TCs. A review of Army reports on the subject has led us to the conclusion that the projected estimates of the quantity of both solids content and mercury concentrations (both in solids and liquids) are likely far from accurate. The following is a brief critique of some of the major assumptions applied in this EA to estimate the amount of mercury in HD ton containers at the UMCDF.

1. The estimate of the total quantity of solids in the TC was developed based on depth sampling by inserting a stick into the TC. <u>The army is assuming they have accurately characterized the volume of the solids using this method</u>. However, this method will not be very accurate given the irregular shape of the solid heels. The inaccuracy of the method has been verified by observation at TOCDF (Personal communication with UMCDF environmental staff).
2. The average solids concentration has been estimated from samples taken from 98 out of the over 13,000 TC produced at the Rocky Mountain Arsenal. <u>The Army is assuming these 98 TC accurately represent all TC in the stockpile</u>. It is highly unlikely that this is a representative data set for the full population of the TC since they do not even span all lots that are the most likely to contain high mercury (Lots 91 through 297, DEQ Item Number 07-1100).
3. Of the 99 lots stored at the UMCD, only 32 are in common with the DCD. This means that TC from 67 lots stored at the UMCD have never been sampled. <u>The Army is making the assumption that these lots are statistically similar to adjacent lots.</u> This assumption is untested and unproven.
4. No indication is given by the Army on the heterogeneity of the composition of the solids within the TC. It appears from the 2004 sampling report[2] that a single solids sample was pulled from each TC and they are <u>making the assumption that this single</u>

[1] Please note that the 2008 risk assessment DID NOT evaluate metals emissions at the permitted levels. Rather, the evaluation used the metals concentrations measured during trial burns. In many cases these values were several orders of magnitude lower than the emission limits.
[2] EG&G Defense Materials, Inc., 2004. Mustard Characterization Project Report for Deseret Chemical Depot Mustard Ton Containers, Rev 0.

Encl Enclosure #2

CONFEDERATED TRIBES
of the
Umatilla Indian Reservation

DEPARTMENT OF SCIENCE AND ENGINEERING

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July 31, 2008

UMCDF Outreach Office
190 East Main
Hermiston, OR 97838

Re: Comments on the Environmental Assessment titled "Proposed Modifications to Support The Destruction of Mustard Agent at the Umatilla Chemical Agent Disposal Facility (UMCDF) in Oregon" and the related draft FONSI

To Whom It May Concern:

On behalf of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) Department of Science and Engineering (DOSE), I am submitting the following comments to the draft Finding of No Significant Impact (FONSI) for proposed modifications to support the destruction of mustard agents and munitions at the Umatilla Chemical Agent Disposal Facility (UMCDF). This finding is based on the May 2008 Environmental Assessment (EA) titled "Proposed Modifications to Support The Destruction of Mustard Agent at the Umatilla Chemical Agent Disposal Facility (UMCDF) in Oregon"

As described in the FONSI, the Army is proposing to modify the UMCDF to accommodate two unforeseen issues with mustard agent (HD) processing; high mercury concentrations and large solid heels. The following are the four proposed modifications:

- Add sulfur-impregnated carbon (SIC) to the metal parts furnace (MPF) pollution abatement system to enhance mercury removal.
- Expand the facilities agent storage tank capacity to accommodate mercury sampling of mustard agents.
- Add a heel transfer system to break up and mobilize solid heel so that the material can be distributed into multiple containers for processing.
- Provide for off-site shipment of HD brines to avoid the possible release of mercury to the environment from brine processing.

In theory, the CTUIR is not technically opposed to the first three modifications provided they can be made in a manner that keeps the facility's emission within <u>current levels</u> that have been demonstrated through the risk assessment process to be safe. By current levels, we mean the emission levels measured in the trial burns and applied in the 2008 risk assessment addition, the potential adverse impacts of increased stack emissions of mercury and arsenic should also be evaluated through both human health and ecological risk assessments to ensure that the area in the immediate vicinity of UMCDF will not experience adverse effects from depositions. To ensure minimization of risks and compliance with emission limits both the liquid incinerators (LICs) and the MPF must be equipped with continuous mercury monitors.

Requested Action: Update the human health and ecological risk assessments as needed to account for the possibility of increased metals emissions. Require the Permittees to submit a Transportation Risk Assessment for the off-site shipment of mustard-derived brines that includes increased metals content in the brines. Require continuous mercury emissions monitors on both the liquid incinerators (LICs) and the MPF.

Requested Action: DEQ and the Army should address the issue of the arsenic-contaminated waste treatment and disposal as well as the mercury-contaminated wastes. The Army's testing of mercury removal using SIC in the PFS should be expanded to include arsenic and other toxic metals clearly present in the mustard agent.

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7. The removal and/or treatment of the solid heels within mustard containers, especially heels contaminated with high levels of heavy metals, should be part of the information evaluated for this BAT analysis.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707) contains no mention of the issue of heel weights in the ton containers or the proposals for potentially entire new processes to remove the heels from containers to maintain permitted feed limits to the metal parts furnace.

Comment: The available documents indicate that up to 30% (almost 800) of the ton containers at Umatilla might have heels exceeding 600 pounds (See DEQ Item No. 08-0750, "Environmental Assessment: Proposed Modifications to Support the Destruction of Mustard Agents and Munitions at the Umatilla Chemical Agent Disposal Facility in Oregon," CMA, May, 2008.

Although the Army's Environmental Assessment proposes a method to break up and remove the heel from ton containers, there is limited discussion about whether the process has been used successfully. Note that this not just an issue of exceeding the feed limit to the metal parts furnace (MPF). The design of the MPF does not lend itself to efficient combustion of material within a container without the addition of some sort of sparge air to provide the mixing and air/fuel ratio necessary to fully combust the contents inside what is virtually a closed container. Sampling at TOCDF indicates that high levels of mercury, arsenic, and other metals are more likely to be contained within the solid phase and that the concentration levels are highly variable within the same container. Consequently, the 600 pound limitation currently being discussed might have to be greatly reduced to account for the heterogeneous nature of the heavy metal contamination within the solid and the ability of the MPF to completely combust the contents of a container.

Requested Action: Include the removal and/or treatment of the solid heels within mustard containers, especially heels contaminated with high levels of heavy metals, as part of the information evaluated for this BAT analysis.

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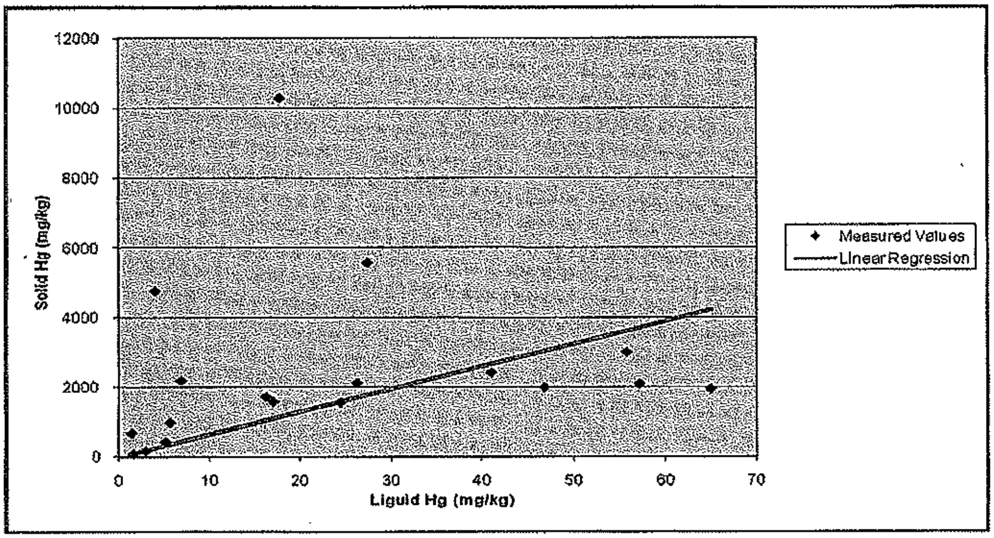
8. Insufficient risk analysis has been conducted to determine the risks of metals emissions that exceed the levels used in the human health and ecological risk assessment and to determine the risks of off-site disposal of brines generated from mustard processing.

Comment: None of the DEQ documents reviewed indicate that the Department has considered updating the human health and ecological risk assessments to account for the potentially higher metals emissions. The Transportation Risk Assessment conducted for the off-site shipment of brines [see Permit Modification Request 08-022-BRA(2), Brine Management] did not include the possibility that higher levels of mercury, arsenic, and other metals could be contained in mustard-derived brines. In



Data Source: Mustard Characterization Project Report for DCD Mustard Ton Containers, Table 3-21.

Requested Action: While the CTUIR understands that accessing and sampling the solid portion of the ton containers is a difficult proposition, it is not clear how the Permittees and the DEQ will determine whether UMCDF is operating within its feed rate limits without actual analytical data from the solids in ton containers, especially those with high heels. Additional sampling of Umatilla ton containers should be conducted to expand the database so that more meaningful analysis can be conducted on the relationship between contaminant levels in the solid and liquid phases.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707) contains no mention of the issue of the arsenic contamination being seen in the mustard ton containers, in some cases exceeding the maximum value of the mercury (>1%). (See DEQ Item No. 08-0503: "Chemical Agent Characterization, Draft Final Revision 4,")

Comment: There are indications from the various chemical agent characterization reports that the estimated amount of arsenic (about 300 pounds) is nearly as high as the estimated amount of mercury in the ton containers (about 350 pounds). Note, however, that these estimates are based on average values, and given the poor correlation noted between the mercury concentration in the liquid versus the solid, the estimates are questionable. Regardless, the amount of arsenic (and other contaminants such as lead and chromium) appear to be significant.

The focus of the BAT determinations is being limited to "high-mercury" ton containers, apparently because the remand from the Multnomah County Circuit Court was specific to mercury (the level of arsenic being seen in the early days of the DCD sampling program was not made an issue during the trial proceedings, so was not brought to the Court's attention). There is no indication that the DEQ or the Army are investigating the ability of either the PAS or the PFS with SIC to remove arsenic as well as mercury.

Requested Action: Require the mustard ton containers at Umatilla to be individually sampled and analyzed not only for mercury, but for all heavy metals, other contaminants previously identified, and heel level. A sampling strategy using information developed at DCD, but specific to the UMCD mustard containers, should be developed and provided for review.

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5. Data from liquid and solid phases of the mustard agent in the ton containers do not support the contention that the concentration of mercury in the liquid is predictive of the mercury concentration in the solid heel.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707, High Mercury Mustard Agent, Page 3) states that *"At the Deseret Chemical Depot, investigation of the heel formation was begun in 2003 for the ton containers stored there...This investigation tested the heels of 96 ton containers of mustard agent. Eighteen of these contained high levels of mercury. The Army also sampled the liquid component of these ton containers and identified a correlation between the liquid and solid in each container. For each container that contained high levels of mercury in the solids, the liquid portion of the waste also contained elevated levels of mercury(although not quite as high as in the solids). Based on this correlation, and the difficulty in sampling the heels of ton containers, the sampling program was continued utilizing only liquid samples from each ton container to determine if the mercury level was elevated (Reference 6 and 7)."*

Comment: CTUIR's analysis of the relatively sparse data from liquid and solid phases of the mustard agent does not support the contention that the concentration of mercury in the liquid is predictive of the mercury concentration in the solid heel. The CTUIR reviewed the source document for the above statements about the correlation of mercury concentration between the liquid and solid samples. Review of DEQ Item No. 04-0294, "Mustard Characterization Project Report for Deseret Chemical Depot Mustard Ton Containers," (EG&G Defense Materials, Inc., Revision 0, January 14, 2004) reveals that the correlation is based not on 98 ton container samples (as implied above), but was actually limited to the 18 containers that showed "high" levels of mercury. The CTUIR conducted an analysis of the data presented in Table 3-21 of the 2004 Mustard Characterization Report. The results are presented below in graph form. Note that the linear regression analysis produces an r^2 value of 0.3598, an extremely low correlation coefficient.

November, 2007 (not received at DEQ until May 29, 2008) (*"Umatilla Mercury Projection Report"*)

Comment: The SAIC Investigation conducted in 2007[3] (Reference 11 above) presents the results of the investigation into the potential sources of mercury contamination in the mustard ton containers. The investigators traced the history of the production of mustard agent at the Rocky Mountain Arsenal (RMA, the source of the mustard agent current stored in Utah and Oregon) and were able to identify the most probable causes of the mercury and arsenic contamination in the mustard ton containers. Based on their review of the contamination sources, coupled with the limited sampling data available at the time, the investigators tentatively concluded that they could predict which lots and/or individual containers of mustard would have high levels of mercury, arsenic, and/or other constituents. However, the authors noted that some ton containers did not follow identified patterns and should be "viewed as suspect reutilized TCs" [ton containers]. The authors also noted that "it may be worth checking" such things as old paint markings, hydrostatic test dates, and other sources of information to identify suspect TCs.

Based on the SAIC Investigation (presumably, see footnote 3 below), the U.S. Army Chemical Materials Agency (CMA) submitted a November 2007 report to the DEQ in late May, 2008 (Reference 12, above). The Umatilla Mercury Projection Report concludes that "*...the UMCD RMA HD TC stockpile is expected to have characteristics similar to the corresponding [Deseret Chemical Depot] RMA HD TC stockpile; hence, the characteristics of the UMCD RMA HD TC stockpile can be estimated from analyses of the corresponding DCD RMA HD TCs.*" The report cites the results of the "Statistical Model for Mercury Distribution in Rocky Mountain Arsenal Mustard Ton Containers"[4] (Draft, November 2007) to support the contention that sampling of individual ton containers at Umatilla will not be necessary.

Contrary to the statements made repeatedly throughout all of these documents, careful review of the data generated from the sampling at DCD indicates just how much variability there is in contaminant levels within a lot. According to the documents, Umatilla has only 32 of 99 mustard agent lots in common with TOCDF—**almost 70% of the mustard agent lots at Umatilla have never been sampled**. Although the predictive model developed by the Army is surely a reasonable tool in determining initial segregation and treatment strategies, a model cannot and should not replace actual analytical data of a waste already proven to be extremely heterogeneous.

The results from the sampling and analysis of each mustard ton container stored at the Deseret Chemical Depot (DCD) in Utah are somewhat useful in determining the extent of contamination and solid heel formation in mustard containers. However, the available information concerning the history of individual containers and agent lots, the contaminant analyses, and the fact that sample results are available from only 32 of the 99 agent lots stored at the Umatilla Chemical Depot (UMCD) does not support the Permittees' or the DEQ's contention that sampling of individual containers at UMCD is unnecessary.

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[3] DEQ Item 07-1100 is a set of presentation slides, not the actual SAIC report. Reference 12 (listed above) refers to a reference titled "Rocky Mountain Arsenal Mustard Production and Mercury Contamination in Support of the Umatilla Chemical Agent Disposal Facility Mustard Ton Container Best Available Technology Evaluation, Draft, November 2007." The CTUIR assumes that DEQ Item 07-1100 is based on this 2007 report, but the full report has apparently never been submitted to the Department or made available for public review.

[4] The "Statistical Model" cited as the basis for segregation of HD ton containers at Umatilla has not been provided for public or peer review.

for Phase IIA and a preliminary copy of the Phase IIB results (however, these reports have apparently not yet been submitted to the Department). The preliminary results indicate that SIC has a "reduced capacity" for agent adsorption (and presumably, other organics). In addition, it is clear from the early data that the level of acid gases in the gas stream will greatly impact the adsorption capacity for mercury.

Regardless, the U.S. Army Chemical Materials Agency (CMA) has moved forward with construction of a PFS using SIC at the Tooele Chemical Agent Disposal Facility (TOCDF). The SIC PFS at TOCDF has not completed construction, let alone undergone any testing. The Permittees have not yet proposed a specific design for the UMCDF, and there is no indication from the available documents that this particular application of SIC for mercury removal from a combustion gas stream has ever been tested.

Requested Action: The use of sulfur-impregnated carbon in the PFS for mercury removal has not yet moved beyond bench-scale testing. The results of the early testing indicate that the presence of acid gases in the gas stream will greatly affect the mercury removal efficiency of the SIC. Delay the BAT determination until SAIC completes its testing program and the SIC PFS at TOCDF is completed and appropriately tested under actual operating conditions.

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4. The mustard ton containers at Umatilla must be individually sampled. A sampling strategy using information developed at the Deseret Chemical Depot (DCD), but specific to the Umatilla mustard containers, should be developed and provided for review.

The DEQ Memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707, Identification of High Mercury Ton Containers, Page 5) states that *"Based on the sampling results for the TOCDF ton containers, the Army has developed a model to predict how many and which individual ton containers will contain higher than expected levels of mercury. This model identifies 425 ton containers at UMCDF that will have measurable levels of mercury (References 6, 7, and 12). The Army's predictive model is based on the lot number and serial number of ton containers (References 6,7, 11 and 12)."*

For use in the following discussion, the cited references are:

Reference 6. DEQ Item No. 08-0623: "*UMCDF Best Available Technology Evaluation, Final Revision 1*," US Army Chemical Materials Agency , May 16, 2008, received at DEQ June 5, 2008 ("*Army BAT*")

Reference 7. DEQ Item No. 08-0503: "*Chemical Agent Characterization, Draft Final Revision 4*," US Army Chemical Materials Agency Program Manager for the Elimination of Chemical Weapons, December, 2007 (not received at DEQ until May, 2008) ("*Agent Characterization*")[2]

Reference 11. DEQ Item No. 07-1100: "*Mustard Contamination Investigation: A Summary of the Investigations and the Conclusions Drawn*," Science Applications International Corporation, July 2007-Rev 3. ("*SAIC Investigation*")

Reference 12. DEQ Item No. 08-0594 (this was incorrectly identified in the DEQ staff report as Item No. 08-0649): "*Mercury Projections for Umatilla Distilled Mustard Ton Containers, Interim*,"

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[2] DEQ Item 08-0504 is the companion database (in spreadsheet format) of the chemical agent stockpile/nonstockpile analytical data discussed in DEQ Item 08-0503.

carbon to be processed. Despite these unresolved issues (almost three years after the submittal of PMR 05-034), the DEQ states in its June 2008 memorandum that the "...*The DFS/CMS technology represents the best available technology for treatment of agent-contaminated carbon.*"

It should also be noted that as of yet there is no accepted analytical method for determining whether spent carbon is contaminated with one or more chemical agents. Although the Permittees recently submitted PMR UMCDF-08-008-WAP(2), "Waste Analysis Plan Update for Spent Carbon Sampling and Analysis Requirements," both DEQ and EPA laboratory reviewers (and other commenters) were concerned that the proposed analytical method was not appropriate for determining agent on spent carbon. DEQ has requested, and UMCDF concurred, an extension of the decision date on the PMR until September, 2008. It is unclear what additional information, if any, will be provided by UMCDF to the DEQ to change the initial results of the method review.

Requested Action: Require the Permittees to respond to the NOD on the PMR 05-034 to address the outstanding issues with the treatment of spent carbon. Require the Permittees to submit additional information (which should be made available for public comment) concerning the carbon sampling and analysis proposed in PMR 08-008. The responses should also be required to address carbon contaminated with mercury and arsenic.

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3. It is premature for the DEQ to declare sulfur-impregnated carbon (SIC) in the PFS as BAT for mercury removal from UMCDF. The BAT determination should be delayed until test results are available from TOCDF.

The DEQ memorandum "Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707 states that "*Utilizing ...the addition of sulfur impregnated carbon filters for mercury control raises some permitting questions*" and "*The agent free criteria in the permit any have to be modified to allow the off-site shipment of this spent carbon or an alternative treatment method identified to manage this waste stream on-site*" (Incineration, Page 6).

Comment: The CTUIR believes that the "permitting questions" are potentially significant and go beyond the issue of off-site shipment of contaminated carbon. Curiously, the DEQ fails to note that the report submitted by the Army to support its proposal to use sulfur impregnated carbon in the PFS for mercury control contains only the results from a very small-scale laboratory study. Although the PFS has been demonstrated as a viable pollution control technology for organic emissions from the UMCDF furnaces, the efficacy of sulfur-impregnated carbon (SIC) for control of mercury emissions under actual UMCDF operating conditions (including the level of acid gases in the gas stream, which greatly affect the ability of the SIC to adsorb mercury) has not yet been fully demonstrated.

There has been no final design decisions made on how SIC will be incorporated into the PFS at UMCDF. It is not clear whether the Army will replace the carbon in a one or more PFS units, or replace just some of the carbon with SIC in each of the PFS units, or build an entirely new SIC-only PFs unit to supplement the existing units.

The only indications of DEQ review of the investigations of SIC for mercury removal are contained in DEQ Item No. 08-0603 ("SAIC Mercury Control: Testing Fixed-Bed Adsorption for Mercury Emission Control in the U.S. Army Chemical Demilitarization Incinerators—Phase I Final Report," June 1, 2007—not submitted until May, 2008) and DEQ Item No. 08-0760 ("UMCDF PFS Carbon Selection Presentation," July 9, 2008). The Phase I results of Science Applications International Corporation's (SAIC) investigation of the mercury removal performance for various types of sulfur-impregnated carbon involved only small lab scale tests. The CTUIR has obtained copies of the report

The DEQ Memorandum, "Best Available Technology – Inclusion of the Pollution Abatement System Carbon Filter System (PFS) in the Umatilla Chemical Agent Disposal Facility (UMCDF) Incineration Process" (DEQ Item No. 08-0708) states that *"Based on the information evaluated and consistent with previous EQC decision[sic] (Reference 8), the Department has [sic] believes, subject to review of public comment, that inclusion of the PFS as part of the pollution abatement system in the UMCDF incineration process has been demonstrated to be the best available technology for the UMCDF."*

Comment: Although the CTUIR concurs that the PFS is an integral part of the pollution abatement system and has been demonstrated to reduce emissions at UMCDF, there is still (1) no permitted treatment or disposal method for agent- contaminated carbon; (2) no approved analytical method to determine whether spent carbon is agent-contaminated; (3) no permitted treatment or disposal method for "agent-free" carbon; and (4) no permitted treatment or disposal method for sulfur-impregnated carbon potentially contaminated with not only chemical agent and products of incomplete combustion, but also with mercury and arsenic from the mustard agent.

The EQC's "Final Order for Best Available Technology for Secondary Waste" (DEQ Item No. 08-0725, dated June 30, 2008), Finding 1, states that "*After careful consideration of alternatives, the EQC finds that incineration in the metal parts furnace [MPF] and deactivation furnace system [DFS] as currently configured represents the best available technology for treatment of agent-contaminated wastes originally destined for treatment in the Dunnage Incinerator...*" and "*Addition of a carbon micronization process will be required as part of BAT for treatment of any agent contaminated carbon.*" Finding 9 then states that "*Permit modifications [including]... UMCDF-05-034, Carbon Micronization System, October 24, 2007 [sic]...are in place to allow processing of secondary waste in the MPF and DFS.*"

It is interesting to note that the DEQ memorandum (DEQ item No. 08-0611) supporting the staff report presented to the EQC in June 2008 (Item No. 08-0610) contradicts Finding 9 of the EQC's June 2008 Order by clearly stating that "*...agent-contaminated carbon is the only waste stream originally intended for the Dunnage Incinerator that has not yet been permitted for treatment in another furnace at the UMCDF. However, a permit modification request proposing permitting of the DFS for treatment of agent-contaminated carbon is currently under review by the Department. Permit Modification Request UMCDF-05-034-WAST(3) (PMR 05-034) was submitted by the UMCDF October 25, 2005. In addition to proposing modifications to the DFS for effective carbon combustion, PMR 05-034 requests the addition of a carbon micronization system (CMS), which would finely grind agent-contaminated carbon before feeding it into the DFS.*"

The actual title of PMR 05-034 is "Deletion of the DUN and Addition of the CMS," and it was submitted in October 2006, not October 2007.[1] The DEQ conducted a preliminary review of PMR 05-034 and issued a Notice of Deficiency (NOD) in December 2006. Since that time the Permittees have requested (and DEQ has approved) five extensions of time to respond to the NOD. The current due date for a NOD response from the UMCDF is December 31, 2008. Unresolved issues identified by the DEQ in the 2006 NOD included inadequate/incomplete design and operating information, inadequate supporting information concerning the characteristics of the carbon to be processed, and insufficient information about the basis for determining the agent and metal concentrations in the

[1] Recently the Permittees submitted a Class 1 PMR (no public review or comment is invited) to remove all references to the DUN from the permit. Although the CTUIR does not object in principle to the removal of references to a treatment unit that was never built, it is becoming clearer and clearer through review of various (apparently unrelated, yet revealing) documents that the Army would very much prefer to avoid construction of the CMS and instead ship all spent carbon off-site, regardless of its contamination status.

destruction. The Army has identified two demonstrated technologies for consideration, baseline incineration and neutralization. The Department has added one additional demonstrated technology, the DAVINCH™ process." (Assessment, Page 5)

Comment: Although neutralization of mustard was successfully completed at the Aberdeen Chemical Agent Disposal Facility (ABCDF), the mustard agent stored at Aberdeen was apparently not contaminated with mercury. Neutralization will not remove mercury and will produce vast amounts of mercury-contaminated liquid waste because the Army would propose to "utilize the dilution effects allowed under the NPDES [National Pollutant Discharge Elimination System] program" (DEQ Memo, Page 7). The U.S. Army's "UMCDF Best Available Technology Evaluation" (DEQ Item No. 08-0623) acknowledges that "The treatment method for Hg removal remains an undefined process." The efficiency of the chosen process for Hg removal will need to be determined by additional research and development" (Section 5.5.1, page 5-91).

The DAVINCH™ process has apparently been used in Japan and elsewhere, although the process has never been used on a mustard ton container and its ability to capture mercury emissions is unknown (although discussion with the representatives from Kobe Steel during a recent public meeting indicate they are confident the DAVINCH™ unit can handle mustard ton containers with high heel levels and/or mercury contamination). As stated in the National Research Council's 2006 report, "Review of International Technologies for Destruction of Recovered Chemical Warfare Materiel," (DEQ Item No. 08-0679), the "DAVINCH technology has not been permitted for use in destroying chemical weapons in the United States, although it has been used successfully in Japan for this purpose. No significant regulatory issues were identified to indicate that the DAVINCH technology could not meet U.S. environmental regulatory requirements if appropriate information (such as verified DRE [destruction removal efficiency], residual levels of dioxin, furans, arsenic, and any other chemicals of regulatory concern) is developed and provided to the regulators in a timely manner."

The purpose of the current BAT evaluation is to evaluate treatment technologies for mustard with high mercury contamination, not treatment of the mustard agent alone. Consequently the Army's neutralization proposal contains insufficient information to conduct a comparative evaluation because "Hg removal remains an undefined process." In terms of the DAVINCH process, there is no evidence in the record that information concerning DRE or emissions of mercury, dioxins, furans, etc. has been provided to DEQ.

The BAT evaluation of neutralization and the DAVINCH process cannot be conducted because there is insufficient information concerning either technology's ability to capture mercury or arsenic.

Requested Action: The DEQ should require the Army to submit a neutralization proposal that includes processes that do not involve dilution of wastes to circumvent the intent of the RCRA and Land Disposal Restriction regulations. The process should include the proposed methodology to minimize discharges to the environment through the removal and sequestration of not only the mercury in the mustard agent, but also arsenic and other identified contaminants.

If GEOMET Technologies and Kobe Steel desire serious consideration of the DAVINCH process as BAT for high mercury mustard then the vendors should be required to provide emissions data and waste characterization information sufficient to at least make preliminary determinations concerning its ability to be permitted in the U.S.

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2. The PFS should not be declared BAT, especially for high-mercury mustard, until the issues with analysis, treatment, and disposal of spent carbon are resolved.

Comments on the "Best Available Technology Determinations Related to the Pollution Abatement System Carbon Filter System and Mustard-Filled Ton Containers"

The CTUIR comments on the Best Available Technology (BAT) Determinations for the Pollution Abatement System Carbon Filter System (PFS) and Mustard-Filled Ton Containers (TCs) include the following issues:

1. Of the three treatment technologies being considered as BAT for mustard with high levels of mercury (and arsenic), only baseline incineration with the addition of sulfur-impregnated carbon (SIC) in the PFS has sufficient information available for the preparation of substantive comments.
2. The PFS should not be declared BAT, especially for high-mercury mustard, until the issues with analysis, treatment, and disposal of spent carbon are resolved.
3. It is premature for the DEQ to declare sulfur-impregnated carbon (SIC) in the PFS as BAT for mercury removal from UMCDF. The BAT determination should be delayed until test results are available from TOCDF.
4. The mustard ton containers at Umatilla must be individually sampled. A sampling strategy using information developed at the Deseret Chemical Depot (DCD), but specific to the Umatilla mustard containers, should be developed and provided for review.
5. Data from liquid and solid phases of the mustard agent in the ton containers do not support the contention that the concentration of mercury in the liquid is predictive of the mercury concentration in the solid heel.
6. The DEQ needs to address the issue of arsenic-contaminated waste treatment and disposal as well as the mercury contamination.
7. The removal and/or treatment of the solid heels within mustard containers, especially heels contaminated with high levels of heavy metals, should be part of the information evaluated for this BAT analysis.
8. Insufficient risk analysis has been conducted to determine the risks of metals emissions that exceed the levels used in the human health and ecological risk assessment and to determine the risks of off-site disposal of brines generated from mustard processing.

Each issue is discussed in more detail below:

1. Of the three treatment technologies being considered as BAT for mustard with high levels of mercury (and arsenic), only baseline incineration with the addition of sulfur-impregnated carbon (SIC) in the PFS has sufficient information available for the preparation of substantive comments.

The DEQ Memorandum ["Best Available Technology for Treatment of High Mercury Mustard Ton Containers at the Umatilla Chemical Agent Disposal Facility" (DEQ Item No. 08-0707)] states that *"In developing a list of potential treatment technologies [for high mercury mustard] the Department has limited the investigation to technologies that have been demonstrated by actual chemical weapons*

Although the July 1, 2008 date listed in this response was specific to the Secondary Waste BAT, the CUTIR is concerned that a similar response will be given to this request.

The CTUIR is not aware of any Court-imposed deadlines related either to the Court's June 2007 remand or to any new litigation.[1] As evidenced by the need to re-open the public comment period and reconsider the Secondary Waste BAT determination (and the subsequent revision of the EQC's Order), it does not serve the citizens of Oregon, the public process, or the legal process if the EQC is forced to make decisions prematurely to satisfy a self-imposed schedule.

I have also enclosed the comments that CTUIR prepared in response to the Environmental Assessment (EA) and draft Finding of No Significant Impact recently released for public comment by the U.S. Army Chemical Materials Agency. Please consider the CTUIR's comments on the EA as additional comments on the BAT determinations—the issues are similar, if not identical, and in some cases there is additional detail in the EA comments that would supplement our comments on the BAT issues.

Thank you for considering these comments as you prepare your presentation to the Environmental Quality Commission. If you have any questions concerning this matter please contact Dr. Rodney Skeen of my staff at (541) 966-2413.

Sincerely,

Rodney S. Skeen, Ph.D, P.E.
Manager, CTUIR-EMP/DOSE

Cc:
Stuart Harris, Director, CTUIR DOSE
File

Enclosure (2)

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1 No lawsuit-related documents (Petitions for Review, Pleadings, Briefs, Hearing Schedules, etc.) have been entered into the DEQ database since August of 2007, so it is possible that there are legal events of which the CTUIR is unaware. However, even if a Court-imposed deadline exists, the CTUIR does not believe that the Court would expect the EQC to make Findings that cannot be supported by the available record.

CONFEDERATED TRIBES
of the
Umatilla Indian Reservation
DEPARTMENT OF SCIENCE AND ENGINEERING
P.O. Box 638
73239 Confederated Way
PENDLETON, OREGON 97801
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Fax: (541) 278-5380

08-0844

July 31, 2008

Mr. Rich Duval
Department of Environmental Quality
Eastern Region Hermiston Office
256 East Hurlburt, Suite 105
Hermiston, OR 97838

RE: Comments on "Best Available Technology Determinations (BAT) for the Pollution Abatement System Carbon Filter System (PFS) and Mustard-Filled Ton containers" at the Umatilla Chemical Agent Disposal Facility (UMCDF)

Dear Mr. Duval;

Enclosed are comments from the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) on the current Best Available Technology (BAT) determinations under consideration by the Environmental Quality Commission (EQC). The CTUIR understands that many of the issues noted in the enclosed comments (such as the need for extra storage capacity and a system to remove and transfer solid heels from some ton containers) are permitting issues that will need to be addressed in the coming months as UMCDF approaches the start of the mustard campaign.

Although other issues identified by the CTUIR are already in the permitting process (off-site shipment of mustard-derived brines, analysis of chemical agent in carbon) we believe that it is important to address the concerns now as part of the EQC's BAT determination. It is clear to the CTUIR that a significant amount of information necessary for a complete BAT evaluation is not yet available to the DEQ or to the EQC. For example, the Army's proposal to use sulfur-impregnated carbon in the PFS to capture mercury is based solely on the test results achieved in a bench scale test apparatus that is $1/4000^{th}$ the size of the full-scale facility. Normal engineering practice would be to base a final design on a scale $1/100^{th}$ of full-scale. Yet the Army moved from the $1/4000^{th}$ scale test apparatus straight to construction of a full-scale PFS unit at the Tooele facility—a PFS unit that is still under construction and has never been tested.

For that reason, and others listed in our comments, we are requesting that these BAT determinations be delayed until information sufficient for a meaningful evaluation is submitted for review by the DEQ and the public. In response to a similar request from CTUIR concerning the Secondary Waste BAT determinations in June of this year, the Department responded (DEQ Item No. 08-0609, RTC-9) with "...deferral of the BAT determination is not a practical possibility given the GASP V lawsuit and the implicit requirement to achieve redetermination by July 1, 2008."

08-0840

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

July 28, 2008

Mr. Rich Duval
DEQ Chemical Demilitarization Program Administrator
256 E Hurlburt Avenue
Hermiston, OR 97838

Mr. Duval,

This letter is written in response to the Oregon Department of Environmental Quality's call for public comment on Umatilla chemical demilitarization activities, including the need to dispose of mustard agent ton containers with higher levels of mercury than expected.

The Army knows what challenges it faces in disposing of Umatilla Chemical Depot mustard agent, based on sampling of similar containers at Tooele, Utah. The plan to use sulfur-impregnated carbon to capture mercury appears to be a practical solution to this problem. The plan also includes ways to treat the solid material in the mustard containers and to manage the associated waste.

We have the benefit of four years of plant operations to show incineration is safe and effective. It's highly questionable whether the time and expense needed to decide if alternatives to incineration can capture mercury or improve upon the performance of the Umatilla incinerator would be in the best interests of our citizens.

The plant's carbon filtration system has demonstrated its value in cleaning air emissions throughout testing and operations of the Umatilla Chemical Agent Disposal Facility. The state's requirement in the 1990s to include the filters has proven to be a wise decision.

Representatives of the City would like to support the recommendation to determine the Pollution Abatement System Carbon Filter System as best available technology, and to urge the Oregon Environmental Quality Commission to designate incineration as the best available technology to dispose of mustard ton containers.

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED

JUL 31 2008

HERMISTON OFFICE

Sincerely,

Bob Severson

Bob Severson, Mayor
City of Hermiston

July 24, 2008

08-0829

Richard C. Duval, Administrator
DEQ Chemical Demilitarization Program
256 E. Hurlburt Avenue
Hermiston, OR 97838

Dear Mr. Duval,

Please note that I'm in support of keeping incineration as the Best Available Technology for the Umatilla Army Depot project. I'm also in favor of designating the Carbon Filter System as a Best Available Technology.

As I understand it, the Army has a solid plan for removing mercury from mustard agent using carbon filtration. We long ago decided as a community and state that incineration was better suited to the Umatilla than neutralization or other methods, and I haven't heard anything since that has changed my mind.

I've been a real booster of the Umatilla Army Depot since 1941. We have good people running the depot and let's let them get the job done without more delay.

FRANK J. HARKENRIDER
935 South First Street
Hermiston, Oregon 97838

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED

JUL 28 2008

HERMISTON OFFICE

4. In the PFS BAT Staff report, the DEQ states: "Basically, the EQC's order, based on Department recommendation (Reference 17), identified inclusion of the PFS in the UMCDF incineration process to be the best available technology without making a new, formal best available technology determination." Report at 8. How was the public notified that the EQC was going to determine the PFS filter system as BAT? Please provide evidence indicating proper notice and opportunity to comment on this important issue.

5. How many times has the bypass around the PFS been used during UMCDF operations? What were the types and quantities of emissions during those events?

6. In the PFS BAT Staff report, the DEQ mentions the concern about the release of cadmium during the M55 rocket incineration campaigns. How much cadmium was captured during the burning of the M55 rockets? How much was released? How much PCB was captured during the M55 campaigns? How much was released? What data supports your response?

7. If a fire occurs in the PFS carbon filter beds during the final days of the incineration of mercury-contaminated HD ton containers, how much mercury is likely to be emitted into the environment? What quantities of other contaminates will likely be released? Has such a scenario been considered in DEQ's BAT analysis?

8. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

9. We are requesting an extension of the comment period and point out that the EQC should not be making a determination that the PFS with sulfur-impregnated carbon is BAT for HD with high mercury until such time that Tooele completes construction of its PFS and demonstrates that it will work.

22. In addition to the May14th incident, how many other significant incidents have occurred during the testing and operation of UMCDF? Are these incidents described and analyzed in writing and will they be provided to the EQC?

23. What is the legal basis for considering "cost" as a factor in determining BAT? Please be specific.

24. In light of the success of the neutralization of the HD ton container stockpile in Aberdeen, Maryland, will DEQ and EQC reconsider the BAT determination for HD ton containers that are purported to not contain high levels of mercury? If not, why not?

25. What can concerned citizens due to insure that the DEQ and EQC reconsider BAT for HD ton containers that are purported to not contain high levels of mercury? Please be specific.

BAT FOR PFS CARBON FILTERS

1. Has DEQ performed a mass balance analysis (*i.e.*, measuring the total amount of a chemical of concern going in and measuring what amount is captured in the filter system) to determine how efficiently the PFS carbon filters are capturing agent and other hazardous wastes? If so, please provide the data. If not, why not?

2. Before allowing the incineration of HD from the ton containers will DEQ require tests to determine through testing with actual waste from a mercury-contaminated HD ton container whether mercury is captured at a sufficiently high rate in the sulfur-impregnated carbon filters? If not, why not?

3. Has the metals removal efficiency (MRE) noted in the staff report for trial burn conditions been tested or verified during actual operating conditions at UMCDF? If not, why not?

14. Do you know what specific neutralization approach (there are several) was studied in determining the $117 million cost for the small-scale neutralization system? Do you know if there are proven systems that would be less costly?

15. Do you know why it is that TOCDF's sulfur-impregnated carbon system to capture mercury is projected to cost $57 million and Umatilla' is project to cost $47 million? What information or references support your response?

16. Is it not true that a modified sulfur-impregnated carbon filtration system targets one specific heavy metal at the cost of reducing the capture capability of other heavy metals and toxics? What data does DEQ have regarding this issue?

17. What studies have been done to determine the ramifications of such a trade-off on public health and the environment?

18. Are you aware that there are proven treatment options for neutralized mustard secondary waste (hydrolysate) that would meet the LDR requirements?

19. The Court has noted "Petitioners were also able to adduce evidence that neutralization technologies have by now demonstrated their practical utility to the extent that the Army has used or plans to use neutralization technologies to destroy agent at Aberdeen, Blue Grass and Pueblo chemical weapons sites, and that the Army estimates a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration." *G.A.S.P., et al v. EQC, et al.*, Case No. 0009 09349 (Opinion & Order July 26, 2004) at 27.

Question: Has the DEQ taken into account the fact that (as the Army has admitted) there will be a far smaller quantity of dioxin, PCBs, and hazardous waste emissions from alternative neutralization facilities, and less water consumption, than with incineration?

20. Is it true that on May 14. 2008, an incident occurred that resulted in serious damage to and the shut down of the: liquid incinerator at UMCDF? What happened? How has DEQ investigated this incident? Has DEQ been on-site and witnessed the damage? Are there pictures or video of the damage? Will pictures and video of the damage be released to the public?

21. How has the May 14th incident been factored into DEQ's BAT analysis? Can you point out where it is referenced in any of DEQ written reports or other information released to the public?

8. It is a fact each mustard ton container will have a different heel to liquid ratio and contain different chemical/heavy metals compositions. Do you honestly believe that a trial burn using a specific ton container or a few specific ton containers with different heel amounts and different chemical/heavy metal compositions can be relied upon to accurately predict emissions for all mustard ton containers? If so, please explain your justification.

9. Are you aware that TOCDF spokesperson Alaine Grieser was quoted in the Deseret News on March 31, 2008 as saying, "Technicians conducting tests on the stockpile have found no patterns to help explain why some of the weapons and bulk containers are tainted with mercury and others are not."? Would you not agree, based on that statement, that it is ludicrous to rely on TOCDF results to determine Umatilla's mercury-contaminated mustard tons?

10. Does it not follow, that to get an accurate determination of the percentage of mercury contamination in each ton container at Umatilla, each ton container must be analyzed as is being done at TOCDF? Wouldn't such an analysis be costly and time-consuming and then it wouldn't even give you an accurate analysis of the mercury in the heels anyway, would it? Have those cost and schedule estimates been determined?

11. Are you aware that if Umatilla's mustard tons were to be neutralized, such an analysis would be unnecessary and it would be assured that no mercury would be released into the environment?

12. Why is the term "higher than expected levels of mercury" applied to the U.S. stockpile of mustard when the 2000 Operations Schedule Task Force Final Report noted (p. 27) that an SAIC study "MACT Rule: Impact Assessment and Programmatic Compliance Strategy, 10/09/00" indicated two areas of potential concern from a compliance perspective: semi-volatile metals and mercury. The Task Force Report then goes on to say "...several data points exist which indicate that higher mercury feeds should be anticipated, at least for some lots or sublots of munitions or containers." And then recommends "[G[iven the potential ramifications, this issue needs to be more intensively managed so that future sites (ANCDF, UMCDF and PBCDF) are prepared to address this issue in a consistent manner."

13. The report also noted the heel problems with the potential for through put rate ramifications that could be significant and recommended a more comprehensive understanding of the condition of the mustard ton containers. It even raised the possibility of an alternative process. Have you read this report?

08-0823

Comments for DEQ hearing in Hermiston 24 July 08

The following comments and questions are submitted on behalf of G.A.S.P., Oregon Wildlife Federation (OWF), Government Accountability Project (GAP), Sierra Club, Karyn Jones, Debbie McCoy Burns, Susan Lee Jones, Robert Palzer, Jan Lohman, and Judy Brown.

BAT FOR DESTRUCTION OF MERCURY CONTAMINATED HD TON CONTAINERS

1. Will the BAT determination be based on pollutants discharged into the environment and their potential effects on human health and the environment as required by law?

2. If the answer to that question is yes, then why are we here? It is a universally known fact that neutralization releases orders of magnitude less pollutants into the environment than incineration releases. In light of the significant difference in emissions, how does DEQ justify utilizing incineration for HD ton containers contaminated with mercury?

3. Isn't it true that incinerators have a direct pathway to the environment and when incinerating mustard, toxics will be chronically discharged into the environment and that during upset/mechanical breakdown conditions even more toxics and agent will be released through this direct pathway?

4. Are you aware that the neutralization of Aberdeen's stockpile of Mustard tons was successfully completed without mercury releases into the environment?

5. Has a comparison been done between TOCDF operations (incineration) and Aberdeen operations (neutralization) at full rate processing of Mustard tons? If so, what were the results?

6. Are you aware of a 2002 White Paper presented to Oregon's Governor, which showed that, based on official regulatory documents, the average daily water usage for incineration is 260,000 gallons compared to 27,000 gallons per day water usage for neutralization?

7. Are you aware that there are a number of scientists who have determined that the amount of mercury in a gelled mustard heel can not be accurately predicted based on measuring the mercury found to be present in the liquid mustard? How will DEQ account for the amounts of mercury contained in the heels in the ton containers?

DEQ Item # 08-0917

Attachment C To Agenda Item D
BAT Determination Staff Report on High Mercury Mustard Ton Containers (Consolidated Public Comments)

Handout Item D
August 21, 2008

Department of Environmental Quality

DEQ

Best Available Technology for the Treatment of Mustard Agent Containing Higher-than-Anticipated Levels of Mercury at the Umatilla Chemical Agent Disposal Facility

Department of Environmental Quality

DEQ

Statement of Purpose

- Purpose:
  - Judge Marcus' GASP IV judgment requires a Best Available Technology determination for mustard agent that contains higher-than-anticipated levels of mercury
- Objective:
  - Define "higher-than-anticipated levels of mercury"
  - Identify scope of high-mercury HD ton containers at Umatilla
  - Explore regulatory implications of high-mercury content
  - Identify and evaluate demonstrated technologies available

Department of Environmental Quality

Background

- In order to issue the initial operating permit February 12, 1997, the EQC and DEQ determined the best available technology for the UMCDF was the Army's baseline incineration system.
- Since issuance of the original permit, the U.S. Army has determined that some of the HD ton containers at the UMCDF contain higher than originally anticipated levels of mercury and other metals.
- Mercury contamination may have been introduced during filling operations through the use of incompletely cleaned ton containers that previously held Lewisite or other contaminates.

Department of Environmental Quality

Higher-than-Anticipated Levels of Mercury

- Quantifiable levels of mercury were not anticipated by the Army in mustard agent.
- The majority of ton containers do not contain quantifiable levels of mercury.
- The Army has used the practical quantitation limit, approximately 1 part per million, to identify high-mercury ton containers.

History of Mustard Agent at the Umatilla Chemical Depot

The mustard agent stored at the UMCD was manufactured and originally stored at Rocky Mountain Arsenal, as were all of the ton containers of mustard agent at Deseret Chemical Depot in Utah.

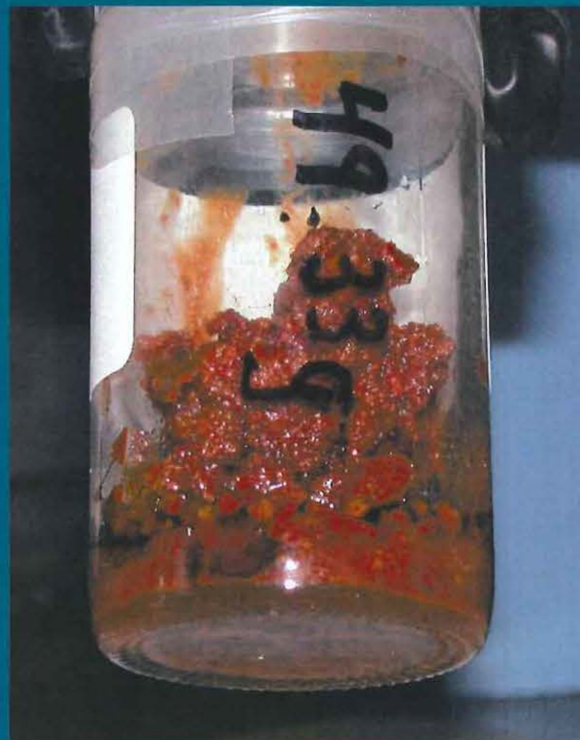
Deseret Sampling

- The Army began testing ton containers in 2003 to identify the type and makeup of heel formations.
- This sampling incorporated 96 ton container heels, of which 18 had high levels of mercury.

Department of Environmental Quality

DEQ

Heel Sample



Department of Environmental Quality

DEQ

What is in the Heel

- The 18 containers showed elevated levels of arsenic, mercury, chrome, and occasionally other metals.
- Levels of arsenic and mercury have been identified as high as 10,300 parts per million.
- Heel sizes have ranged from to 10% to 50% of the volume of the container. The methodology used may have overestimated the size of the solid heel.
- Heels cannot be sampled without breeching the integrity of the container.

Department of Environmental Quality

DEQ

The Liquid Portion

- The liquid portion of the containers with high-metal heels also contain elevated levels of metals.
- The Army uses the liquid samples to identify containers with high levels of metals.

Department of Environmental Quality

Sampling Program

- Due to the high metals content identified by the initial sampling, it was decided to sample every ton container at Deseret.
- The database is up to 6,300+ data points.
- Sampling has been limited to liquid portions of the containers.
- An estimate of heel size has been made for each container sampled.

Department of Environmental Quality

Limitations of Sampling

- Due to the nature of mercury and its compounds, they are not uniformly distributed throughout the heel.
- Water/solvent washing techniques will be marginally effective on the heel, will not work for large chunks, material cemented on container wall, or piping and valves, and will generate large quantities of additional waste.

Department of Environmental Quality

DEQ

Limitations of Sampling (cont)

Conclusion: Representative sampling of the high-mercury container heels is not feasible.

Department of Environmental Quality

Land Disposal Restrictions

- The LDR program ensures hazardous waste will not be placed on the land until the waste meets specific treatment standards to reduce mobility or toxicity of hazardous constituents.
- The treatment standard is specified for each type of hazardous waste.

Department of Environmental Quality

Land Disposal Restrictions – Treatment Standards

- Treatment standards are expressed as:
  - a numerical treatment standard (contaminant concentration level)
  - required treatment technology (e.g., incineration)
- Underlying hazardous constituents must meet the universal treatment standards.

Department of Environmental Quality

DEQ

Regulatory Status of Mustard Agent

- In the beginning, mustard agent was just OR P998.
- High Mercury Mustard Agent—will likely be coded as:
  - D001 (ignitable)
  - D004 (arsenic)
  - D006 (cadmium)
  - D007 (chromium)
  - D008 (lead)
  - D009 (mercury)
  - D010 (selenium)
  - OR P998 (mustard)
- Because of the Federal Waste Codes, the mustard agent with high mercury will be subject to Land Disposal Restrictions (LDR).

Department of Environmental Quality

DEQ

Regulatory Implications of High-Mercury Content

- D001 - The Land Disposal Restriction for ignitable waste consists of deactivation of the characteristic and meeting the universal treatment standards.
- D004, D006, D007, D008, D010 - The Land Disposal Restrictions for metals are generally to meet a numerical treatment standard and meet the universal treatment standards.
- D009 - For wastes with a mercury content greater than 260 milligrams per kilogram, the EPA regulations establish incineration or retorting to be the best demonstrated available technology (BDAT) prior to disposal.
- This will effect how other technologies could be utilized.
  - For a technology other than incineration, treatment of waste/residues to meet the mercury standard would still be necessary.

Department of Environmental Quality

DEQ

Demonstrated Technologies

- Incineration
- Neutralization
- DAVINCH™ process

Department of Environmental Quality

DEQ

Incineration

- Destroys organic constituents in hazardous waste.
- Drives off volatile metals such as mercury, but does not destroy them.

Department of Environmental Quality

DEQ

Incineration (cont)

- Regulated under 40 CFR 264 Subpart O for treatment of hazardous waste.
- "MACT" rule (maximum achievable control technology), issued under the joint authority of RCRA and the Clean Air Act, upgrades emission standards for hazardous waste combustors.
- Clean Air Act emission standards--40 CFR 63 Subpart EEE for combustion of hazardous air pollutants.

Department of Environmental Quality

DEQ

Incineration - Benefits

- Existing, proven technology at the site.
- Short time for construction. Mustard stockpile destruction completed by 2011.
- Workforce is experienced in technology.
- Meets LDR standard for high-mercury (greater then 260 mg mercury per kg of waste) D009 waste.
- Liquid incinerator systems demonstrated to be effective in capturing mercury with a waste feed rate of 27 parts per million.
- Metal parts furnace can demonstrate compliance with air quality requirements with installation of a mercury emission monitor.

Department of Environmental Quality

Incineration - Drawbacks

- Potential mercury retention in the pollution abatement system brines must be addressed to ensure protection to workers and the environment.
- Development of a treatment strategy for mercury-contaminated carbon.

Department of Environmental Quality

Neutralization

- Army design is based on the Aberdeen model that has been previously utilized.
  - No other neutralization process, such as the ArcTech chemical oxidation system, has been demonstrated on chemical weapons beyond bench-scale testing, so reliable data is not available.
- The biotreatment portion has never been demonstrated in this application, but is in fairly standard use.
- The high-metals content will require an additional metals removal step to avoid toxicity to the biotreatment media.
- Effluent, sludges, and other treatment residues will require incineration/retorting prior to disposal.

Department of Environmental Quality

DEQ

Neutralization - Benefits

- Technology has been demonstrated to operate safely.

Department of Environmental Quality

DEQ

Neutralization - Drawbacks

- Does not meet LDR requirements.
  - Treatment residues still require incineration/retort.
- Solid secondary wastes cannot meet agent-free criteria for off-site shipment:
  - These secondary wastes would need to be incinerated on-site.
- Drained mercury-contaminated ton containers would still require on-site incineration in the metal parts furnace.
- Air emissions from the neutralization reactors have never been quantified and may contain hazardous constituents.
- Long lead time (6 to 9 years) before system will be operational. Mustard stockpile destruction delayed to 2014-2017 timeframe.
- Cost of additional treatment (in addition to incineration):
  - $468 million (full-size facility)
  - ~$117 million (reduced-size facility)

Department of Environmental Quality

DEQ

DAVINCH™

- Demonstrated technology overseas.
- Based on using explosives to destroy organics in a controlled environment.

Department of Environmental Quality

DEQ

DAVINCH™ - Benefits

- Technology has been demonstrated to operate safely.
- Stand-alone system. Does not need to rely on existing incineration facility.
- Gas retention system ensures air emissions meet requirements prior to discharge.

Department of Environmental Quality

DEQ

DAVINCH™ - Drawbacks

- Technology has not been used in the extrapolated size necessary to treat ton containers.
- Long lead time (5 to 8 years) before system will be operational. Mustard stockpile destruction completed in 2013-2016 timeframe.
- Requires use of 633,000 pounds of TNT equivalent of explosives.

	Criteria	Best Available Technology (BAT)		
		Incineration	Neutralization	DAVINCH™
1	Types, Quantities, Toxicity of Discharges to the Environment	• PFS with SIC meets BAT criteria based on testing and HRA results. • Meets MACT/RCRA standards • Discharges <1 lb of mercury per year • Generates 60 tons of treatment residue that may require IMER/RMERC	• Emissions never quantified, but expected to be low • Generates 5,300 tons of treatment residues that require IMERC/RMERC	• Vacuum reduces volume of emissions • Will meet RCRA/MACT emission standards <u>before</u> discharged • Discharges < 1 lb of mercury per year • Uncertainty on mercury emissions from chamber • Generates 1,000 tons of treatment residues that require RMERC
2	Risks of Discharge from a Catastrophic Event	• Risks are considered low based on operational history.	• Risks are considered low based on operational history.	• Risks are considered low based on operational history in Japan and Belgium • Proposed system is 2.5 times larger than any previously constructed.
3	Safety of Operation	• Demonstrated safe operations.	• Demonstrated safe operations.	• Demonstrated safe operations, but not specific to HD TC processing. • Requires extensive handling of explosives.
4	Rapidity of Destruction	• ~7 TCs/day, 62 days processing time • Quickest destruction since facility is constructed and operating.	• 5 TCs/day, 86 days processing time	• ~1.5 TCs/day, 287 days processing time • 6 TCs/day, 72 days processing time
5	Impacts on Consumption of Natural Resources	• Requires large quantity of natural gas. • Significant water and electricity consumption	• Large water consumption for neutralization plus biotreatment • LDR-required treatment of residues (incineration/retort) requires additional resources • Requires use of MPF for container processing	• Uses low amount of natural gas, water, and electricity. • LDR-required treatment of chamber residues. • Requires 633,600 pounds TNT equivalent of explosives
6	Time Before Technology is Operational and Impacts to Overall Risks	• Installation of SIC in PFS - immediate. • 2011 completion date	• 6 to 9 yrs to complete NEPA analysis, budget, permit, construct, and systemize prior to operation • 2014 to 2017 completion date • Requires more preparatory efforts and workforce training. • Risks associated with neutralization in addition to those associated with incineration operations.	• 5 to 8 yrs to complete NEPA analysis, budget, permit, construct, and systemize prior to operation • 2013 to 2016 completion date • Requires NEPA analysis • Requires more preparatory efforts and workforce training.
7	Costs	• SIC installation, $750,000 • Disposal of 60 tons of mercury waste.	• $117 million • Disposal of 5,300 tons of mercury waste • Extended campaign schedule will increase costs for incinerators and Depot security.	• Approximately $40 million • Disposal of 1,000 tons of mercury waste • Extended campaign schedule will increase costs for incinerators and Depot security.

Green - meets Criteria
Orange - marginally meets criteria
Red - Does not meet criteria

SIC = Sulfur-impregnated carbon
TC = Ton containers

Department of Environmental Quality

DEQ

Public Involvement

- Public comment period open June 27 through August 11, 2008
- Public meeting and hearing were held July 24, 2008.
- 18 sets of comments received:
  - 13 in favor of incineration
  - 3 in favor of the DAVINCH™ system
  - 2 in favor of other neutralization alternatives
  - 2 requested delay of decision

Department of Environmental Quality

DEQ

DEQ's Recommendation

Find that baseline incineration, with the addition of sulfur-impregnated carbon to the pollution abatement system carbon filter system on the metal parts furnace, represents the best available technology for treatment of the UMCDF mustard ton containers with higher-than-expected levels of mercury.

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 21, 2008

To: Environment Quality Commission

From: Dick Pedersen, Director

Subject: Agenda Item E, Informational Item: Director's Dialogue
August 21-22, 2008 EQC meeting

DEQ proposes stringent regulation of PGE Boardman

Last week DEQ announced that it was opening its doors to a public conversation about a proposal to require strict emission controls at the PGE's aging coal-fueled power plant in Boardman. The proposal goes beyond "best available retrofit technology," and calls for a phased approach that will eliminate 65 percent of total sulfur dioxide and nitrous oxide emissions within 5 years, and 80 percent within 10 years. The proposal was covered by newspapers across the state, and immediately afterward, the conversation began with comments by environmental groups and businesses. The Oregonian published an editorial lauding the process, which invites public input at a number of public meetings and through our web site, to help us formulate our rule proposal. A fiscal advisory committee will meet in September to discuss the financial affects of the regulation, which could cost PGE in excess of $400 million.

Ash Grove Cement Signs MAO to reduce mercury emissions

Ash Grove Cement releases approximately 2,500 lbs/year of mercury at its Durkee Plant. Both DEQ and the company are interested in reducing mercury emissions as soon as possible. Ash Grove has agreed to voluntarily reduce emissions, and to memorialize the agreement. July 17 DEQ and Ash Grove recently entered into a Mutual Agreement and Order that includes stipulated penalties, deadlines, and mercury recovery rates. The MAO will result in reductions happening earlier than if DEQ had entered into a long rulemaking process to achieve the same reductions.

DEQ convened an advisory group of 11 people including: the local community, Tribal nations, health and science community, and environmental groups. The MAO was placed on public notice in March 2008, and DEQ held a public meeting to explain the requirements. All public comments received were supportive of the MAO. After the public meeting, however, Ash Grove notified us that they wanted to modify the MAO because they had found a better solution: instead of the original plans of injecting carbon into the baghouse to capture mercury, then removing the carbon/mercury material for final disposal as hazardous waste, the company redesigned the system in a way to actually pull the mercury off the carbon through a heating process and send the carbon back through the system for reuse (to pick up more mercury). The separated mercury will be sold back to industry for use, displacing the need for new mercury.

The MAO was adjusted and an official agreement was signed on July 17, 2008. Highlights of the agreement are:

- Finish construction within 24 months of signing date (July 17, 2010);
- Shakeout period completed 18 months after construction (roughly January 2012);
- Shakeout emission limits: must reach a minimum of 75 percent mercury reduction with a goal to achieve 85 percent reduction;
- Post-shakeout goal: 85 percent recovery on 12-month rolling average;
- $1000 penalty for each violation of 75 percent reduction goal; $250 penalty for other violations of the MAO, such as reporting requirements; and
- Once it is demonstrated that the rolling annual average is met, the conditions of the MAO will be rolled into Ash Grove's Title V operating permit.

The company stepped up to the plate and took responsibility, and has now set the bar for other companies to do the same. The MAO is a "win" for the company, the community and the environment. As we enter into the "action" phase of the agreement, DEQ will stay in close contact with Ash Grove to ensure that it meets the terms of the MAO.

Federal Air Quality Regulations (Area Source NESHAPs)

The Air Quality Division is proposing a rulemaking, currently on public notice, to adopt new federal standards for several categories of non-major air pollution sources, or area sources, such as clay ceramics and hospital sterilizers. These National Emission Standards for Hazardous Air Pollutants are the first in a group of standards being adopted by the EPA to reduce health risks from area sources. In most cases, we have proposed to adopt the federal rules by reference. However, we have proposed to go beyond the new federal standards for gasoline stations by requiring more facilities to capture gasoline vapors displaced during the filling of gasoline storage tanks and by prohibiting the topping off of motor vehicle fuel tanks. These additional measures will reduce health risks from exposure to benzene.

The area source NESHAPs will increase the number of sources subject to air quality permitting. DEQ has proposed two new lower cost General Air Contaminant Discharge Permit categories to streamline implementation of the new federal standards for gasoline stations and hospital sterilizers. We are requesting new legislation to enable us to implement some of the area source NESHAPs without permitting where there are effective certification programs that ensure compliance. In addition, we are requesting new positions in the 2009-2011 budget to conduct compliance assurance and compliance assistance.

In addition to the area source NESHAPs, the rulemaking proposal would set new standards applicable to the Covanta waste-to-energy plant in Brooks that go beyond the recently tightened federal standards but are still achievable by the company. The proposal would remove the boiler NEHSAP that was recently vacated by a federal court. The rulemaking would also clean up the Utility Mercury Rule by removing trading provisions and adding monitoring requirements that were vacated from the federal rule.

The public comment period ends on August 26, and DEQ expects to present the rulemaking to the EQC for action in December.

Climate Change

DEQ held eight public hearing around the state for the mandatory GHG reporting rule and has received comments from 42 people or organizations. DEQ is now working to address the comments, make minor revisions to the rule, and plans to present the proposed rule to the EQC for action in October. DEQ also continues to participate in the Western Climate Initiative, which now consists of seven western states and four Canadian provinces working together to design recommendations for regional strategies to address climate change. The WCI expects to complete its final design recommendations by the middle of September.

Gray Water

Recent public interest in gray water is high, specifically regarding regulations that restrict the use of gray water from residential and commercial buildings. Gray water is defined as household sewage other than "black wastes" such as bath water, kitchen waste water, and laundry wastes. DEQ and the 2004 Urban Water Reuse Task Force issued a report on improving incentives for water reuse and eliminating barriers to reuse which identified urban gray water reuse as an issue needing further research. As you will recall, the EQC adopted revised rules in April 2008 that provide for opportunities to use recycled water. Gray water was not included in the recycled water use rulemaking because of the wide scope of the issue, and the multiple state statutes and other state and local agency regulations governing the use of gray water.

A number of stakeholders and legislators would like DEQ to determine what can be done to allow and promote the use of gray water created by residential and commercial projects. DEQ has been working with the Department of Human Services Health Division, the State Building Codes Division, interest groups, and the Governor's office to address these issues and determine an approach that would allow the reuse of gray water while protecting public health and the environment. Representative Dingfelder has asked DEQ, DHS and Building Codes to present a recommendation to the House Interim Committee on Energy and the Environment in October. We expect the recommendation will be used to draft a bill for the 2009 legislative session regarding gray water.

Lakeside Landfill

Among the many issues associated with Lakeside, financial assurance remains at the top of the list for DEQ. Lakeside continues to request that it be allowed to use an annuity as an alternative financing mechanism, which DEQ will consider, but the net present value of the annuity must be sufficient. Currently, DEQ estimates that Lakeside's request is about $600,000 to $1 million short of what would be required for closure and post closure.

The composting facility is operating under an expired permit, which is consistent with compost operations statewide as DEQ continues to work on new compost rules slated for adoption in 2009. DEQ is contemplating changes to the proposed rules to better identify sites that warrant regulation, and to clarify performance standards for protecting groundwater and surface water. Until DEQ revises the compost rules, we intend to inspect the operations of all compost facilities on a regular basis. In Lakeside's case, DEQ will respond to complaints, and ensure Lakeside is in compliance with the existing composting rules, the operation's General Permit and the site's operations plan. We have received emails from Lakeside's neighbors expressing frustration about the delay in adopting and moving forward with the compost rules.

Neighbors have also expressed concern about a concrete pile at the site and the associated grinding of the concrete on-site. DEQ is following up to evaluate these concerns.

We have also met with Lakeside and their attorneys regarding the stormwater situation. A penalty for approximately $8,000 was issued at the end of July, which Lakeside has contested. DEQ is requiring Lakeside to provide a detailed work plan identifying how discharges will be eliminated.

LNG Proposals

Northern Star/Bradwood Landing Project: The types of DEQ permits needed by Northern Star for the Bradwood Landing site include: an ACDP air permit; both an NPDES water quality permit and 401 certification; and a solid waste permit for upland disposal. In addition, Northern Star must meet emergency response requirements. At present, DEQ expects that Northern Star will withdraw its 401 certification application and resubmit it before the October 2008 deadline Northern Star does not anticipate being able to provide additional information DEQ has requested by the end of August in order to analyze the water quality impacts of the proposed facility. With regard to its NPDES permit application, Northern Star would be considered a new source. Because the Columbia River is limited for temperature, and there is no TMDL currently in place, the discharge from the facility would exceed the standard. DEQ has contacted Northern Star to request more information related to this permit application as well.

Jordan Cove/Williams Connector Project: Jordan Cove/Williams Connector Project involves a very significant removal and fill project for the ship-turning basin and terminal project in Coos Bay and a 231-mile large diameter pipeline project from Coos Bay to near Klamath Falls. Key concerns for DEQ include turbidity and temperature issues for 397 stream crossings through four TMDL basins and threatened and endangered species habitat, the impact of a 3 million cubic yard removal and fill near or in threatened and endangered/wetland habitat and lack of funding for staff time in support of the project. The Federal Energy Regulatory Commission is preparing the draft environmental impact statement, anticipated to be released this fall. The Oregon Department of Energy has requested a 120-day comment period (instead of 30-day) for review of the draft EIS for state agencies. DEQ will be among the agencies commenting.

Eugene Cancer Cluster Study

The Oregon Department of Human Services Health Division recently released a cancer cluster study conducted in the Trainsong, River Road, and North Bethel areas of Eugene. The study was initiated due to concerns with permitted air discharges at the JH Baxter wood treating site, but was expanded to a general area assessment. The study identified four statistical cancer clusters (two lung, one brain, one leukemia). One lung cancer cluster was in the Trainsong neighborhood, which is also the area with potential vapor problems from Union Pacific Railroad Eugene rail yard cleanup site.

The report concluded that DHS does not have enough data on environmental contaminants or individuals' personal health history to determine if the clusters are due to exposures to industrial contaminants. The study found that tobacco use was a common risk factor for the majority of lung and leukemia cases. The report recommended expansion of tobacco prevention and cessation programs in the neighborhoods, and a review by DHS of existing air monitoring data (primarily particulate data) that may indicate whether residents experience exposures that increase their risk for health effects.

Both JH Baxter and the UPRR Eugene rail yard are active DEQ cleanup sites in the study area. The UPRR site was the focus of intense public concern and media interest last year when DEQ announced that vapors from the site might be impacting nearby homes. Cleanup actions at both sites have eliminated exposures to residents of the neighborhoods. The DEQ cleanup program is working closely with DHS and the local air pollution authority, the Lane Regional Air Protection Agency, to provide accurate information to the public and media.

Attached is the recent DHS press release which provides additional information on the cancer study.

E-Waste Program Update

DEQ selected the National Center for Electronics Recycling, a non-profit organization located in West Virginia, to develop and manage the State Contractor Program. The contract runs through 2012 and is funded by the participating electronics' manufacturers.

The NCER is subcontracting with Portland-based Zero Waste Alliance and other local entities. If all independent programs are approved, the State Contractor Program will provide services for 178 manufacturers and collect a projected 1.85 million pounds of e-waste. There would be four independent programs, representing 27 manufacturers, and projected to collect 9.1 million pounds of e-waste.

The electronics recycling legislation requires each of the 46 Oregon cities having a population over 10,000 to have a collection site. In addition, 14 counties need to provide an electronics recycling service, such as collection events or retailer take back programs, but not necessarily a separate dedicated collection site. Given that there could be as many as five programs operating in Oregon starting in 2009, the number of collection sites could range from a minimum of 46 (if all programs choose to use the same collection sites) to a maximum of 230 (if they all choose unique sites in every city over 10,000). DEQ expects to see between 100 and 150 sites.

DEQ is continuing to work with the E-Waste Advisory Group to implement the program. The advisory group is currently discussing the opportunities and challenges of having five programs operating during the first year of the program and how to use education and outreach to deliver information about the program.

DEQ will meet with the E-Board in September or December to request limitation to pay for the State Contractor Program. The program is on schedule to begin collecting e-waste on January 1, 2009.

FAST FACTS

Northwest Eugene Neighborhood Cancer Investigation *July 2008*

Purpose

The Environmental Health Assessment Program (EHAP) has released its third and final report concluding a multi-year investigation into potential cancer clusters in three neighborhoods in north Eugene. The report, "*Cancer Investigation in Three Neighborhoods Surrounding J.H. Baxter & Co.",* discusses the investigation of acute myeloid leukemia (AML) and brain, lung and nasal cancer cases in Eugene's Bethel, River Road and Trainsong neighborhoods. The full report is available at www.healthoregon.org/ehap.

Background

EHAP's original report released in September 2006 looked at cancer cases from 1996-2002 and found no significant increases for the time period. Since then, the Oregon State Cancer Registry (OSCaR) has provided EHAP with cancer data through 2004. Based on the updated data, EHAP released a draft report in May 2007 for public comment. This final report, based on the cancer cases from 1996-2004, addresses the public comments received.

What were EHAP's findings?

Nasal cancer: There was no significant increase in cases for the overall period (1996-2004).

Brain cancer: There were no significant increases for the overall period. During the years 1996-2002, there were a higher number of cases in the north section of the Bethel neighborhood. Since 2002 there have been no new reported cases in this census tract.

Acute myeloid leukemia (AML): There were no significant increases for the overall period. During 2002-2004 there was a significant increase, particularly in the southern section of the Bethel neighborhood. All AML cases had a history of smoking or chemotherapy, which are risk factors for AML.

Lung cancer: From 1996-2004, there was a significant increase in lung cancer cases in the Trainsong neighborhood for this time period. There was also a significant increase in census tract 26 (N. Bethel) from 1996-2003. The majority of cases in Trainsong and N. Bethel had a history of smoking.

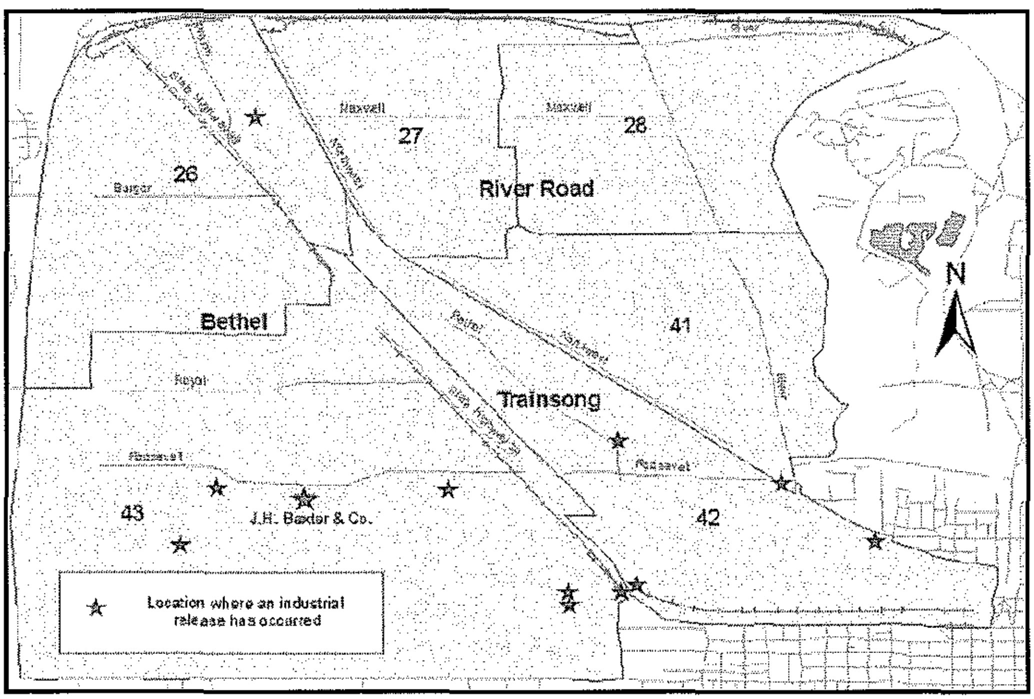
What do these findings mean?

EHAP has identified significant increases (statistical clusters) of cancer in some areas within the three neighborhoods. However, EHAP does not have enough data on environmental contaminants or individuals' personal health history to be able to determine if these clusters are due to exposure to industrial contaminants.

EHAP's Recommendations

Tobacco smoke is a potent environmental contaminant that is a known risk factor for many types of cancer, including lung cancer and AML. This investigation found that tobacco use was a common risk factor for the majority of lung cancer and AML cases in the Trainsong and N. Bethel neighborhoods. *EHAP recommends the implementation or expansion of tobacco prevention and cessation programs in these neighborhoods, and health education and outreach to answer concerns about tobacco use and cancer.*

EHAP recommends a review of air monitoring data in this area to determine if they include data on any contaminants of concern. While these data will not allow EHAP to link observed cases of disease to environmental contamination, they may provide information on whether the residents of these neighborhoods experience exposures that increase their risk for possible health effects.



Where can I get more information?

Complete copies of current and past Northwest Eugene cancer investigation reports are available on the Web at www.healthoregon.org/ehap. For further information, please contact Sujata Joshi, EHAP epidemiologist, Oregon Public Health Division, at 971-673-1213.

State of Oregon
Department of Environmental Quality Memorandum

Date: August 4, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda Item G, Rule Adoption: Amend Plant Site Emission Limit Applicability Rule
August 21-22, 2008 EQC Meeting

Why this is Important

The proposed rule would avoid a significant amount of unintended work by the Department of Environmental Quality permitting staff and unnecessary burdens on regulated sources because of an error that was recently discovered within the Air Quality permitting programs rules.

Department Recommendation and Motion

DEQ recommends that the Environmental Quality Commission adopt amendments to the rules in divisions 200 and 222 as proposed in Attachment A, and direct DEQ to submit the amended rules to the United States Environmental Protection Agency for approval as a revision to the State of Oregon Clean Air Act Implementation Plan.

Background and Need for Rulemaking

The EQC adopted a temporary rule on February 22, 2008 amending the applicability requirements for Plant Site Emission Limits. This proposed rulemaking would make those temporary amendments permanent.

The PSEL rule sets limits on emissions of specified regulated air pollutants. The primary purpose of establishing a PSEL is to assure compliance with ambient air standards, which regulate a group of pollutants known as criteria pollutants (particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead). However, at the end of last year, DEQ discovered an error in the PSEL Rule requiring PSELs for two unintended categories of pollutants. These two categories include substances regulated by the Accidental Release Prevention rule and substances listed as Early Reduction High Risk Pollutants.

The Accidental Release Prevention rule (OAR 340-244-0230) was established to require businesses storing large quantities of hazardous materials to have a Risk Management Plan to prevent the accidental releases of those regulated substances. The Early Reduction High Risk Pollutants rules (OAR 340-244-0120) are used to allow a source to make early voluntary emission reductions of listed chemicals in order to be allowed greater flexibility later when complying with new federal regulations. These programs are not implemented through the PSEL rule and do not depend on that rule for implementation.

If this proposed rule is not adopted, DEQ must issue a PSEL for hundreds of substances listed under these two programs. This would require investigation of permitted facilities to determine if they use these listed substances and could require DEQ to amend several hundred permits. Moreover, amending these permits is difficult because there are no criteria to set a PSEL for these chemicals. There are no emission factors available for most of these substances and the sources may not have suitable records to estimate their emissions. This creates a significant work load for DEQ and the permittee, but does not provide any real environmental benefit because a PSEL would not limit the amount of these substances that can be released and it would not affect implementation of the Accidental Release Prevention or Early Reduction High Risk Pollutant programs.

These proposed permanent rule revisions will clarify the PSEL rule to exempt substances regulated by the Accidental Release Prevention Rule and Early Reduction High Risk Pollutant rules. The rule change would be consistent with DEQ's historical interpretation and implementation of the PSEL program, and would allow DEQ to avoid unnecessary permit actions based on the error in the rules.

Effect of Rule This proposed rule amendment would exempt pollutants regulated by the Accidental Release Prevention rules and the Early Reduction High Risk Pollutants rules from regulation under the PSEL rules.

Commission Authority The EQC has authority to take this action under ORS 468.020 and ORS 468A.025, 468A.035 and 468A.040.

Stakeholder Involvement DEQ has notified the public through emails and mailings, and notified affected permittees, as well as the Associated Oregon Industries, interested environmentalists and environmental non-governmental organizations.

Public Comment DEQ opened an official public comment period from April 21 to May 29, 2008. No comments were received during that period. DEQ held a public hearing May 22, 2008, in Portland. No members of the public attended the meeting.

EPA Notice Since the rule is part of the State Implementation Plan, notice was given to EPA of the proposed change on April 7, 2008, 45 days before the hearing. Upon adoption, a SIP revision submittal will be sent to EPA Region 10.

Key Issues If the rule is not corrected several hundred permits will potentially need to be modified, creating significant workload issues. DEQ does not have permitting resources available to handle this additional workload.

In order to comply with the existing rule, sources would have to expend funds for additional emissions testing and may need new monitoring equipment. Many of these sources are small businesses who may not have adequate resources to conduct additional monitoring or purchase new equipment.

The temporary amendment adopted on February 22, 2008, corrected this rule. If the temporary rule expires, and previous rules go back into effect, DEQ would potentially need to reopen and reissue several hundred permits including General permits which would need to be revised through rulemaking.

Next Steps

The permanent amendment will be effective upon the date of filing. Since the amended rules will align the rules with DEQ's current practices, no implementation plan, training or outreach will be needed.

Attachments

A. Proposed Rule Revisions- Divisions 200, 222
B. Summary of Public Comments
C. Presiding Officer Report
D. Relationship to Federal Requirements
E. Statement of Need and Fiscal Impact Statement
F. Land Use Evaluation Statement
G. OAR 340-244-0120, Table 2
H. OAR 340-244-0230, Table 3

Available Online

Public Notice of Proposed Rulemaking - DEQ website
http://www.deq.state.or.us/regulations/proposedrules.htm

Approved:

Section: ______________

Division: ______________ for Andy Ginsburg

Report Prepared By: Gregg Dahmen
Phone: (503) 229-5108

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 200

GENERAL AIR POLLUTION PROCEDURES AND DEFINITIONS

340-200-0040

State of Oregon Clean Air Act Implementation Plan

(1) This implementation plan, consisting of Volumes 2 and 3 of the State of Oregon Air Quality Control Program, contains control strategies, rules and standards prepared by the Department of Environmental Quality and is adopted as the state implementation plan (SIP) of the State of Oregon pursuant to the federal Clean Air Act, **42 U.S.C.A 7401** to **7671**q.

(2) Except as provided in section (3), revisions to the SIP will be made pursuant to the commission's rulemaking procedures in division 11 of this chapter and any other requirements contained in the SIP and will be submitted to the United States Environmental Protection Agency for approval. The State Implementation Plan was last modified by the Commission on August 21, 2008.~~October 17, 2007.~~

(3) Notwithstanding any other requirement contained in the SIP, the Department may:

(a) Submit to the Environmental Protection Agency any permit condition implementing a rule that is part of the federally-approved SIP as a source-specific SIP revision after the Department has complied with the public hearings provisions of **40 CFR 51.102** (July 1, 2002); and

(b) Approve the standards submitted by a regional authority if the regional authority adopts verbatim any standard that the Commission has adopted, and submit the standards to EPA for approval as a SIP revision.

NOTE: Revisions to the State of Oregon Clean Air Act Implementation Plan become federally enforceable upon approval by the United States Environmental Protection Agency. If any provision of the federally approved Implementation Plan conflicts with any provision adopted by the Commission, the Department shall enforce the more stringent provision.

Stat. Auth.: ORS 468.020

Stats. Implemented: ORS 468A.035

OAR CHAPTER 340

DIVISION 222

STATIONARY SOURCE PLANT SITE EMISSION LIMITS

340-222-0020

Applicability

(1) Plant Site Emission Limits (PSELs) will be included in all Air Contaminant Discharge Permits (ACDP) and Oregon Title V Operating Permits, except as provided in section (3), as a means of managing airshed capacity by regulating increases and decreases in air emissions. Except as provided in OAR 340-222-0060 or 340-222-0070, all ACDP and Title V sources are subject to PSELs for all regulated pollutants. The Department will incorporate PSELs into permits when issuing a new permit or renewing or modifying an existing permit.

(2) The emissions limits established by PSELs provide the basis for:

(a) Assuring reasonable further progress toward attaining compliance with ambient air standards;

(b) Assuring compliance with ambient air standards and Prevention of Significant Deterioration increments;

(c) Administering offset and banking programs; and

(d) Establishing the baseline for tracking the consumption of Prevention of Significant Deterioration Increments.

(3) PSELs are not required for:

(a) Pollutants that will be emitted at less than the de minimis emission level listed in OAR 340-200-0020 from the entire source,

(b) Short Term Activity and Basic ACDPs; or

(c) Hazardous air pollutants as listed in OAR 340-244-0040 Table 1; Early Reduction High Risk Pollutants listed in OAR 340-244-0120 Table 2; or Accidental Release Substances listed in OAR 340-244-0230 Table 3.

(4) Generic PSELs may be used for any category of ACDP or Title V permit.

[**NOTE:** This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the EQC under OAR 340-200-0040.]

[ED. NOTE: The Table(s) referenced in this rule is not printed in the OAR Compilation. Copies are available from the agency.]

Stat. Auth.: ORS 468.020 & ORS 468A.040
Stats. Implemented: ORS 468.020, ORS 468.065 & ORS 468A.025

Summary of Public Comment and Agency Response

Title of Rulemaking: Amend Plant Site Emission Limit Applicability Rule

Prepared by: Gregg Dahmen **Date: June 17, 2008**

Comment period

The public comment period opened April 18, 2008, and closed at 5:00 PM May 29, 2008. DEQ held a public hearing at the DEQ Headquarters Office building, 811 SW Sixth Ave, 10th Floor, in Portland, Oregon. The Hearing began at 6:03 PM, Thursday, May 22, 2008, and concluded at 6:30 PM. No members of the public attended the hearing.

Organization of comments and responses

No comments were received from the public during the comment period.

State of Oregon

Department of Environmental Quality — Memorandum

Date: May 23, 2008

To: Environmental Quality Commission

From: Andrea Curtis, Air Quality Division

Subject: Presiding Officer's Report for Rulemaking Hearing

Hearing Date and Time: May 22, 2008, 6:00 p.m.
Hearing Location: Department of Environmental Quality
Conference Room EQC-A, Floor 10
811 SW Sixth Avenue
Portland, Oregon 97204

Rule Caption: Amend Plant Site Emission Limit Applicability Rule

The Department convened the public hearing on the rulemaking proposal referenced above at 6:03 p.m. and closed it at 6:30 p.m. No members of the public attended the hearing.

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Relationship to Federal Requirements

Amend Plant Site Emission Limit Applicability Rule
OAR Chapter 340, Division 222

Answers to the following questions identify how the proposed rulemaking relates to federal requirements and potential justification for differing from, or adding to, federal requirements. This statement is required by OAR 340-011-0029(1).

1. Is the proposed rulemaking different from, or in addition to, applicable federal requirements? If so, what are the differences or additions?

No, the proposed rulemaking does not propose requirements that are different from or in addition to applicable federal requirements. The proposed rulemaking would amend the substances subject to the Plant Site Emission Limit (PSEL) rule by removing two lists of regulated substances. Because there is no federal equivalent to the Plant Site Emission Limit (PSEL) rule, removing these two lists makes Oregon and federal requirements the same. Further, although the PSEL rule is used to determine applicability of the federal New Source Review/Prevention of Significant Deterioration (NSR/PSD) programs, the two lists of regulated substances to be removed from the PSEL rule by this proposed rulemaking do not trigger the NSR/PSD programs under federal rules, and thus the proposed rulemaking will not result in requirements that are different from applicable federal requirements.

2. If the proposal differs from, or is in addition to, applicable federal requirements, explain the reasons for the difference or addition (including as appropriate, the public health, environmental, scientific, economic, technological, administrative or other reasons).

N/A

3. If the proposal differs from, or is in addition to, applicable federal requirements, did the Department consider alternatives to the difference or addition? If so, describe the alternatives and the reason(s) they were not pursued.

N/A

DEPARTMENT OF ENVIRONMENTAL QUALITY
Chapter 340
Proposed Rulemaking

STATEMENT OF NEED AND FISCAL AND ECONOMIC IMPACT

Amend Plant Site Emission Limit Applicability Rule

Title of Proposed Rulemaking	Amend Plant Site Emission Limit Applicability Rule, OAR Chapter 340, Division 222
Statutory Authority or other Legal Authority	ORS 468.020, ORS 468A.025, ORS 468A.035, and ORS 468A.040
Statutes Implemented	ORS 468.020, ORS 468A.025, ORS 468A.035, and ORS 468A.040
Need for the Rule(s)	Plant Site Emission Limit (PSEL) rules limit the emission of specified air pollutants. The purpose of PSELs is to assure Oregon achieves and maintains compliance with the National Ambient Air Quality Standards (NAAQS), which focus on a group of pollutants known as criteria pollutants (particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead). However, DEQ recently discovered an error in the PSEL rules, which would require PSELs for substances not regulated by the national ambient air quality standards. These substances are those listed as Early Reduction High Risk Pollutants and in the Accidental Release Prevention Program. The proposed rule amendment will clarify the PSEL rule to exempt substances from the PSEL rules that are listed in the Accidental Release Prevention Program or are listed as Early Reduction High Risk Pollutants. The rule amendment would be consistent with DEQ's historical interpretation and implementation of the PSEL program, would not affect the stringency of the permitting programs, and would allow DEQ to avoid unnecessary permit actions based on an error in the rules.
Documents Relied Upon for Rulemaking	OAR Chapter 340, Division 222 is available at: http://arcweb.sos.state.or.us/rules/OARs_300/OAR_340/340_222.html OAR Chapter 340, Division 244 is available at: http://arcweb.sos.state.or.us/rules/OARs_300/OAR_340/340_244.html OAR 340-244-0120 Table 2 and OAR 340-224-0230 Table 3 are attached to this rulemaking package as Attachments B and C and are available at: http://www.deq.state.or.us/aq/rules/div244/table.htm
Requests for Other Options	**Pursuant to ORS 183.335(2)(b)(G), DEQ requests public comment on whether other options should be considered for achieving the rule's substantive goals while reducing negative economic impact of the rule on business.**
Fiscal and Economic Impact, Statement of Cost Compliance	

Overview	Compliance with the PSEL rule as originally adopted in 1993 would have a severe fiscal and economic impact on the regulated public and the Department. DEQ would be required to issue a PSEL for hundreds of substances listed under the Accidental Release Prevention Program and Early Reduction High Risk Pollutants rule. This would require investigation of permitted facilities to determine if they use the listed substances and could require DEQ to amend several hundred permits. Moreover, it is difficult to amend these permits because there are no criteria to set a PSEL for these substances. There are no emission factors available for most of these substances and the sources may not have suitable records to estimate their emissions. In addition, general permits would need to be modified through rule revisions and sources would need to be reassigned to those permits. This creates a significant workload for DEQ and the permittees without any real environmental benefit. A PSEL would not limit the amount of these substances that can be released and it would not affect implementation of the Accidental Release Prevention or Early Reduction High Risk Pollutant programs.	
Impacts on the General Public	No economic impact on the General Public is expected if the amendment is adopted. If the rule is not amended, businesses may pass their increased compliance costs through to the consumer in the form of higher retail prices for goods and services.	
Impacts to Small Business (50 or fewer employees – ORS183.310(10))	No economic impacts to small businesses are expected if the amendment is adopted. If the rule is not amended, there will be adverse fiscal impacts to some small businesses that currently hold an Air Contaminant Discharge Permit or Title V permit.	
Cost of Compliance on Small Business (50 or fewer employees – ORS183.310(10))	a) Estimated number of small businesses subject to the proposed rule	Currently 15 small businesses are required to hold Title V operating permits. There are about 570 small businesses that hold state Air Contaminant Discharge Permits.
	b) Types of businesses and industries with small businesses subject to the proposed rule	Many different types of small businesses could be affected by this rule. Categories include seed and grain companies; sand, rock and gravel operations; asphalt paving; crematories; commercial boilers; furniture manufacturing; food preparation; metal plating; wood products and printing.
	c) Projected reporting, recordkeeping and other administrative activities required by small businesses for compliance with the proposed rule, including costs of professional services	No economic impacts to small businesses are expected if the amendment is adopted.
	d) The equipment, supplies, labor, and increased administration required by small businesses for compliance with the proposed rule	No additional costs for equipment, supplies, labor or administration are expected if the amendment is adopted.
	e) A description of the	Small businesses are being informed by announcements on the

	manner in which DEQ involved small businesses were involved in the development of this rulemaking	DEQ website, through direct mailings and email lists, notices in the Secretary of State Bulletin, and ads in local papers. Comments are being requested during the Public Comment period and at a Public Hearing held in May.
Impacts on Large Business (all businesses that are not "small businesses" under ORS183.310(10))	Currently 106 large businesses are required to hold federal Title V Operating Permits. There are also about 830 large businesses that hold state Air Contaminant Discharge Permits. No economic impacts to large businesses are expected if the amendment is adopted.	
Impacts on Local Government	Currently 48 county and local government agencies are subject to air permitting regulations. There will be no economic impact on these agencies if this rule amendment is adopted.	
Impacts on State Agencies other than DEQ	Currently there are 24 state government agencies subject to air permitting regulations (and 3 federal agencies). There will be no economic impact on these agencies if this rule amendment is adopted.	
Impacts on DEQ	No impact is foreseen on DEQ if the rule amendment is adopted as proposed. If this amendment were not adopted, there would be a significant workload impact on DEQ. This includes an increase in costs associated with issuing permits, and conducting compliance inspections.	
Assumptions	If the rule is not corrected, approximately 1,260 permitted sources would need to be investigated to determine if they emit any of the hundreds of chemicals listed by the Accidental Release Prevention Program or listed as Early Reduction High Risk Pollutants. Several hundred of these permits may need to be modified creating significant workload issues. In order to comply with the existing rule, sources would have to expend funds for additional emissions testing and reporting and may need new monitoring equipment. The majority of these sources are small businesses, which may not have adequate resources to do additional reporting and monitoring or purchase new equipment.	
Housing Costs	DEQ has determined that this proposed rulemaking will have no effect on the cost of development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single family dwelling on that parcel.	
Administrative Rule Advisory Committee	No advisory committee was involved in this rulemaking.	

Prepared by　　　　Printed name　　　　Date

Approved by DEQ Budget Office　　　　Printed name　　　　Date

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Land Use Evaluation Statement

Rulemaking Proposal to

Amend Plant Site Emission Limit Applicability Rule
OAR Chapter 340, Division 222

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1. **Explain the purpose of the proposed rules.**

   DEQ is proposing to amend the list of substances for which Plant Site Emission Limits (PSELs) are required. PSELs are limits on the emission of specified air pollutants. The purpose of PSELs is to assure that Oregon achieves and maintains compliance with the National Ambient Air Quality Standards (NAAQS), which limit pollutants known as criteria pollutants (particulate matter, ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead). However, DEQ recently discovered an error in the PSEL rules that would require PSELs for substances not regulated by the national ambient air quality standards. The purpose of this rulemaking is to correct the error in the PSEL rules.

2. **Do the proposed rules affect existing rules, programs or activities that are considered land use programs in the DEQ State Agency Coordination (SAC) Program?**

   Yes X No ______

   a. **If yes, identify existing program/rule/activity:**

      The Air Quality permit program requires that a source provide a Land Use Compatibility Statement (LUCS) when applying for a permit. This assures that the source is an approved use for the property where it is located. The PSEL rule is part of the permit program.

   b. **If yes, do the existing statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules?**

   Yes X No______ (if no, explain):

There will be no change in the requirement to obtain a LUCS for new permittees. Existing permittees have provided a LUCS, which are on file with DEQ. No change in the land use procedures in the Air Quality permitting program is proposed.

c. **If no, state if the proposed rules are considered programs affecting land use. State the criteria and reasons for the determination.**

N/A

3. **If the proposed rules have been determined a land use program under 2. above, but are not subject to existing land use compliance and compatibility procedures, explain the new procedures the Department will use to ensure compliance and compatibility.**

N/A

TABLE 2 (OAR 340-244-0120) LIST OF EARLY REDUCTIONS HIGH-RISK POLLUTANTS		
CAS Number	**Chemical Name**	**Weighing Factor**
53-96-3	2-Acetylaminofluorene	100
107-02-8	Acrolein	100
79-06-1	Acrylamide	10
107-13-1	Acrylonitrile	10
1332-21-4	Asbestos	100
71-43-2	Benzene	10
92-87-5	Benzidine	1000
542-88-1	Bis(chloromethyl)ether	1000
106-99-0	1,3-Butadiene	10
57-74-9	Chlordane	100
532-27-4	2-Chloroacetophenone	100
107-30-2	Chloromethyl methyl ether	10
334-88-3	Diazomethane	10
132-64-9	Dibenzofurans	10
96-12-8	1,2-Dibromo-3-chloropropane	10
111-44-4	Dichloroethyl ether (Bis(2-chloroethyl)ether)	10
79-44-7	Dimethylcarbamoyl chloride	100
122-66-7	1,2-Diphenylhydrazine	10

106-93-4	Ethylene dibromide	10
151-56-4	Ethylenimine (Aziridine)	100
75-21-8	Ethylene oxide	10
76-44-8	Heptachlor	100
118-74-1	Hexachlorobenzene	100
77-47-4	Hexachlorocyclopentadiene	10
302-01-2	Hydrazine	100
60-34-4	Methyl hydrazine	10
624-83-9	Methyl isocyananate	10
62-75-9	N-Nitrosodimethylamine	100
684-93-5	N-Nitroso-N-methylurea	1000
56-38-2	Parathion	10
75-44-5	Phosgene	10
7803-51-2	Phosphine	10
7723-14-0	Phosphorus	10
75-55-8	1,2-Propylenimine	100
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin	100,000
8001-35-2	Toxaphene (chlorinated camphene)	100
75-01-4	Vinyl chloride	10
0	Arsenic Compounds	100

0	Beryllium Compounds	10
0	Cadmium Compounds	10
0	Chromium Compounds	100
0	Coke Oven Emissions	10
0	Manganese Compounds	10
0	Mercury Compounds	100
0	Nickel Compounds	10

Stat. Auth.: ORS 468.020 & 468A.310
Stats Implemented: ORS 468A.310.
Hist.: DEQ 13-1993, f. & cert. Ef. 9-24-93; DEQ 24-1994, f. & cert. Ef. 10-28-94; DEQ 2-2005, f. & cert. ef. 2-10-05

TABLE 3 (OAR 340-244-0230) LIST OF REGULATED TOXIC AND FLAMMABLE SUBSTANCES FOR PURPOSES OF ACCIDENTAL RELEASE PREVENTION		
Part A - Regulated Toxic Substances		
CAS Number	**Chemical Name**	**Threshold Quantity (lbs.)**
107-02-8	Acrolein [2-Propenal]	5,000
107-13-1	Acrylonitrile [2-Propenenitrile]	20,000
814-68-6	Acrylyl chloride [2-Propenoyl chloride]	5,000
107-18-6	Allyl alcohol [2-Propen-l-ol]	15,000
107-11-9	Allylamine [2-Propen-l-amine]	10,000
7664-41-7	Ammonia (anhydrous)	10,000
7664-41-7	Ammonia (concentration 20% or greater)	20,000
7784-34-1	Arsenous trichloride	15,000
7784-42-1	Arsine	1,000
10294-34-5	Boron trichloride [Borane, trichloro-]	5,000
7637-07-2	Boron trifluoride [Borane, trifluoro-]	5,000
353-42-4	Boron trifluoride compound with methyl ether (1:1) [Boron, trifluoro[oxybis[metane]]-, T-4-	15,000
7726-95-6	Bromine	10,000
75-15-0	Carbon disulfide	20,000
7782-50-5	Chlorine	2,500

10049-04-4	Chlorine dioxide [Chlorine oxide (ClO_2)]	1,000
67-66-3	Chloroform [Methane, trichloro-]	20,000
542-88-1	Chloromethyl ether [Methane, oxybis[chloro-]]	1,000
107-30-2	Chloromethyl methyl ether [Methane, chloromethoxy-]	5,000
4170-30-3	Crotonaldehyde [2-Butenal]	20,000
123-73-9	Crotonaldehyde, (E)- [2-Butenal, (E)-]	20,000
506-77-4	Cyanogen chloride	10,000
108-91-8	Cyclohexylamine [Cyclohexanamine]	15,000
19287-45-7	Diborane	2,500
75-78-5	Dimethyldichlorosilane [Silane, dichlorodimethyl-]	5,000
57-14-7	1,1-Dimethylhydrazine [Hydrazine, 1,1-dimethyl-]	15,000
106-89-8	Epichlorohydrin [Oxirane, (chloromethyl)-]	20,000
107-15-3	Ethylenediamine [1,2-Ethanediamine]	20,000
151-56-4	Ethyleneimine [Aziridine]	10,000
75-21-8	Ethylene oxide [Oxirane]	10,000
7782-41-4	Fluorine	1,000
50-00-0	Formaldehyde (solution)	15,000
110-00-9	Furan	5,000
302-01-2	Hydrazine	15,000

7647-01-0	Hydrochloric acid (concentration 37% or greater)	15,000
74-90-8	Hydrocyanic acid	2,500
7647-01-0	Hydrogen chloride (anhydrous) [Hydrochloric acid]	5,000
7664-39-3	Hydrogen fluoride/Hydrofluoric acid (concentration 50% or greater) [Hydrofluoric acid]	1,000
7783-07-5	Hydrogen selenide	500
7783-06-4	Hydrogen sulfide	10,000
13463-40-6	Iron, pentacarbonyl- [Iron carbonyl (Fe(CO)5), (TB-5-11)-]	2,500
78-82-0	Isobutyronitrile [Propanenitrile, 2-methyl-]	20,000
108-23-6	Isopropyl chloroformate [Carbonochloridic acid, 1-methylethyl ester]	15,000
126-98-7	Methacrylonitrile [2-Propenenitrile, 2-methyl-]	10,000
74-87-3	Methyl chloride [Methane, chloro-]	10,000
79-22-1	Methyl chloroformate [Carbonochloridic acid, methylester]	5,000
60-34-4	Methyl hydrazine [Hydrazine, methyl-]	15,000
624-83-9	Methyl isocyanante [Methane, isocyanato-]	10,000
74-93-1	Methyl mercaptan [Methanethiol]	10,000

556-64-9	Methyl thiocyanate [Thiocyanic acid, methyl ester]	20,000
75-79-6	Methyltrichlorosilane [Silane, trichloromethyl-]	5,000
13463-39-3	Nickel carbonyl	1,000
7697-37-2	Nitric acid (concentration 80% or greater)	15,000
10102-43-9	Nitric oxide [Nitrogen oxide (NO)]	10,000
8014-95-7	Oleum (Fuming Sulfuric acid) [Sulfuric acid, mixture with sulfur trioxide][1]	10,000
79-21-0	Peracetic acid [Ethaneperoxoic acid]	10,000
594-42-3	Perchloromethylmercaptan [Methanesulfenyl chloride, trichloro-]	10,000
75-44-5	Phosgene [Carbonic dichloride]	500
7803-51-2	Phosphine	5,000
10025-87-3	Phosphorus oxychloride [Phosphoryl chloride]	5,000
7719-12-2	Phosphorus trichloride [Phosphorus trichloride]	15,000
110-89-4	Piperidine	15,000
107-12-0	Propionitrile [Propanenitrile]	10,000
109-61-5	Propyl chloroformate [Carbonochloridic acid, propylester]	15,000
75-55-8	Propyleneimine [Aziridine, 2-methyl-]	10,000
75-56-9	Propylene oxide [Oxirane, methyl-]	10,000
7446-09-5	Sulfur dioxide (anhydrous)	5,000

7783-60-0	Sulfur tetrafluoride [Sulfur fluoride (SF4), (T-4)-]	2,500
7446-11-9	Sulfur trioxide	10,000
75-74-1	Tetramethyllead [Plumbane, tetramethyl-]	10,000
509-14-8	Tetranitromethane [Methane, tetranitro-]	10,000
7550-45-0	Titanium tetrachloride [Titanium chloride ($TiCl_4$) (T-4)-]	2,500
584-84-9	Toluene 2,4-diisocyanate [Benzene, 2,4-diisocyanato-1-methyl-][1]	10,000
91-08-7	Toluene 2,6-diisocyanate [Benzene, 1,3-diisocyanato-2-methyl-][1]	10,000
26471-62-5	Toluene diisocyanate (unspecified isomer) [Benzene, 1,3-diisocyanatomethyl-][1]	10,000
75-77-4	Trimethylchlorosilane [Silane, chlorotrimethyl-]	10,000
108-05-4	Vinyl acetate monomer [Acetic acid ethenyl ester]	15,000

TABLE 3 (OAR 340-244-0230) LIST OF REGULATED TOXIC AND FLAMMABLE SUBSTANCES FOR PURPOSES OF ACCIDENTAL RELEASE PREVENTION		
Part B - Regulated Flammable Substances[1]		
CAS Number	**Chemical Name**	**Threshold Quantity (lbs.)**
75-07-0	Acetaldehyde	10,000
74-86-2	Acetylene [Ethyne]	10,000
598-73-2	Bromotrifluorethylene [Ethene, bromotrifluoro-]	10,000
106-99-0	1,3-Butadiene	10,000
106-97-8	Butane	10,000
106-98-9	1-Butene	10,000
107-01-7	2-Butene	10,000
25167-67-3	Butene	10,000
590-18-1	2-Butene-cis	10,000
624-64-6	2-Butene-trans [2-Butene, (E)]	10,000
463-58-1	Carbon oxysulfide [Carbon oxide sulfide (COS)]	10,000
7791-21-1	Chlorine monoxide [Chlorine oxide]	10,000
557-98-2	2-Chloropropylene [1-Propene, 2-chloro-]	10,000
590-21-6	1-Chloropropylene [1-Propene, 1-chloro-]	10,000
460-19-5	Cyanogen [Ethanedinitrile]	10,000
75-19-4	Cyclopropane	10,000
4109-96-0	Dichlorosilane [Silane, dichloro-]	10,000

75-37-6	Difluoroethane [Ethane, 1,1-difluoro-]	10,000
124-40-3	Dimethylamine [Methanamine, N-methyl-]	10,000
463-82-1	2,2-Dimethylpropane [Propane, 2,2-dimethyl-]	10,000
74-84-0	Ethane	10,000
107-00-6	Ethyl acetylene [1-Butyne]	10,000
75-04-7	Ethylamine [Ethanamine]	10,000
75-00-3	Ethyl chloride [Ethane, chloro-]	10,000
74-85-1	Ethylene [Ethene]	10,000
60-29-7	Ethyl ether [Ethane, 1,1'-oxybis-]	10,000
75-08-1	Ethyl mercaptan [Ethanethiol]	10,000
109-95-5	Ethyl nitrite [Nitrous acid, ethyl ester]	10,000
1333-74-0	Hydrogen	10,000
75-28-5	Isobutane [Propane, 2-methyl]	10,000
78-78-4	Isopentane [Butane, 2-methyl-]	10,000
78-79-5	Isoprene [1,3-Butadiene, 2-methyl-]	10,000
75-31-0	Isopropylamine [2-Propanamine]	10,000
75-29-6	Isopropyl chloride [Propane, 2-chloro-]	10,000
74-82-8	Methane	10,000
74-89-5	Methylamine [Methanamine]	10,000
563-45-1	3-Methyl-1-butene	10,000
563-46-2	2-Methyl-1-butene	10,000
115-10-6	Methyl ether [Methane, oxybis-]	10,000
107-31-3	Methyl formate [Formic acid, methyl	10,000

ATTACHMENT H
(For Reference Only)

	ester]	
115-11-7	2-Methylpropene [1-Propene, 2-methyl-]	10,000
504-60-9	1,3-Pentadiene	10,000
109-66-0	Pentane	10,000
109-67-1	1-Pentene	10,000
646-04-8	2-Pentene, (E)-	10,000
627-20-3	2-Pentene, (Z)-	10,000
463-49-0	Propadiene [1,2-Propadiene]	10,000
74-98-6	Propane	10,000
115-07-1	Propylene [1-Propene]	10,000
74-99-7	Propyne [1-Propyne]	10,000
7803-62-5	Silane	10,000
116-14-3	Tetrafluoroethylene [Ethene, tetrafluoro-]	10,000
75-76-3	Tetramethylsilane [Silane, tetramethyl-]	10,000
10025-78-2	Trichlorosilane [Silane, trichloro-]	10,000
79-38-9	Trifluorochloroethylene [Ethene, chlorotrifluoro-]	10,000
75-50-3	Trimethylamine [Methanamine, N,N-dimethyl-]	10,000
689-97-4	Vinyl acetate [1-Buten-3-yne]	10,000
75-01-4	Vinyl chloride [Ethene, chloro-]	10,000
109-92-2	Vinyl ethyl ether [Ethene, ethoxy-]	10,000
75-02-5	Vinyl fluoride [Ethene, fluoro-]	10,000
75-35-4	Vinylidene chloride [Ethene, 1,1-dichloro-]	10,000

75-38-7	Vinylidene fluoride [Ethene, 1,1-difluoro-]	10,000
107-25-5	Vinyl methyl ether [Ethene, methoxy-]	10,000

*1 A flammable substance when used as a fuel or held for sale as a fuel at a retail facility is excluded from all provisions of 40 CFR part 68

Stat. Auth.: ORS 468.020 & 468A.310
Stat. Implemented: ORS 468A.025
Hist.: DEQ 13-1993, f. & cert. ef. 9-24-93; DEQ 18-1993, f. & cert. ef. 11-4-93; DEQ 24-1994, f. & ef. 10-28-94; DEQ 2-2005, f. & cert. ef. 2-10-05

State of Oregon

Department of Environmental Quality — Memorandum

Date:	August 4, 2008
To:	Environmental Quality Commission
From:	Dick Pedersen, Director
Subject:	Agenda Item H, Rule Adoption: Oregon Title V Operating Permit Fee Increase August 21-22, 2008 EQC Meeting

Why is this Important

Oregon's Title V Operating Permit Program contributes to the prevention of air pollution and helps reduce the number of unhealthy air days and the risks from toxic air pollutants. The federal Clean Air Act requires each state's Title V program to be funded entirely by permit fees.

The proposed increases to Oregon's Title V Operating Permit fees are necessary to cover the reasonable costs associated with the Department of Environmental Quality's operation of Oregon's Title V program. Failure to maintain sufficient funding could affect DEQ's ability to maintain federal approval of the state program.

Department Recommendation and Motion

DEQ recommends that the Environmental Quality Commission:

(1) Determine that increasing fees by the change in the Consumer Price Index, pursuant to the proposed rules presented in Attachment A, is necessary to cover the reasonable indirect and direct costs of implementing Oregon's Title V Operating Permit Program; and

(2) Adopt the rules as amended in Attachment A to increase Oregon's Title V Operating Permit fees by the amounts established in statute by Senate Bill (SB) 107 (2007) and by the change in the CPI pursuant to ORS 468A.315; and to make other changes in order to comply with SB 107.

Background and Need for Rulemaking

Title V of the CAA requires each state to administer a comprehensive operating permit program for major industrial sources of air pollution. The Environmental Protection Agency approved Oregon's Title V program in 1994.

In 2007, the Oregon Legislature passed SB 107 which increased Oregon's Title V Operating Permit fees in statute (ORS 468A.315) by 24 percent, to be phased in over three years starting in 2007. Federal and state laws require the Title V program to be funded entirely by permit fees. Title V fees pay for permitting, technical assistance, inspections, enforcement, rule and policy development, data management and reporting to EPA. The fees also support a portion of air quality monitoring, air quality planning and air program management costs.

To help ensure that Oregon's program meets the funding requirement, the statute provides for annual increases in Title V fees based on increases in the CPI. Even with annual CPI fee increases, revenue has not kept up with increases in program costs because emissions subject to emission fees have declined and costs have increased by more than the CPI. Due to inadequate revenue, DEQ reduced staffing by three positions in the 2005-2007 biennium. Without a fee increase, DEQ would have reduced staffing by an additional one-and-a-half positions in the 2007-2009 biennium.

Because Title V fees are set in statute and rule, rule changes are necessary to implement the fee increases. The proposed rules make permanent a fee increase for 2007 that was already adopted in a temporary rulemaking and invoiced to permittees in August 2007. The proposed rules also increase fees for 2008 and 2009. Revenue from the proposed fees will fund the Title V program through fiscal year 2009 and allow DEQ to:

- Issue and renew Title V permits in a timely manner;
- Complete required Title V inspections;
- Monitor and enforce compliance with air quality regulations;
- Comply with federal requirements to maintain a federally approved and delegated Title V program; and
- Issue public notices and information on the Title V program.

Effect of Rule

Title V Fee Increases

The proposed rules increase fees for all Title V Operating Permit Program sources. Title V permit holders are generally the largest stationary emission sources, including power generation, wood and paper products, and fiberglass manufacturing facilities. The requirement to have a Title V permit is based on the quantity of emissions from a source rather than size of the business. Smaller sources, such as wood refinishing and fiberglass reinforced plastic facilities, are also subject to the Title V program if those sources have the potential to emit at or above major source emission thresholds. DEQ projects that approximately 123 sources will be subject to Oregon's Title V program in fiscal year 2009.

DEQ rules establish Title V permit fees in three categories:

- Annual base fee, assessed to all Title V sources regardless of emission quantities;
- Emission fee, assessed on emissions from the individual sources per calendar year; and
- Specific activity fees, assessed when a source owner or operator modifies a permit or installs ambient monitoring networks requiring DEQ's review.

This proposed rulemaking would increase the annual base fee and emission fee by the amounts established in statute for 2007, 2008 and 2009. In addition, it increases the fees for all three categories by the change in the CPI. The proposed fees for 2007 reflect the fees established in statute and the 2006 CPI increase authorized by statute. The proposed fees for 2008 and 2009 reflect the fees established in statute and the 2007 CPI increase authorized by statute. The table below illustrates the proposed fees.

Fee Category	2006 fees	2007 fees (already invoiced)	*Increase over 2006 fees*	2008 fees (to be invoiced)	*Increase over 2007 fees*	2009* fees (to be invoiced)	*Increase over 2008 fees*
Annual Base Fee	$3,379	$4,390	*$1,011 (29.9%)*	$4,849	*$459 (10.5%)*	$5,183	*$334 (6.9%)*
Emission Fee (per ton)	$39.38	$43.90	*$4.52 (11.5%)*	$48.49	*$4.59 (10.5%)*	$51.83	*$3.34 (6.9%)*
Specific Activity Fees:							
Administrative	$338	$406	*$68 (20.1%)*	$418	*$12 (3.0%)*	No change	*$0*
Simple	$1,352	$1,626	*$274 (20.3%)*	$1,672	*$46 (2.8%)*	No change	*$0*
Moderate	$10,137	$12,194	*$2,057 (20.3%)*	$12,540	*$346 (2.8%)*	No change	*$0*
Complex	$20,273	$24,387	*$4,114 (20.3%)*	$25,081	*$694 (2.8%)*	No change	*$0*
Ambient Review	$2,703	$3,252	*$549 (20.3%)*	$3,344	*$92 (2.8%)*	No change	*$0*

* The proposed 2009 fees do not include an increase by the 2008 CPI amount because the change in the 2008 CPI is not yet available from the federal government. DEQ may propose an increase based on the 2008 CPI in a future rulemaking.

Change to CPI Base Year Used in Fee Calculations

This proposed rulemaking would also implement a correction to the formula that DEQ uses to calculate the change in the CPI for the annual base fee and specific activity fees. The correction will align the CPI fee increases for all fee categories to the same base year (1989) set in statute. In the past, DEQ calculated the CPI increase to the emission fee using the 1989 CPI and the CPI increase to the annual base fee and specific activity fees using the 1993 CPI. To conform to the statute, DEQ will use the 1989 CPI as the baseline for the annual base fee and specific activity fees. Because of the correction, the percentage increase for 2007 fees (invoiced last year) is larger for the annual base fee and specific activity fees than it is for the emission fee.

Pollutant Categories Covered by Title V Fees

This proposed rulemaking would change the definition of regulated pollutants to comply with the revised statute. Regulated pollutants assessed emission fees would fall into four pollutant categories: particulates; sulfur dioxide; oxides of nitrogen; and volatile organic compounds. Previously, the Title V fee rules addressed additional pollutants such as fluoride, lead and toxic air pollutants, which were assessed emission fees but contributed a small amount to program revenue. For the most part, the additional pollutants are a subset of the four pollutant categories. DEQ believes that these amendments will result in a small reduction (about two percent) in emission fee revenue for the Title V program.

Emissions Fee Cap Adjusted

This proposed rulemaking would change the emissions fee cap to comply with the revised statute. It changes the emission fee cap in 2011 from a maximum of 4,000 tons per year on each regulated pollutant to a maximum of 7,000 tons per year of all regulated pollutants. In a future rulemaking, DEQ will propose that the annual base fee set in statute apply to Title V sources starting in 2010; SB 107 increased the annual base fee by $1,000 before CPI adjustment. These changes will make revenue more stable by reducing reliance on emission fees and increasing reliance on base fees. This will prevent a significant loss of revenue when new federal regulations significantly reduce emissions from the highest emitting Title V sources in the coming years.

Commission Authority

The commission has authority to take this action under ORS 468.020, 468A.025, 468.065, 468A.040, 468A.310, and 468A.315

Stakeholder Involvement

DEQ held air quality permit program information sessions in 2006 to describe the proposed Title V fee increases to permit holders. DEQ shared the proposal with its Small Business Compliance Advisory Panel in 2006 and with the Associated Oregon Industries Air Committee in 2007. As part of its 2007 legislative budget process, DEQ submitted detailed information about Title V program funding and the proposed fee increases to the Legislature.

DEQ convened an advisory committee to generate input and recommendations on the fiscal impact statement for the original public notice package. The committee membership and report is provided in Attachment C.

DEQ mailed or e-mailed copies of the original public notice package to all Title V businesses and interested parties in February 2008, and held a public hearing at DEQ headquarters in Portland in March 2008. Because DEQ revised the rulemaking based on public comment that it received during the original comment period, it mailed or e-mailed notice of these revisions to all Title V businesses and interested parties in May 2008, and reopened the public comment period.

Public Comment

A public comment period extended from February 27, 2008, to March 31, 2008, and from May 12, 2008, to June 2, 2008. DEQ received comments from three people

Key Issues

Because DEQ must cover all program costs using permit fee revenue, it will be difficult to maintain adequate staff levels needed to administer Oregon's Title V program without this proposed fee increase. Inadequate funding could jeopardize DEQ's ability to maintain federal approval of the program.

The statute authorizes a phased-in fee increase over the three-year period from 2007 to 2009. DEQ chose not to include the fees for 2009 in the original rulemaking proposal because the information needed to adjust the fees by inflation is not yet available. However, in response to public comment received during the original comment period, DEQ has included the full phase-in of the fees in this rulemaking (except the 2010 base fee increase).

Next Steps

If the EQC adopts these proposed rule amendments, the fee increases would become effective upon filing with the Secretary of State. This would make permanent the previously invoiced fees for 2007. The fees for 2008 would be reflected in invoices that DEQ will issue to Title V permittees in August 2008, with payment due in October 2008. The fees for 2009 would be reflected in invoices that DEQ will issue to Title V permittees in August 2009. DEQ would need to adjust the fees for 2009 for inflation through a separate rulemaking once economic data from 2008 is available. Because this is a continuation of an existing program, no additional resources or training are needed for DEQ to implement the rule.

Attachments

A. Proposed Rule Changes
B. Summary of Public Comments and Agency Responses
C. Title V Fee Increase Advisory Committee Findings and Recommendations
D. Presiding Officer's Report for Rulemaking Hearing
E. Relationship to Federal Requirements
F. Statement of Need and Fiscal and Economic Impact
G. Land Use Evaluation Statement

Available Upon Request

1. Legal Notice of Hearing and Public Notice Package
2. Cover Memorandum from Public Notice
3. Written Comment Received

Approved:

Section:

Division: for Andy Ginsburg

Report Prepared By: Andrea Curtis
Phone: (503) 229-6866

Oregon Administrative Rules for Department of Environmental Quality
Chapter 340 Divisions 200, 218 and 220

Rule Caption:
Proposal to Increase Oregon's Title V Operating Permit Fees

Proposed Rule Changes

DIVISION 200

GENERAL AIR POLLUTION PROCEDURES AND DEFINITIONS

General

340-200-0020

General Air Quality Definitions

As used in divisions 200 through 268, unless specifically defined otherwise:

(1) "Act" or "FCAA" means the Federal Clean Air Act, 42 U.S.C.A. 7401 to 7671q.

(2) "Activity" means any process, operation, action, or reaction (e.g., chemical) at a source that emits a regulated pollutant.

(3) "Actual emissions" means the mass emissions of a pollutant from an emissions source during a specified time period.

(a) For determining actual emissions as of the baseline period:

(A) Except as provided in paragraph (B), actual emissions equal the average rate at which the source actually emitted the pollutant during a baseline period and that represents normal source operation;

(B) The Department presumes that the source-specific mass emissions limit included in a source's permit that was effective on September 8, 1981 is equivalent to the source's actual emissions during the baseline period if it is within 10% of the actual emissions calculated under paragraph (A).

(C) For any source that had not begun normal operation, actual emissions equal the potential to emit of the source.

(b) For determining actual emissions for Emission Statements under OAR 340-214-0200 through 340-214-0220 and Oregon Title V Operating Permit Fees under OAR 340 division 220, actual emissions include, but are not limited to, routine process emissions, fugitive emissions, excess emissions from maintenance, startups and shutdowns, equipment malfunction, and other activities, except categorically insignificant activities and secondary emissions.

(c) For Oregon Title V Operating Permit Fees under OAR 340 division 220, actual emissions must be directly measured with a continuous monitoring system or calculated using a material balance or verified emission factor in combination with the source's actual operating hours, production rates, or types of materials processed, stored, or combusted during the specified time period.

(4) "Adjacent" means interdependent facilities that are nearby to each other.

(5) "Affected source" means a source that includes one or more affected units that are subject to emission reduction requirements or limitations under Title IV of the FCAA.

(6) "Affected states" means all states:

(a) Whose air quality may be affected by a proposed permit, permit modification, or permit renewal and that are contiguous to Oregon; or

(b) That are within 50 miles of the permitted source.

(7) "Aggregate insignificant emissions" means the annual actual emissions of any regulated air pollutant from one or more designated activities at a source that are less than or equal to the lowest applicable level specified in this section. The total emissions from each designated activity and the aggregate emissions from all designated activities must be less than or equal to the lowest applicable level specified.

(a) One ton for total reduced sulfur, hydrogen sulfide, sulfuric acid mist, any Class I or II substance subject to a standard promulgated under or established by Title VI of the Act, and each criteria pollutant, except lead;

(b) 120 pounds for lead;

(c) 600 pounds for fluoride;

(d) 500 pounds for PM10 in a PM10 nonattainment area;

(e) The lesser of the amount established in OAR 340-244-0040, **Table 1** or 340-244-0230, **Table 3**, or 1,000 pounds;

(f) An aggregate of 5,000 pounds for all Hazardous Air Pollutants.

(8) "Air Contaminant" means a dust, fume, gas, mist, odor, smoke, vapor, pollen, soot, carbon, acid or particulate matter, or any combination thereof.

(9) "Air Contaminant Discharge Permit" or "ACDP" means a written permit issued, renewed, amended, or revised by the Department, pursuant to OAR 340 division 216.

(10) "Alternative method" means any method of sampling and analyzing for an air pollutant that is not a reference or equivalent method but has been demonstrated to the Department's satisfaction to, in specific cases, produce results adequate for determination of compliance. An alternative method used to meet an applicable federal requirement for which a reference method is specified must be approved by EPA unless EPA has delegated authority for the approval to the Department.

(11) "Ambient Air" means that portion of the atmosphere, external to buildings, to which the general public has access.

(12) "Applicable requirement" means all of the following as they apply to emissions units in an Oregon Title V Operating Permit program source or ACDP program source, including requirements that have been promulgated or approved by the EPA through rule making at the time of issuance but have future-effective compliance dates:

(a) Any standard or other requirement provided for in the applicable implementation plan approved or promulgated by the EPA through rulemaking under Title I of the Act that implements the relevant requirements of the Act, including any revisions to that plan promulgated in 40 CFR Part 52;

(b) Any standard or other requirement adopted under OAR 340-200-0040 of the State of Oregon Clean Air Act Implementation Plan, that is more stringent than the federal standard or requirement which has not yet been approved by the EPA, and other state-only enforceable air pollution control requirements;

(c) Any term or condition in an ACDP, OAR 340 division 216, including any term or condition of any preconstruction permits issued pursuant to OAR 340 division 224, New Source Review, until or unless the Department revokes or modifies the term or condition by a permit modification;

(d) Any term or condition in a Notice of Construction and Approval of Plans, OAR 340-210-0205 through 340-210-0240, until or unless the Department revokes or modifies the term or condition by a Notice of Construction and Approval of Plans or a permit modification;

(e) Any term or condition in a Notice of Approval, OAR 340-218-0190, issued before July 1, 2001, until or unless the Department revokes or modifies the term or condition by a Notice of Approval or a permit modification;

(f) Any term or condition of a PSD permit issued by the EPA until or unless the EPA revokes or modifies the term or condition by a permit modification;

(g) Any standard or other requirement under section 111 of the Act, including section 111(d);

(h) Any standard or other requirement under section 112 of the Act, including any requirement concerning accident prevention under section 112(r)(7) of the Act;

(i) Any standard or other requirement of the acid rain program under Title IV of the Act or the regulations promulgated thereunder;

(j) Any requirements established pursuant to section 504(b) or section 114(a)(3) of the Act;

(k) Any standard or other requirement under section 126(a)(1) and(c) of the Act;

(l) Any standard or other requirement governing solid waste incineration, under section 129 of the Act;

(m) Any standard or other requirement for consumer and commercial products, under section 183(e) of the Act;

(n) Any standard or other requirement for tank vessels, under section 183(f) of the Act;

(o) Any standard or other requirement of the program to control air pollution from outer continental shelf sources, under section 328 of the Act;

(p) Any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the Act, unless the Administrator has determined that such requirements need not be contained in an Oregon Title V Operating Permit; and

(q) Any national ambient air quality standard or increment or visibility requirement under part C of Title I of the Act, but only as it would apply to temporary sources permitted pursuant to section 504(e) of the Act.

~~(13) "Assessable Emission" means a unit of emissions for which the major source owner or operator will be assessed a fee. It includes an emission of a pollutant as specified in OAR 340-220-0060 from one or more emissions devices or activities within a major source.~~

(1~~4~~3) "Baseline Emission Rate" means the actual emission rate during the baseline period. Baseline emission rate does not include increases due to voluntary fuel switches or increased hours of operation that occurred after the baseline period.

(1~~5~~4) "Baseline Period" means any consecutive 12 calendar month period during calendar years 1977 or 1978. The Department may allow the use of a prior time period upon a determination that it is more representative of normal source operation.

(1~~6~~5) "Best Available Control Technology" or "BACT" means an emission limitation, including, but not limited to, a visible emission standard, based on the maximum degree of reduction of each air contaminant subject to regulation under the Act which would be emitted from any proposed major source or major modification which, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such air contaminant. In no event may the application of BACT result in emissions of any air contaminant that would exceed the emissions allowed by any applicable new source performance standard or any standard for hazardous air pollutant. If an emission limitation is not feasible, a design, equipment, work practice, or operational standard, or combination thereof, may be required. Such standard must, to the degree possible, set forth the emission reduction achievable and provide for compliance by prescribing appropriate permit conditions.

(1~~7~~6) "Capacity" means the maximum regulated pollutant emissions from a stationary source under its physical and operational design.

(1~~8~~7) "Capture system" means the equipment (including but not limited to hoods, ducts, fans, and booths) used to contain, capture and transport a pollutant to a control device.

(1~~9~~8) "Categorically insignificant activity" means any of the following listed pollutant emitting activities principally supporting the source or the major industrial group. Categorically insignificant activities must comply with all applicable requirements.

(a) Constituents of a chemical mixture present at less than 1% by weight of any chemical or compound regulated under divisions 200 through 268 excluding divisions 248 and 262 of this chapter, or less than 0.1% by weight of any carcinogen listed in the U.S. Department of Health and Human Service's Annual Report on Carcinogens when usage of the chemical mixture is less than 100,000 pounds/year;

(b) Evaporative and tail pipe emissions from on-site motor vehicle operation;

(c) Distillate oil, kerosene, and gasoline fuel burning equipment rated at less than or equal to 0.4 million Btu/hr;

(d) Natural gas and propane burning equipment rated at less than or equal to 2.0 million Btu/hr;

(e) Office activities;

(f) Food service activities;

(g) Janitorial activities;

(h) Personal care activities;

(i) Groundskeeping activities including, but not limited to building painting and road and parking lot maintenance;

(j) On-site laundry activities;

(k) On-site recreation facilities;

(l) Instrument calibration;

(m) Maintenance and repair shop;

(n) Automotive repair shops or storage garages;

(o) Air cooling or ventilating equipment not designed to remove air contaminants generated by or released from associated equipment;

(p) Refrigeration systems with less than 50 pounds of charge of ozone depleting substances regulated under Title VI, including pressure tanks used in refrigeration systems but excluding any combustion equipment associated with such systems;

(q) Bench scale laboratory equipment and laboratory equipment used exclusively for chemical and physical analysis, including associated vacuum producing devices but excluding research and development facilities;

(r) Temporary construction activities;

(s) Warehouse activities;

(t) Accidental fires;

(u) Air vents from air compressors;

(v) Air purification systems;

(w) Continuous emissions monitoring vent lines;

(x) Demineralized water tanks;

(y) Pre-treatment of municipal water, including use of deionized water purification systems;

(z) Electrical charging stations;

(aa) Fire brigade training;

(bb) Instrument air dryers and distribution;

(cc) Process raw water filtration systems;

(dd) Pharmaceutical packaging;

(ee) Fire suppression;

(ff) Blueprint making;

(gg) Routine maintenance, repair, and replacement such as anticipated activities most often associated with and performed during regularly scheduled equipment outages to maintain a plant and its equipment in good operating condition, including but not limited to steam cleaning, abrasive use, and woodworking;

(hh) Electric motors;

(ii) Storage tanks, reservoirs, transfer and lubricating equipment used for ASTM grade distillate or residual fuels, lubricants, and hydraulic fluids;

(jj) On-site storage tanks not subject to any New Source Performance Standards (NSPS), including underground storage tanks (UST), storing gasoline or diesel used exclusively for fueling of the facility's fleet of vehicles;

(kk) Natural gas, propane, and liquefied petroleum gas_(LPG) storage tanks and transfer equipment;

(ll) Pressurized tanks containing gaseous compounds;

(mm) Vacuum sheet stacker vents;

(nn) Emissions from wastewater discharges to publicly owned treatment works (POTW) provided the source is authorized to discharge to the POTW, not including on-site wastewater treatment and/or holding facilities;

(oo) Log ponds;

(pp) Storm water settling basins;

(qq) Fire suppression and training;

(rr) Paved roads and paved parking lots within an urban growth boundary;

(ss) Hazardous air pollutant emissions of fugitive dust from paved and unpaved roads except for those sources that have processes or activities that contribute to the deposition and entrainment of hazardous air pollutants from surface soils;

(tt) Health, safety, and emergency response activities;

(uu) Emergency generators and pumps used only during loss of primary equipment or utility service due to circumstances beyond the reasonable control of the owner or operator, or to address a power emergency as determined by the Department;

(vv) Non-contact steam vents and leaks and safety and relief valves for boiler steam distribution systems;

(ww) Non-contact steam condensate flash tanks;

(xx) Non-contact steam vents on condensate receivers, deaerators and similar equipment;

(yy) Boiler blowdown tanks;

(zz) Industrial cooling towers that do not use chromium-based water treatment chemicals;

(aaa) Ash piles maintained in a wetted condition and associated handling systems and activities;

(bbb) Oil/water separators in effluent treatment systems;

(ccc) Combustion source flame safety purging on startup;

(ddd) Broke beaters, pulp and repulping tanks, stock chests and pulp handling equipment, excluding thickening equipment and repulpers;

(eee) Stock cleaning and pressurized pulp washing, excluding open stock washing systems; and

(fff) White water storage tanks.

(~~20~~19) "Certifying individual" means the responsible person or official authorized by the owner or operator of a source who certifies the accuracy of the emission statement.

(2~~1~~0) "CFR" means Code of Federal Regulations.

(2~~2~~1) "Class I area" means any Federal, State or Indian reservation land which is classified or reclassified as Class I area. Class I areas are identified in OAR 340-204-0050.

(2~~3~~2) "Commence" or "commencement" means that the owner or operator has obtained all necessary preconstruction approvals required by the Act and either has:

(a) Begun, or caused to begin, a continuous program of actual on-site construction of the source to be completed in a reasonable time; or

(b) Entered into binding agreements or contractual obligations, which cannot be canceled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source to be completed in a reasonable time.

(2~~4~~3) "Commission" or "EQC" means Environmental Quality Commission.

(2~~5~~4) "Constant Process Rate" means the average variation in process rate for the calendar year is not greater than plus or minus ten percent of the average process rate.

(2~~6~~5) "Construction":

(a) Except as provided in subsection(b) of this section means any physical change including, but not limited to, fabrication, erection, installation, demolition, or modification of a source or part of a source;

(b) As used in OAR 340 division 224 means any physical change including, but not limited to, fabrication, erection, installation, demolition, or modification of an emissions unit, or change in the method of operation of a source which would result in a change in actual emissions.

(2~~7~~6) "Continuous compliance determination method" means a method, specified by the applicable standard or an applicable permit condition, which:

(a) Is used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period established for the emission limitation or standard; and

(b) Provides data either in units of the standard or correlated directly with the compliance limit.

(2~~8~~7) "Continuous Monitoring Systems" means sampling and analysis, in a timed sequence, using techniques which will adequately reflect actual emissions or concentrations on a continuing basis in accordance with the Department's Continuous Monitoring Manual, and includes continuous emission monitoring systems, continuous opacity monitoring system (COMS) and continuous parameter monitoring systems.

(2~~9~~8) "Control device" means equipment, other than inherent process equipment, that is used to destroy or remove air pollutant(s) prior to discharge to the atmosphere. The types of equipment that may commonly be used as control devices include, but are not limited to, fabric filters, mechanical collectors, electrostatic precipitators, inertial separators, afterburners, thermal or catalytic incinerators, adsorption devices(such as carbon beds), condensers, scrubbers(such as wet collection and gas absorption devices), selective catalytic or non-catalytic reduction systems, flue gas recirculation systems, spray dryers, spray towers, mist eliminators, acid plants, sulfur recovery plants, injection systems(such as water, steam, ammonia, sorbent or limestone injection), and combustion devices independent of the particular process being conducted at an emissions unit(e.g., the destruction of emissions achieved by venting process emission streams to flares, boilers or process heaters). For purposes of OAR 340-212-0200 through 340-212-0280, a control device does not include passive control measures that act to prevent pollutants from forming, such as the use of seals, lids, or roofs to prevent the release of pollutants, use of low-polluting fuel or feedstocks, or the use of combustion or other process design features or characteristics. If an applicable requirement establishes that particular equipment which otherwise meets this definition of a control device does not constitute a control device as applied to a particular pollutant-specific emissions unit, then that definition will be binding for purposes of OAR 340-212-0200 through 340-212-0280.

(~~30~~29) "Criteria Pollutant" means nitrogen oxides, volatile organic compounds, particulate matter, PM10, sulfur dioxide, carbon monoxide, or lead.

(3~~1~~0) "Data" means the results of any type of monitoring or method, including the results of instrumental or non-instrumental monitoring, emission calculations, manual sampling procedures, recordkeeping procedures, or any other form of information collection procedure used in connection with any type of monitoring or method.

(3~~2~~1) "De minimis emission level" means: [Table not included. See ED. NOTE.]

NOTE: De minimis is compared to all increases that are not included in the PSEL.

(3~~3~~2) "Department":

(a) Means Department of Environmental Quality; except

(b) As used in OAR 340 divisions 218 and 220 means Department of Environmental Quality or in the case of Lane County, Lane Regional Air Protection Agency.

(3~~4~~3) "Device" means any machine, equipment, raw material, product, or byproduct at a source that produces or emits a regulated pollutant.

(3~~5~~4) "Director" means the Director of the Department or the Director's designee.

(3~~6~~5) "Draft permit" means the version of an Oregon Title V Operating Permit for which the Department or Lane Regional Air Protection Agency offers public participation under OAR 340-218-0210 or the EPA and affected State review under OAR 340-218-0230.

(3~~7~~6) "Effective date of the program" means the date that the EPA approves the Oregon Title V Operating Permit program submitted by the Department on a full or interim basis. In case of a partial approval, the "effective date of the program" for each portion of the program is the date of the EPA approval of that portion.

(3~~8~~7) "Emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the owner or operator, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under the permit, due to unavoidable increases in emissions attributable to the emergency. An emergency does not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

(3~~9~~8) "Emission" means a release into the atmosphere of any regulated pollutant or any air contaminant.

(~~40~~39) "Emission Estimate Adjustment Factor" or "EEAF" means an adjustment applied to an emission factor to account for the relative inaccuracy of the emission factor.

(4~~1~~0) "Emission Factor" means an estimate of the rate at which a pollutant is released into the atmosphere, as the result of some activity, divided by the rate of that activity (e.g., production or process rate). Where an emission factor is required sources must use an emission factor approved by EPA or the Department.

(4~~2~~1)(a) Except as provided in subsection (b) of this section, "Emission Limitation" and "Emission Standard" mean a requirement established by a State, local government, or the EPA which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(b) As used in OAR 340-212-0200 through 340-212-0280, "Emission limitation or standard" means any applicable requirement that constitutes an emission limitation, emission standard, standard of performance or means of emission limitation as defined under the Act. An emission limitation or standard may be expressed in terms of the pollutant, expressed either as a specific quantity, rate or concentration of emissions (e.g., pounds of SO2 per hour, pounds of SO2 per million British thermal units of fuel input, kilograms of VOC per liter of applied coating solids, or parts per million by volume of SO2) or as the relationship of uncontrolled to controlled emissions (e.g., percentage capture and destruction efficiency of VOC or percentage reduction of SO2). An emission limitation or standard may also be expressed either as a work practice, process or control device parameter, or other form of specific design, equipment, operational, or operation and maintenance requirement. For purposes of OAR 340-212-0200 through 340-212-0280, an emission limitation or standard does not include general operation requirements that an owner or operator may be required to meet, such as requirements to obtain a permit, to operate and maintain sources in accordance with good air pollution control practices, to develop and maintain a malfunction abatement plan, to keep records, submit reports, or conduct monitoring.

(4~~3~~2) "Emission Reduction Credit Banking" means to presently reserve, subject to requirements of OAR 340 division 268, Emission Reduction Credits, emission reductions for use by the reserver or assignee for future compliance with air pollution reduction requirements.

(4~~4~~3) "Emission Reporting Form" means a paper or electronic form developed by the Department that must be completed by the permittee to report calculated emissions, actual emissions, or permitted emissions for interim emission fee assessment purposes.

(4~~5~~4) "Emissions unit" means any part or activity of a source that emits or has the potential to emit any regulated air pollutant.

(a) A part of a source is any machine, equipment, raw material, product, or byproduct that produces or emits regulated air pollutants. An activity is any process, operation, action, or reaction (e.g., chemical) at a stationary source that emits regulated air pollutants. Except as described in subsection (d) of this section, parts and activities may be grouped for purposes of defining an emissions unit if the following conditions are met:

(A) The group used to define the emissions unit may not include discrete parts or activities to which a distinct emissions standard applies or for which different compliance demonstration requirements apply; and

(B) The emissions from the emissions unit are quantifiable.

(b) Emissions units may be defined on a pollutant by pollutant basis where applicable.

(c) The term emissions unit is not meant to alter or affect the definition of the term "unit" under Title IV of the FCAA.

(d) Parts and activities cannot be grouped for determining emissions increases from an emissions unit under OAR 340-224-0050 through 340-224-0070, or 340 division 210, or for determining the applicability of any New Source Performance Standard (NSPS).

(4~~6~~5) "EPA" or "Administrator" means the Administrator of the United States Environmental Protection Agency or the Administrator's designee.

(4~~7~~6) "Equivalent method" means any method of sampling and analyzing for an air pollutant that has been demonstrated to the Department's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions. An equivalent method used to meet an applicable federal requirement for which a reference method is specified must be approved by EPA unless EPA has delegated authority for the approval to the Department.

(4~~8~~7) "Event" means excess emissions that arise from the same condition and occur during a single calendar day or continue into subsequent calendar days.

(4~~9~~8) "Exceedance" means a condition that is detected by monitoring that provides data in terms of an emission limitation or standard and that indicates that emissions (or opacity) are greater than the applicable emission limitation or standard(or less than the applicable standard in the case of a percent reduction requirement) consistent with any averaging period specified for averaging the results of the monitoring.

(~~50~~49) "Excess emissions" means emissions in excess of a permit limit or any applicable air quality rule.

(5~~1~~0) "Excursion" means a departure from an indicator range established for monitoring under OAR 340-212-0200 through 340-212-0280 and 340-218-0050(3)(a), consistent with any averaging period specified for averaging the results of the monitoring.

(5~~2~~1) "Federal Land Manager" means with respect to any lands in the United States, the Secretary of the federal department with authority over such lands.

(5~~3~~2) Federal Major Source means a source with potential to emit any individual regulated pollutant, excluding hazardous air pollutants listed in OAR 340 division 244, greater than or equal to 100 tons per year if in a source category listed below, or 250 tons per year if not in a source category listed. Potential to emit calculations must include emission increases due to a new or modified source.

(a) Fossil fuel-fired steam electric plants of more than 250 million BTU/hour heat input;

(b) Coal cleaning plants with thermal dryers;

(c) Kraft pulp mills;

(d) Portland cement plants;

(e) Primary Zinc Smelters;

(f) Iron and Steel Mill Plants;

(g) Primary aluminum ore reduction plants;

(h) Primary copper smelters;

(i) Municipal Incinerators capable of charging more than 50 tons of refuse per day;

(j) Hydrofluoric acid plants;

(k) Sulfuric acid plants;

(l) Nitric acid plants;

(m) Petroleum Refineries;

(n) Lime plants;

(o) Phosphate rock processing plants;

(p) Coke oven batteries;

(q) Sulfur recovery plants;

(r) Carbon black plants, furnace process;

(s) Primary lead smelters;

(t) Fuel conversion plants;

(u) Sintering plants;

(v) Secondary metal production plants;

(w) Chemical process plants;

(x) Fossil fuel fired boilers, or combinations thereof, totaling more than 250 million BTU per hour heat input;

(y) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(z) Taconite ore processing plants;

(aa) Glass fiber processing plants;

(bb) Charcoal production plants.

(5~~4~~3) "Final permit" means the version of an Oregon Title V Operating Permit issued by the Department or Lane Regional Air Protection Agency that has completed all review procedures required by OAR 340-218-0120 through 340-218-0240.

(5~~5~~4) "Fugitive Emissions":

(a) Except as used in subsection (b) of this section, means emissions of any air contaminant which escape to the atmosphere from any point or area that is not identifiable as a stack, vent, duct, or equivalent opening.

(b) As used to define a major Oregon Title V Operating Permit program source, means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

(5~~6~~5) "General permit":

(a) Except as provided in subsection (b) of this section, means an Oregon Air Contaminant Discharge Permit established under OAR 340-216-0060;

(b) As used in OAR 340 division 218 means an Oregon Title V Operating Permit established under OAR 340-218-0090.

(5~~7~~6) "Generic PSEL" means: [Table not included. See ED. NOTE.]

NOTE: Sources are eligible for a generic PSEL if expected emissions are less than or equal to the levels listed in the table above. Baseline emission rate and netting basis do not apply to pollutants at sources using generic PSELs.

(5~~8~~7) "Growth Allowance" means an allocation of some part of an airshed's capacity to accommodate future proposed major sources and major modifications of sources.

(5~~9~~8) "Immediately" means as soon as possible but in no case more than one hour after a source knew or should have known of an excess emission period.

(~~60~~59) "Inherent process equipment" means equipment that is necessary for the proper or safe functioning of the process, or material recovery equipment that the owner or operator documents is installed and operated primarily for purposes other than compliance with air pollution regulations. Equipment that must be operated at an efficiency higher than that achieved during normal process operations in order to comply with the applicable emission limitation or standard is not inherent process equipment. For the purposes of OAR 340-212-0200 through 340-212-0280, inherent process equipment is not considered a control device.

(6~~1~~0) "Insignificant Activity" means an activity or emission that the Department has designated as categorically insignificant, or that meets the criteria of aggregate insignificant emissions.

(6~~2~~1) "Insignificant Change" means an off-permit change defined under OAR 340-218-0140(2)(a) to either a significant or an insignificant activity which:

(a) Does not result in a re-designation from an insignificant to a significant activity;

(b) Does not invoke an applicable requirement not included in the permit; and

(c) Does not result in emission of regulated air pollutants not regulated by the source's permit.

(6~~3~~2) "Late Payment" means a fee payment which is postmarked after the due date.

(6~~4~~3) "Lowest Achievable Emission Rate" or "LAER" means that rate of emissions which reflects: the most stringent emission limitation which is contained in the implementation plan of any state for such class or category of source, unless the owner or operator of the proposed source demonstrates that such limitations are not achievable; or the most stringent emission limitation which is achieved in practice by such class or category of source, whichever is more stringent. The application of this term cannot permit a proposed new or modified source to emit any air contaminant in excess of the amount allowable under applicable New Source Performance Standards (NSPS) or standards for hazardous air pollutants.

(6~~5~~4) "Maintenance Area" means a geographical area of the State that was designated as a nonattainment area, redesignated as an attainment area by EPA, and redesignated as a maintenance area by the Environmental Quality Commission in OAR 340, division 204.

(6~~6~~5) "Maintenance Pollutant" means a pollutant for which a maintenance area was formerly designated a nonattainment area.

(6~~7~~6) "Major Modification" means any physical change or change of operation of a source that results in the following for any regulated air pollutant:

(a) An increase in the PSEL by an amount equal to or more than the significant emission rate over the netting basis; and

(b) The accumulation of physical changes and changes of operation since baseline would result in a significant emission rate increase.

(A) Calculations of emission increases in(b) must account for all accumulated increases in actual emissions due to physical changes and changes of operation occurring at the source since the baseline period, or since the time of the last construction approval issued for the source pursuant to the New Source Review Regulations in OAR 340 division 224 for that pollutant, whichever time is more recent. These include emissions from insignificant activities.

(B) Emission increases due solely to increased use of equipment or facilities that existed during the baseline period are not included, if that increased use was possible during the baseline period under the baseline configuration of the source, and the increased use of baseline equipment capacity is not to support a physical change or change in operation.

(c) For new or modified major sources that were permitted to construct and operate after the baseline period and were not subject to New Source Review, a major modification means:

(A) Any change at a source, including production increases, that would result in a Plant Site Emission Limit increase of 1 ton or more for any regulated pollutant for which the source is a major source; or

(B) The addition or modification of any stationary source or sources after the initial construction that have cumulative potential emissions greater than or equal to the significant emission rate, excluding any emission decreases.

(C) Changes to the PSEL solely due to the availability of better emissions information are exempt from being considered an increase.

(d) The following are not considered major modifications:

(A) Except as provided in(c), proposed increases in hours of operation or production rates that would cause emission increases above the levels allowed in a permit and would not involve a physical change or change in method of operation in the source;

(B) Pollution control projects that are determined by the Department to be environmentally beneficial;

(C) Routine maintenance, repair, and replacement of components;

(D) Temporary equipment installed for maintenance of the permanent equipment if the temporary equipment is in place for less than six months and operated within the permanent equipment's existing PSEL;

(E) Use of alternate fuel or raw materials, that were available and the source was capable of accommodating in the baseline period.

(6~~8~~7) "Major Source":

(a) Except as provided in subsection (b), means a source that emits, or has the potential to emit, any regulated air pollutant at a Significant Emission Rate. This includes emissions from insignificant activities.

(b) As used in OAR 340 division 210, Stationary Source Notification Requirements, OAR 340 division 218, rules applicable to sources required to have Oregon Title V Operating Permits, OAR 340 division 220, Oregon Title V Operating Permit Fees, and OAR 340-216-0066 Standard ACDPs, means any stationary source(or any group of stationary sources that are located on one or more contiguous or adjacent properties and are under common control of the same person(or persons under common control)) belonging to a single major industrial grouping or supporting the major industrial group and that is described in paragraphs (A),(B) or (C) of this subsection. For the purposes of this subsection, a stationary source or group of stationary sources is considered part of a single industrial grouping if all of the pollutant emitting activities at such source or group of sources on contiguous or adjacent properties belong to the same Major Group (i.e., all have the same two-digit code) as described in the Standard Industrial Classification Manual (U.S. Office of Management and Budget, 1987) or support the major industrial group.

(A) A major source of hazardous air pollutants, which means:

(i) For pollutants other than radionuclides, any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit, in the aggregate, 10 tons per year (tpy) or more of any hazardous air pollutants that has been listed pursuant to OAR 340-244-0040; 25 tpy or more of any combination of such hazardous air pollutants, or such lesser quantity as the Administrator may establish by rule. Emissions from any oil or gas exploration or production well, along with its associated equipment, and emissions from any pipeline compressor or pump station will not be aggregated with emissions from other similar units, whether or not such units are in a contiguous area or under common control, to determine whether such units or stations are major sources; or

(ii) For radionuclides, "major source" will have the meaning specified by the Administrator by rule.

(B) A major stationary source of air pollutants, as defined in section 302 of the Act, that directly emits or has the potential to emit 100 tpy or more of any regulated air pollutant, including any major source of fugitive emissions of any such pollutant. The fugitive emissions of a stationary source are not considered in determining whether it is a major stationary source for the purposes of section 302(j) of the Act, unless the source belongs to one of the following categories of stationary source:

(i) Coal cleaning plants (with thermal dryers);

(ii) Kraft pulp mills;

(iii) Portland cement plants;

(iv) Primary zinc smelters;

(v) Iron and steel mills;

(vi) Primary aluminum ore reduction plants;

(vii) Primary copper smelters;

(viii) Municipal incinerators capable of charging more than 50 tons of refuse per day;

(ix) Hydrofluoric, sulfuric, or nitric acid plants;

(x) Petroleum refineries;

(xi) Lime plants;

(xii) Phosphate rock processing plants;

(xiii) Coke oven batteries;

(xiv) Sulfur recovery plants;

(xv) Carbon black plants(furnace process);

(xvi) Primary lead smelters;

(xvii) Fuel conversion plants;

(xviii) Sintering plants;

(xix) Secondary metal production plants;

(xx) Chemical process plants;

(xxi) Fossil-fuel boilers, or combination thereof, totaling more than 250 million British thermal units per hour heat input;

(xxii) Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;

(xxiii) Taconite ore processing plants;

(xxiv) Glass fiber processing plants;

(xxv) Charcoal production plants;

(xxvi) Fossil-fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input; or

(xxvii) Any other stationary source category, that as of August 7, 1980 is being regulated under section 111 or 112 of the Act.

(C) A major stationary source as defined in part D of Title I of the Act, including:

(i) For ozone nonattainment areas, sources with the potential to emit 100 tpy or more of VOCs or oxides of nitrogen in areas classified as "marginal" or "moderate," 50 tpy or more in areas classified as "serious," 25 tpy or more in areas classified as "severe," and 10 tpy or more in areas classified as "extreme"; except that the references in this paragraph to 100, 50, 25, and 10 tpy of nitrogen oxides do not apply with respect to any source for which the Administrator has made a finding, under section 182(f)(1) or (2) of the Act, that requirements under section 182(f) of the Act do not apply;

(ii) For ozone transport regions established pursuant to section 184 of the Act, sources with the potential to emit 50 tpy or more of VOCs;

(iii) For carbon monoxide nonattainment areas:

(I) That are classified as "serious"; and

(II) In which stationary sources contribute significantly to carbon monoxide levels as determined under rules issued by the Administrator, sources with the potential to emit 50 tpy or more of carbon monoxide.

(iv) For particulate matter(PM10) nonattainment areas classified as "serious," sources with the potential to emit 70 tpy or more of PM10.

(6~~9~~8) "Material Balance" means a procedure for determining emissions based on the difference in the amount of material added to a process and the amount consumed and/or recovered from a process.

(~~70~~69) "Modification," except as used in the term "major modification," means any physical change to, or change in the method of operation of, a stationary source that results in an increase in the stationary source's potential to emit any regulated air pollutant on an hourly basis. Modifications do not include the following:

(a) Increases in hours of operation or production rates that do not involve a physical change or change in the method of operation;

(b) Changes in the method of operation due to using an alternative fuel or raw material that the stationary source was physically capable of accommodating during the baseline period; and

(c) Routine maintenance, repair and like-for-like replacement of components unless they increase the expected life of the stationary source by using component upgrades that would not otherwise be necessary for the stationary source to function.

(7~~1~~0) "Monitoring" means any form of collecting data on a routine basis to determine or otherwise assess compliance with emission limitations or standards. Monitoring may include record keeping if the records are used to determine or assess compliance with an emission limitation or standard (such as records of raw material content and usage, or records documenting compliance with work practice requirements). Monitoring may include conducting compliance method tests, such as the procedures in appendix A to 40 CFR part 60, on a routine periodic basis. Requirements to conduct such tests on a one-time basis, or at such times as a regulatory authority may require on a non-regular basis, are not considered monitoring requirements for purposes of this definition. Monitoring may include one or more than one of the following data collection techniques as appropriate for a particular circumstance:

(a) Continuous emission or opacity monitoring systems.

(b) Continuous process, capture system, control device or other relevant parameter monitoring systems or procedures, including a predictive emission monitoring system.

(c) Emission estimation and calculation procedures (e.g., mass balance or stoichiometric calculations).

(d) Maintaining and analyzing records of fuel or raw materials usage.

(e) Recording results of a program or protocol to conduct specific operation and maintenance procedures.

(f) Verifying emissions, process parameters, capture system parameters, or control device parameters using portable or in situ measurement devices.

(g) Visible emission observations and recording.

(h) Any other form of measuring, recording, or verifying on a routine basis emissions, process parameters, capture system parameters, control device parameters or other factors relevant to assessing compliance with emission limitations or standards.

(7~~2~~1) "Netting Basis" means the baseline emission rate MINUS any emission reductions required by rule, orders, or permit conditions required by the SIP or used to avoid SIP requirements, MINUS any unassigned emissions that are reduced from allowable under OAR 340-222-0045, MINUS any emission reduction credits transferred off site, PLUS any emission increases approved through the New Source Review regulations.

(a) With the first permitting action for a source after July 1, 2002, the baseline emissions rate will be frozen and recalculated only if:

(A) A better emission factor is established for the baseline period and approved by the Department;

(B) A currently operating emissions unit that the Department formerly thought had negligible emissions, is determined to have non-de minimis emissions and needs to be added to the baseline emission rate; or

(C) A new pollutant is added to the regulated pollutant list (e.g., PM2.5). For a pollutant that is newly regulated after 11/15/90, the initial netting basis is the actual emissions during any 12 consecutive month period within the 24 months immediately preceding its designation as a regulated pollutant. The Department may allow a prior 12 consecutive month time period to be used if it is shown to be more representative of normal source operation.

(b) Netting basis is zero for:

(A) any source constructed after the baseline period and has not undergone New Source Review;

(B) Any pollutant that has a generic PSEL in a permit;

(C) Any source permitted as portable; and

(D) Any source with a netting basis calculation resulting in a negative number.

(c) If a source relocates to an adjacent site, and the time between operation at the old and new sites is less than six months, the source may retain the netting basis from the old site.

(d) Emission reductions required by rule, order, or permit condition affect the netting basis if the source currently has devices or emissions units that are subject to the rules, order, or permit condition. The baseline emission rate is not affected.

(e) Netting basis for a pollutant with a revised definition will be adjusted if the source is emitting the pollutant at the time of redefining and the pollutant is included in the permit's netting basis.

(f) Where EPA requires an attainment demonstration based on dispersion modeling, the netting basis will be established at no more than the level used in the dispersion modeling to demonstrate attainment with the ambient air quality standard(i.e., the attainment demonstration is an emission reduction required by rule).

(7~~3~~2) "Nitrogen Oxides" or "NOx" means all oxides of nitrogen except nitrous oxide.

(7~~4~~3) "Nonattainment Area" means a geographical area of the State, as designated by the Environmental Quality Commission or the EPA, that exceeds any state or federal primary or secondary ambient air quality standard.

(7~~5~~4) "Nonattainment Pollutant" means a pollutant for which an area is designated a nonattainment area.

(7~~6~~5) "Normal Source Operation" means operations which do not include such conditions as forced fuel substitution, equipment malfunction, or highly abnormal market conditions.

(7~~7~~6) "Offset" means an equivalent or greater emission reduction that is required before allowing an emission increase from a proposed major source or major modification of an existing source.

(7~~8~~7) "Opacity" means the degree to which an emission reduces transmission of light and obscures the view of an object in the background as measured in accordance with OAR 340-212-0120 and 212-0140. Unless otherwise specified by rule, opacity shall be measured in accordance with EPA Method 9 or a continuous opacity monitoring system (COMS) installed and operated in accordance with the Department's Continuous Monitoring Manual. For all standards, the minimum observation period shall be six minutes, though longer periods may be required by a specific rule or permit condition. Aggregate times (e.g. 3 minutes in any one hour) consist of the total duration of all readings during the observation period that equal or exceed the opacity percentage in the standard, whether or not the readings are consecutive.

(7~~9~~8) "Oregon Title V Operating Permit" means any permit covering an Oregon Title V Operating Permit source that is issued, renewed, amended, or revised pursuant to division 218.

(~~80~~79) "Oregon Title V Operating Permit program" means a program approved by the Administrator under 40 CFR Part 70.

(8~~1~~0) "Oregon Title V Operating Permit program source" means any source subject to the permitting requirements, OAR 340 division 218.

(8~~2~~1) "Ozone Season" means the contiguous 3 month period during which ozone exceedances typically occur (i.e., June, July, and August).

(8~~3~~2) "Particulate Matter" means all finely divided solid or liquid material, other than uncombined water, emitted to the ambient air. When used in emission standards, particulate matter is defined by the method specified within the standard or by an applicable reference method in accordance with OAR 340-212-0120 and 340-212-0140. Unless otherwise specified, sources with exhaust gases at or near ambient conditions may be tested with DEQ Method 5 or DEQ Method 8, as approved by the Department. Direct heat transfer sources shall be tested with DEQ Method 7; indirect heat transfer combustion sources and all other non-fugitive emissions sources not listed above shall be tested with DEQ Method 5.

(8~~4~~3) "Permit" means an Air Contaminant Discharge Permit or an Oregon Title V Operating Permit.

(8~~5~~4) "Permit modification" means a permit revision that meets the applicable requirements of OAR 340 division 216, 340 division 224, or 340-218-0160 through 340-218-0180.

(8~~6~~5) "Permit revision" means any permit modification or administrative permit amendment.

(8~~7~~6) "Permitted Emissions" as used in OAR division 220 means each ~~assessable emission~~regulated pollutant portion of the PSEL, as identified in an ACDP, Oregon Title V Operating Permit, review report, or by the Department pursuant to OAR 340-220-0090.

(8~~8~~7) "Permittee" means the owner or operator of the facility, authorized by the ACDP or the Oregon Title V Operating Permit to operate the source.

(8~~9~~8) "Person" means individuals, corporations, associations, firms, partnerships, joint stock companies, public and municipal corporations, political subdivisions, the State of Oregon and any agencies thereof, and the federal government and any agencies thereof.

(~~90~~89) "Plant Site Emission Limit" or "PSEL" means the total mass emissions per unit time of an individual air pollutant specified in a permit for a source. The PSEL for a major source may consist of more than one ~~assessable~~permitted emission.

(9~~1~~0) "PM10":

(a) When used in the context of emissions, means finely divided solid or liquid material, including condensable particulate, other than uncombined water, with an aerodynamic diameter less than or equal to a nominal 10 micrometers, emitted to the ambient air as measured by an applicable reference method in accordance with the Department's Source Sampling Manual(January, 1992);

(b) When used in the context of ambient concentration, means airborne finely divided solid or liquid material with an aerodynamic diameter less than or equal to a nominal 10 micrometers as measured in accordance with 40 CFR Part 50, Appendix J.

(91) "PM2.5":

(a) When used in the context of emissions, means finely divided solid or liquid material, including condensable particulate, other than uncombined water, with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers, emitted to the ambient air as measured by conditional test method CTM-040 (EPA Emission Measurement Center) and a reference method based on 40 CFR Part 52, Appendix M.

(b) When used in the context of ambient concentration, means particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers as measured by a reference method based on 40 CFR Part 50, Appendix L, or an equivalent method designated in accordance with 40 CFR Part 53.

(92) "Pollutant-specific emissions unit" means an emissions unit considered separately with respect to each regulated air pollutant.

(93) "Potential to emit" or "PTE" means the lesser of:

(a) The capacity of a stationary source; or

(b) The maximum allowable emissions taking into consideration any physical or operational limitation, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, if the limitation is enforceable by the Administrator.

(c) This definition does not alter or affect the use of this term for any other purposes under the Act or the term "capacity factor" as used in Title IV of the Act and the regulations promulgated thereunder. Secondary emissions are not considered in determining the potential to emit.

(94) "Predictive emission monitoring system (PEMS)" means a system that uses process and other parameters as inputs to a computer program or other data reduction system to produce values in terms of the applicable emission limitation or standard.

(95) "Process Upset" means a failure or malfunction of a production process or system to operate in a normal and usual manner.

(96) "Proposed permit" means the version of an Oregon Title V Operating Permit that the Department or a Regional Agency proposes to issue and forwards to the Administrator for review in compliance with OAR 340-218-0230.

(97) "Reference method" means any method of sampling and analyzing for an air pollutant as specified in 40 CFR Part 60, 61 or 63.

(98) "Regional Agency" means Lane Regional Air Protection Agency.

(99) "Regulated air pollutant" or "Regulated Pollutant":

(a) Except as provided in subsections (b) and(c) of this rule, means:

(A) Nitrogen oxides or any VOCs;

(B) Any pollutant for which a national ambient air quality standard has been promulgated;

(C) Any pollutant that is subject to any standard promulgated under section 111 of the Act;

(D) Any Class I or II substance subject to a standard promulgated under or established by Title VI of the Act; or

(E) Any pollutant listed under OAR 340-244-0040 or 340-244-0230.

(b) As used in OAR 340 division 220, regulated pollutant means particulates, volatile organic compounds, oxides of nitrogen and sulfur dioxide.~~, means any air pollutant as included in subsection(a) of this rule, except the following:~~

~~(A) Carbon monoxide;~~

~~(B) Any pollutant that is a regulated pollutant solely because it is a Class I or Class II substance subject to a standard promulgated under or established by Title VI of the Federal Clean Air Act; or~~

~~(C) Any pollutant that is a regulated air pollutant solely because it is subject to a standard or regulation under section 112(r) of the Federal Clean Air Act.~~

(c) As used in OAR 340 division 224 any pollutant listed under OAR 340-244-0040 or 340-244-0230 is not a regulated pollutant.

(100) "Renewal" means the process by which a permit is reissued at the end of its term.

(101) "Responsible official" means one of the following:

(a) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:

(A) The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or

(B) The delegation of authority to such representative is approved in advance by the Department or Lane Regional Air Protection Agency.

(b) For a partnership or sole proprietorship: a general partner or the proprietor, respectively;

(c) For a municipality, State, Federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this Division, a principal executive officer of a Federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency(e.g., a Regional Administrator of the EPA); or

(d) For affected sources:

(A) The designated representative in so far as actions, standards, requirements, or prohibitions under Title IV of the Act or the regulations promulgated there under are concerned; and

(B) The designated representative for any other purposes under the Oregon Title V Operating Permit program.

(102) "Secondary Emissions" means emissions that are a result of the construction and/or operation of a source or modification, but that do not come from the source itself. Secondary emissions must be specific, well defined, quantifiable, and impact the same general area as the source associated with the secondary emissions. Secondary emissions may include, but are not limited to:

(a) Emissions from ships and trains coming to or from a facility;

(b) Emissions from off-site support facilities that would be constructed or would otherwise increase emissions as a result of the construction or modification of a source.

(103) "Section 111" means section 111 of the FCAA which includes Standards of Performance for New Stationary Sources (NSPS).

(104) "Section 111(d)" means subsection 111(d) of the FCAA which requires states to submit to the EPA plans that establish standards of performance for existing sources and provides for implementing and enforcing such standards.

(105) "Section 112" means section 112 of the FCAA which contains regulations for Hazardous Air Pollutants (HAP).

(106) "Section 112(b)" means subsection 112(b) of the FCAA which includes the list of hazardous air pollutants to be regulated.

(107) "Section 112(d)" means subsection 112(d) of the FCAA which directs the EPA to establish emission standards for sources of hazardous air pollutants. This section also defines the criteria to be used by the EPA when establishing the emission standards.

(108) "Section 112(e)" means subsection 112(e) of the FCAA which directs the EPA to establish and promulgate emissions standards for categories and subcategories of sources that emit hazardous air pollutants.

(109) "Section 112(r)(7)" means subsection 112(r)(7) of the FCAA which requires the EPA to promulgate regulations for the prevention of accidental releases and requires owners or operators to prepare risk management plans.

(110) "Section 114(a)(3)" means subsection 114(a)(3) of the FCAA which requires enhanced monitoring and submission of compliance certifications for major sources.

(111) "Section 129" means section 129 of the FCAA which requires the EPA to establish emission standards and other requirements for solid waste incineration units.

(112) "Section 129(e)" means subsection 129(e) of the FCAA which requires solid waste incineration units to obtain Oregon Title V Operating Permits.

(113) "Section 182(f)" means subsection 182(f) of the FCAA which requires states to include plan provisions in the State Implementation Plan for NOx in ozone nonattainment areas.

(114) "Section 182(f)(1)" means subsection 182(f)(1) of the FCAA which requires states to apply those plan provisions developed for major VOC sources and major NOx sources in ozone nonattainment areas.

(115) "Section 183(e)" means subsection 183(e) of the FCAA which requires the EPA to study and develop regulations for the control of certain VOC sources under federal ozone measures.

(116) "Section 183(f)" means subsection 182(f) of the FCAA which requires the EPA to develop regulations pertaining to tank vessels under federal ozone measures.

(117) "Section 184" means section 184 of the FCAA which contains regulations for the control of interstate ozone air pollution.

(118) "Section 302" means section 302 of the FCAA which contains definitions for general and administrative purposes in the Act.

(119) "Section 302(j)" means subsection 302(j) of the FCAA which contains definitions of "major stationary source" and "major emitting facility."

(120) "Section 328" means section 328 of the FCAA which contains regulations for air pollution from outer continental shelf activities.

(121) "Section 408(a)" means subsection 408(a) of the FCAA which contains regulations for the Title IV permit program.

(122) "Section 502(b)(10) change" means a change which contravenes an express permit term but is not a change that:

(a) Would violate applicable requirements;

(b) Would contravene federally enforceable permit terms and conditions that are monitoring, recordkeeping, reporting, or compliance certification requirements; or

(c) Is a Title I modification.

(123) "Section 504(b)" means subsection 504(b) of the FCAA which states that the EPA can prescribe by rule procedures and methods for determining compliance and for monitoring.

(124) "Section 504(e)" means subsection 504(e) of the FCAA which contains regulations for permit requirements for temporary sources.

(125) "Significant Air Quality Impact" means an additional ambient air quality concentration equal to or greater than in the concentrations listed in Table 1. The threshold concentrations listed in Table 1 are used for comparison against the ambient air quality standard and do not apply for protecting PSD Class I increments or air quality related values (including visibility). For sources of VOC or NOx, a major source or major modification has a significant impact if it is located within the Ozone Precursor Distance defined in OAR 340-225-0020.

(126) "Significant Emission Rate" or "SER," except as provided in subsections(a) through(c) of this section, means an emission rate equal to or greater than the rates specified in Table 2.

(a) For the Medford-Ashland Air Quality Maintenance Area, the Significant Emission Rate for PM10 is defined in Table 3.

(b) For regulated air pollutants not listed in Table 2 or 3, the significant emission rate is zero unless the Department determines the rate that constitutes a significant emission rate.

(c) Any new source or modification with an emissions increase less than the rates specified in Table 2 or 3 associated with a new source or modification which would construct within 10 kilometers of a Class I area, and would have an impact on such area equal to or greater than 1 ug/m3 (24 hour average) is emitting at a significant emission rate.

(127) "Significant Impairment" occurs when the Department determines that visibility impairment interferes with the management, protection, preservation, or enjoyment of the visual experience within a Class I area. The Department will make this determination on a case-by-case basis after considering the recommendations of the Federal Land Manager and the geographic extent, intensity, duration, frequency, and time of visibility impairment. These factors will be

considered along with visitor use of the Class I areas, and the frequency and occurrence of natural conditions that reduce visibility.

(128) "Source" means any building, structure, facility, installation or combination thereof that emits or is capable of emitting air contaminants to the atmosphere, is located on one or more contiguous or adjacent properties and is owned or operated by the same person or by persons under common control. The term includes all pollutant emitting activities that belong to a single major industrial group (i.e., that have the same two-digit code) as described in the Standard Industrial Classification Manual,(U.S. Office of Management and Budget, 1987) or that support the major industrial group.

(129) "Source category":

(a) Except as provided in subsection(b) of this section, means all the pollutant emitting activities that belong to the same industrial grouping(i.e., that have the same two-digit code) as described in the Standard Industrial Classification Manual,(U.S. Office of Management and Budget, 1987).

(b) As used in OAR 340 division 220, Oregon Title V Operating Permit Fees, means a group of major sources that the Department determines are using similar raw materials and have equivalent process controls and pollution control equipment.

(130) "Source Test" means the average of at least three test runs conducted in accordance with the Department's Source Sampling Manual.

(131) "Startup" and "shutdown" means that time during which an air contaminant source or emission-control equipment is brought into normal operation or normal operation is terminated, respectively.

(132) "State Implementation Plan" or "SIP" means the State of Oregon Clean Air Act Implementation Plan as adopted by the Commission under OAR 340-200-0040 and approved by EPA.

(133) "Stationary source" means any building, structure, facility, or installation at a source that emits or may emit any regulated air pollutant.

(134) "Substantial Underpayment" means the lesser of ten percent (10%) of the total interim emission fee for the major source or five hundred dollars.

(135) "Synthetic minor source" means a source that would be classified as a major source under OAR 340-200-0020, but for limits on its potential to emit air pollutants contained in a permit issued by the Department under OAR 340 division 216 or 218.

(136) "Title I modification" means one of the following modifications pursuant to Title I of the FCAA:

(a) A major modification subject to OAR 340-224-0050, Requirements for Sources in Nonattainment Areas;

(b) A major modification subject to OAR 340-224-0060, Requirements for Sources in Maintenance Areas;

(c) A major modification subject to OAR 340-224-0070, Prevention of Significant Deterioration Requirements for Sources in Attainment or Unclassified Areas;

(d) A modification that is subject to a New Source Performance Standard under Section 111 of the FCAA; or

(e) A modification under Section 112 of the FCAA.

(137) "Total Reduced Sulfur" or "TRS" means the sum of the sulfur compounds hydrogen sulfide, methyl mercaptan, dimethyl sulfide, dimethyl disulfide, and any other organic sulfides present expressed as hydrogen sulfide(H2S).

(138) "Typically Achievable Control Technology" or "TACT" means the emission limit established on a case-by-case basis for a criteria pollutant from a particular emissions unit in accordance with OAR 340-226-0130. For existing sources, the emission limit established will be typical of the emission level achieved by emissions units similar in type and size. For new and modified sources, the emission limit established will be typical of the emission level achieved by well controlled new or modified emissions units similar in type and size that were recently installed. TACT determinations will be based on information known to the Department while considering pollution prevention, impacts on other environmental media, energy impacts, capital and operating costs, cost effectiveness, and the age and remaining economic life of existing emission control equipment. The Department may consider emission control technologies typically applied to other types of emissions units where such technologies could be readily applied to the emissions unit. If an emission limitation is not feasible, a design, equipment, work practice, operational standard, or combination thereof, may be required.

(139) "Unassigned Emissions" means the amount of emissions that are in excess of the PSEL but less than the Netting Basis.

(140) "Unavoidable" or "could not be avoided" means events that are not caused entirely or in part by poor or inadequate design, operation, maintenance, or any other preventable condition in either process or control equipment.

(141) "Upset" or "Breakdown" means any failure or malfunction of any pollution control equipment or operating equipment that may cause excess emissions.

(142) "Visibility Impairment" means any humanly perceptible change in visual range, contrast or coloration from that which existed under natural conditions. Natural conditions include fog, clouds, windblown dust, rain, sand, naturally ignited wildfires, and natural aerosols.

(143) "Volatile Organic Compounds" or "VOC" means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, that participates in atmospheric photochemical reactions.

(a) This includes any such organic compound except the following, which have been determined to have negligible photochemical reactivity in the formation of tropospheric ozone: methane; ethane; methylene chloride(dichloromethane); 1,1,1-trichloroethane(methyl chloroform); 1,1,2-trichloro-1,2,2-trifluoroethane(CFC-113); trichlorofluoromethane(CFC-11); dichlorodifluoromethane(CFC-12); chlorodifluoromethane(HCFC-22); trifluoromethane(HFC-23); 1,2-dichloro-1,1,2,2-tetrafluoroethane(CFC-114); chloropentafluoroethane(CFC-115); 1,1,1-trifluoro 2,2-dichloroethane(HCFC-123); 1,1,1,2-tetrafluoroethane(HFC-134a); 1,1-dichloro 1-fluoroethane(HCFC-141b); 1-chloro 1,1-difluoroethane(HCFC-142b); 2-chloro-1,1,1,2-tetrafluoroethane(HCFC-124); pentafluoroethane(HFC-125); 1,1,2,2-tetrafluoroethane(HFC-134); 1,1,1-trifluoroethane(HFC-143a); 1,1-difluoroethane(HFC-152a); parachlorobenzotrifluoride(PCBTF); cyclic, branched, or linear completely methylated siloxanes; acetone; perchloroethylene(tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane(HCFC-225ca); 1,3-dichloro-1,1,2,2,3-pentafluoropropane(HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane HFC 43-10mee); difluoromethane(HFC-32); ethylfluoride(HFC-161); 1,1,1,3,3,3-hexafluoropropane(HFC-236fa); 1,1,2,2,3-pentafluoropropane(HFC-245ca); 1,1,2,3,3-pentafluoropropane(HFC-245ea); 1,1,1,2,3-pentafluoropropane(HFC-245eb); 1,1,1,3,3-pentafluoropropane(HFC-245fa); 1,1,1,2,3,3-hexafluoropropane(HFC-236ea); 1,1,1,3,3-pentafluorobutane(HFC-365mfc); chlorofluoromethane(HCFC-31); 1 chloro-1-fluoroethane(HCFC-151a); 1,2-dichloro-1,1,2-trifluoroethane(HCFC-123a); 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane(C4F9OCH3 or HFE-7100); 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane((CF3)2CFCF2OCH3); 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane(C4F9OC2H5 or HFE-7200); 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane((CF3)2CFCF2OC2H5); methyl acetate; 1,1,1,2,2,3,3-heptafluoro-3-methoxy-propane(n-C3F7OCH3, HFE-7000); 3-ethoxy-1,1,1,2,3,4,4,5,5,6,6,6-dodecafluoro-2-(trifluoromethyl) hexane(HFE-7500); 1,1,1,2,3,3,3-heptafluoropropane(HFC 227ea); methyl formate(HCOOCH3); (1) 1,1,1,2,2,3,4,5,5,5-decafluoro-3-methoxy-4-trifluoromethyl-pentane(HFE-7300); and perfluorocarbon compounds that fall into these classes:

(A) Cyclic, branched, or linear, completely fluorinated alkanes;

(B) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

(C) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

(D) Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

(b) For purposes of determining compliance with emissions limits, VOC will be measured by an applicable reference method in accordance with the Department's Source Sampling Manual, January, 1992. Where such a method also measures compounds with negligible photochemical reactivity, these negligibly-reactive compounds may be excluded as VOC if the amount of such compounds is accurately quantified, and the Department approves the exclusion.

(c) The Department may require an owner or operator to provide monitoring or testing methods and results demonstrating, to the Department's satisfaction, the amount of negligibly-reactive compounds in the source's emissions.

(d) The following compound(s) are VOC for purposes of all recordkeeping, emissions reporting, photochemical dispersion modeling and inventory requirements which apply to VOC and must be uniquely identified in emission reports, but are not VOC for purposes of VOC emissions limitations or VOC content requirements: t-butyl acetate.

(144) "Year" means any consecutive 12 month period of time.

NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the EQC under OAR 340-200-0040.

[ED. NOTE: Tables referenced are available from the agency.]

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

DIVISION 218

OREGON TITLE V OPERATING PERMITS

340-218-0050

Standard Permit Requirements

Each permit issued under this division must include the following elements:

(1) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance:

(a) The permit must specify and reference the origin of and authority for each term or condition, and identify any difference in form as compared to the applicable requirement upon which the term or condition is based;

(b) For sources regulated under the national acid rain program, the permit must state that, where an applicable requirement of the FCAA or state rules is more stringent than an applicable requirement of regulations promulgated under Title IV of the FCAA, both provisions must be incorporated into the permit and will be enforceable by the EPA;

(c) For any alternative emission limit established in accordance with OAR 340-226-0400, the permit must contain an equivalency determination and provisions to ensure that any resulting emissions limit has been demonstrated to be quantifiable, accountable, enforceable, and based on replicable procedures.

(2) Permit duration. The Department will issue permits for a fixed term of 5 years in the case of affected sources, and for a term not to exceed 5 years in the case of all other sources.

(3) Monitoring and related recordkeeping and reporting requirements:

(a) Each permit must contain the following requirements with respect to monitoring:

(A) A monitoring protocol to provide accurate and reliable data that:

(i) Is representative of actual source operation;

(ii) Is consistent with the averaging time in the permit emission limits;

(iii) Is consistent with monitoring requirements of other applicable requirements; and

(iv) Can be used for compliance certification and enforcement.

(B) All emissions monitoring and analysis procedures or test methods required under applicable monitoring and testing requirements, including OAR 340-212-0200 through 340-212-0280 and any other procedures and methods that may be promulgated pursuant to sections 504(b) or 114(a)(3) of the FCAA. If more than one monitoring or testing requirement applies, the permit may specify a streamlined set of monitoring or testing provisions provided the specified monitoring or testing is adequate to assure compliance at least to the same extent as the monitoring or testing applicable requirements that are not included in the permit as a result of such streamlining;

(C) Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to OAR 340-218-0050(3)(c). Such monitoring requirements must assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Continuous monitoring and source testing must be conducted in accordance with the **Department's Continuous Monitoring Manual** (January, 1992) and the **Source Sampling Manual** (January, 1992), respectively. Other monitoring must be conducted in accordance with

Department approved procedures. The monitoring requirements may include but are not limited to any combination of the following:

(i) Continuous emissions monitoring systems (CEMS);

(ii) Continuous opacity monitoring systems (COMS);

(iii) Continuous parameter monitoring systems (CPMS);

(iv) Continuous flow rate monitoring systems (CFRMS);

(v) Source testing;

(vi) Material balance;

(vii) Engineering calculations;

(viii) Recordkeeping; or

(ix) Fuel analysis; and

(D) As necessary, requirements concerning the use, maintenance, and, where appropriate, installation of monitoring equipment or methods;

(E) A condition that prohibits any person from knowingly rendering inaccurate any required monitoring device or method;

(F) Methods used in accordance with Division 220 to determine actual emissions for fee purposes must also be used for compliance determination and can be no less rigorous than the requirements of OAR 340-218-0080. ~~For any assessable emission for which fees are paid on actual emissions, t~~The compliance monitoring protocol must include the method used to determine the amount of actual emissions;

(G) Monitoring requirements must commence on the date of permit issuance unless otherwise specified in the permit.

(b) With respect to recordkeeping, the permit must incorporate all applicable recordkeeping requirements and require, where applicable, the following:

(A) Records of required monitoring information that include the following:

(i) The date, place as defined in the permit, and time of sampling or measurements;

(ii) The date(s) analyses were performed;

(iii) The company or entity that performed the analyses;

(iv) The analytical techniques or methods used;

(v) The results of such analyses;

(vi) The operating conditions as existing at the time of sampling or measurement; and

(vii) The records of quality assurance for continuous monitoring systems (including but not limited to quality control activities, audits, calibrations drifts).

(B) Retention of records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit;

(C) Recordkeeping requirements must commence on the date of permit issuance unless otherwise specified in the permit.

(c) With respect to reporting, the permit must incorporate all applicable reporting requirements and require the following:

(A) Submittal of three (3) copies of reports of any required monitoring at least every 6 months, completed on forms approved by the Department. Unless otherwise approved in writing by the Department, six month periods are January 1 to June 30, and July 1 to December 31. The reports required by this rule must be submitted within 30 days after the end of each reporting period, unless otherwise approved in writing by the Department. One copy of the report must be submitted to the EPA, and two copies to the Department's regional office identified in the permit. All instances of deviations from permit requirements must be clearly identified in such reports:

(i) The semi-annual report will be due on July 30, unless otherwise approved in writing by the Department, and must include the semi-annual compliance certification, OAR 340-218-0080;

(ii) The annual report will be due on February 15, unless otherwise approved in writing by the Department, but may not be due later than March 15, and must consist of the annual reporting requirements as specified in the permit; the emission fee report; the emission statement, if applicable, OAR 340-214-0220; the annual certification that the risk management plan is being properly implemented, OAR 340-218-0050; and the semi-annual compliance certification, OAR 340-218-0080.

(B) Prompt reporting of deviations from permit requirements that do not cause excess emissions, including those attributable to upset conditions, as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. "Prompt" means within fifteen (15) days of the deviation. Deviations that cause excess emissions, as specified in OAR 340-214-0300 through 340-214-0360 must be reported in accordance with OAR 340-214-0340;

(C) Submittal of any required source test report within 30 days after the source test unless otherwise approved in writing by the Department or specified in a permit;

(D) All required reports must be certified by a responsible official consistent with OAR 340-218-0040(5);

(E) Reporting requirements must commence on the date of permit issuance unless otherwise specified in the permit.

(d) The Department may incorporate more rigorous monitoring, recordkeeping, or reporting methods than required by applicable requirements in an Oregon Title V Operating Permit if they are contained in the permit application, are determined by the Department to be necessary to determine compliance with applicable requirements, or are needed to protect human health or the environment.

(4) A permit condition prohibiting emissions exceeding any allowances that the source lawfully holds under Title IV of the FCAA or the regulations promulgated there under:

(a) No permit revision will be required for increases in emissions that are authorized by allowances acquired pursuant to the acid rain program, provided that such increases do not require a permit revision under any other applicable requirement;

(b) No limit may be placed on the number of allowances held by the source. The source may not, however, use allowances as a defense to noncompliance with any other applicable requirement;

(c) Any such allowance must be accounted for according to the procedures established in regulations promulgated under Title IV of the FCAA.

(5) A severability clause to ensure the continued validity of the various permit requirements in the event of a challenge to any portions of the permit.

(6) Provisions stating the following:

(a) The permittee must comply with all conditions of the Oregon Title V Operating Permit. Any permit condition noncompliance constitutes a violation of the FCAA and state rules and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application;

(b) The need to halt or reduce activity will not be a defense. It will not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit;

(c) The permit may be modified, revoked, reopened and reissued, or terminated for cause as determined by the Department. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition;

(d) The permit does not convey any property rights of any sort, or any exclusive privilege;

(e) The permittee must furnish to the Department, within a reasonable time, any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee must also furnish to the Department copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee may furnish such records directly to the EPA along with a claim of confidentiality.

(7) A provision to ensure that an Oregon Title V Operating Permit program source pays fees to the Department consistent with the fee schedule.

(8) Terms and conditions for reasonably anticipated alternative operating scenarios identified by the owner or operator in its application as approved by the Department. Such terms and conditions:

(a) Must require the owner or operator, contemporaneously with making a change from one operating scenario to another, to record in a log at the permitted facility a record of the scenario under which it is operating;

(b) Must extend the permit shield described in OAR 340-218-0110 to all terms and conditions under each such alternative operating scenario; and

(c) Must ensure that the terms and conditions of each such alternative operating scenario meet all applicable requirements and the requirements of this division.

(9) Terms and conditions, if the permit applicant requests them, for the trading of emissions increases and decreases in the permitted facility solely for the purpose of complying with the PSELs. Such terms and conditions:

(a) Must include all terms required under OAR 340-218-0050 and 340-218-0080 to determine compliance;

(b) Must extend the permit shield described in OAR 340-218-0110 to all terms and conditions that allow such increases and decreases in emissions;

(c) Must ensure that the trades are quantifiable and enforceable;

(d) Must ensure that the trades are not Title I modifications;

(e) Must require a minimum 7-day advance, written notification to the Department and the EPA of the trade that must be attached to the Department's and the source's copy of the permit. The written notification must state when the change will occur and must describe the changes in emissions that will result and how these increases and decreases in emissions will comply with the terms and conditions of the permit; and

(f) Must meet all applicable requirements and requirements of this division.

(10) Terms and conditions, if the permit applicant requests them, for the trading of emissions increases and decreases in the permitted facility, to the extent that the applicable requirements provide for trading such increases and decreases without a case-by-case approval of each emission trade. Such terms and conditions:

(a) Must include all terms required under OAR 340-218-0050 and 340-218-0080 to determine compliance;

(b) Must extend the permit shield described in OAR 340-218-0110 to all terms and conditions that allow such increases and decreases in emissions; and

(c) Must meet all applicable requirements and requirements of this division.

(11) Terms and conditions allowing for off-permit changes, OAR 340-218-0140(2).

(12) Terms and conditions allowing for section 502(b)(10) changes, OAR 340-218-0140(3).

[Publications: Publications referenced are available from the agency.]

Stat. Auth.: ORS 468.020 & 468A.310
Stats. Implemented: ORS 468.020 & 468A.310

DIVISION 220

OREGON TITLE V OPERATING PERMIT FEES

340-220-0010

Purpose, Scope ~~A~~and Applicability

(1) The purpose of this division is to provide owners and operators of Oregon Title V Operating Permit program sources and the Department with the criteria and procedures to determine emissions and fees based on air emissions and specific activities.

(2) This division applies to Oregon Title V Operating Permit program sources as defined in OAR 340-200-0020.

(3) The owner or operator may elect to pay emission fees for each ~~assessable emission~~regulated pollutant on either actual emissions or permitted emissions.

~~(4) If the assessable emission is of a regulated air pollutant listed in OAR 340-244-0040 and there are no applicable methods to demonstrate actual emissions, the owner or operator may propose that the Department approve an emission factor based on the best representative data to demonstrate actual emissions for fee purposes.~~

(~~5~~4) Sources subject to the Oregon Title V Operating Permit program defined in OAR 340-200-0020, are subject to both an annual base fee established under OAR 340-220-0030 and an emission fee calculated pursuant to OAR 340-220-0040.

(~~6~~5) Sources subject to the Oregon Title V Operating Permit program may also be subject to user fees (OAR 340-220-0050 and 340-216-0090).

(~~7~~6) The Department will credit owners and operators of new Oregon Title V Operating Permit program sources for the unused portion of paid Annual Fees. The credit will begin from the date the Department receives the Title V permit application.

Stat. Auth.: ORS 468 & ORS 468A
Stats. Implemented: ORS 468 & ORS 468A

340-220-0020

Definitions

The definitions in OAR 340-200-0020 and this rule apply to this division. If the same term is defined in this rule and OAR 340-200-0020, the definition in this rule applies to this division.

(1) Particulates. For purposes of this division, particulates mean PM10; or if a source's permit specifies Particulate Matter (PM) and not PM10, then PM; or if a source's permit specifies PM2.5 and neither PM10 nor PM, then PM2.5.

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

340-220-0030

Annual Base Fee

(1) The Department will assess an annual base fee of $ ~~3,379~~4,390 for each source subject to the Oregon Title V Operating Permit program~~. The fee covers~~ for the period ~~from~~of November 15, 2007 ~~of the current calendar year~~ to November 14, 2008~~ of the following year~~.

(2) The Department will assess an annual base fee of $ 4,849 for each source subject to the Oregon Title V Operating Permit program for the period of November 15, 2008 to November 14, 2009.

(3) The Department will assess an annual base fee of $ 5,183 for each source subject to the Oregon Title V Operating Permit program for the period of November 15, 2009 to November 14, 2010, and for each annual period thereafter.

Stat. Auth.: ORS 468 & 468A
Stats. Implemented: ORS 468 & 468A

340-220-0040

Emission Fee

(1) The Department will assess an emission fee of $ ~~39.38~~43.90 per ton of each regulated pollutant emitted during calendar year 2006 to each source subject to the Oregon Title V Operating Permit Program.

(2) The Department will assess an emission fee of $ 48.49 per ton of each regulated pollutant emitted during calendar year 2007 to each source subject to the Oregon Title V Operating Permit Program.

(3) The Department will assess an emission fee of $ 51.83 per ton of each regulated pollutant emitted during calendar year 2008 and for each calendar year thereafter to each source subject to the Oregon Title V Operating Permit Program.

(~~2~~4) The emission fee will be applied to emissions~~ from the previous calendar year~~ based on the elections made according to OAR 340-220-0090.

Stat. Auth.: ORS 468 & 468A
Stats. Implemented: ORS 468 & 468A

340-220-0050

Specific Activity Fees

(1) The Department will assess specific activity fees for an Oregon Title V Operating Permit program source for the period of August 21, 2007 to August 25, 2008 as follows:

(~~1~~a) Existing Source Permit Revisions:

(~~a~~A) Administrative* -- $ ~~338~~406;

(~~b~~B) Simple -- $ ~~1,352~~1,626;

(~~c~~C) Moderate -- $ ~~10,137~~12,194;

(~~d~~D) Complex -- $ ~~20,273~~24,387.

(~~2~~b) Ambient Air Monitoring Review -- $ ~~2,703~~3,252.

(2) The Department will assess specific activity fees for an Oregon Title V Operating Permit program source as of August 26, 2008 as follows:

(a) Existing Source Permit Revisions:

(A) Administrative* -- $ 418;

(B) Simple -- $ 1,672;

(C) Moderate -- $ 12,540;

(D) Complex -- $ 25,081.

(b) Ambient Air Monitoring Review -- $ 3,344.

*includes revisions specified in OAR 340-218-0150(1) (a) through (g). Other revisions specified in OAR 340-218-0150 are subject to simple, moderate or complex revision fees.

Stat. Auth.: ORS 468 & 468A
Stats. Implemented: ORS 468 & 468A

340-220-0060

Pollutants Subject to Emission Fees

(1) The Department will assess emission fees on ~~assessable~~ emissions of regulated pollutants up to and including 4,000 tons per year for each regulated pollutant for each source through calendar year 2010, and up to and including 7,000 tons per year of all regulated pollutants for each source each calendar year thereafter.

~~(2) If the emission fee on PM_{10} emissions is based on the permitted emissions for a source that does not have a PSEL for PM_{10}, the Department will assess the emission fee on the permitted emissions for particulate matter (PM).~~

(~~3~~2) The owner or operator must pay emission fees for all regulated pollutants emitted from the source, except as limited in section (1)~~on all assessable emissions~~.

~~(4) The Department will assess emission fees only once for a regulated pollutant that the permitee can demonstrate, using procedures approved by the Department, is accounted for in more than one category of assessable emissions (e.g., a Hazardous Air Pollutant that is also demonstrated to be a Criteria Pollutant).~~

~~(5) Fees for newly regulated pollutants are effective on the date the pollutant becomes regulated. During the first year that the pollutant is regulated, the fee may be prorated according the number of months that the pollutant is regulated.~~

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

340-220-0070

Exclusions

(1) The Department will not assess emission fees on newly permitted major sources that have not begun initial operation.

(2) The Department will not assess emission fees on carbon monoxide. However, sources that emit or are permitted to emit 100 tons or more per year of carbon monoxide are subject to the emission fees on all other regulated air pollutants pursuant to OAR 340-220-0010.

(3) The Department will not assess emission fees on any device or activity that did not operate at any time during the calendar year.

(4) If an owner or operator of an Oregon Title V Operating Permit program source operates a device or activity for less than 5% of the permitted operating schedule, the owner or operator may elect to report emissions based on a proration of the permitted emissions for the actual operating time.

(5) The Department will not assess emission fees on emissions categorized as credits or unassigned ~~PSELs~~ emissions within an Oregon Title V Operating Permit.

(6) The Department will not assess emission fees on categorically insignificant emissions as defined in OAR 340-200-0020.

~~(7) The Department will not assess emission fees on Hazardous Air Pollutants that are also Criteria Pollutants.~~

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

340-220-0090

Election for Each Regulated Pollutant~~Assessable Emission~~

(1) The owner or operator must elect to pay emission fees on either actual emissions, permitted emissions, or a combination of both for the previous calendar year for each ~~assessable emission~~regulated pollutant and notify the Department in accordance with OAR 340-220-0110.

~~(2) The owner or operator may elect to pay emission fees on permitted emissions for hazardous air pollutants. An owner or operator may elect a Hazardous Air Pollutant PSEL in accordance with OAR 340-222-0060. The HAP PSEL will only be used for fee purposes.~~

(~~3~~2) If an owner or operator fails to notify the Department of the election for ~~an assessable emission~~a regulated pollutant, the Department will assess emission fees ~~for the assessable emission~~ based on permitted emissions.

(4~~3~~) If the permit or review report does not identify permitted emissions for ~~an assessable emission~~a regulated pollutant, the Department will develop representative permitted emissions ~~representative of the assessable emissions~~.

(~~5~~4) An owner or operator may elect to pay emission fees on the aggregate limit for insignificant emissions that are not categorically exempt insignificant emissions.

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

340-220-0100

Emission Reporting

(1) Using a form(s) developed by the Department the owner or operator must report the following ~~for each assessable emission or group of assessable~~ emissions:

(a) ~~PM_{10}, or if a permit specifies Particulate Matter (PM), then PM~~Particulates;

(b) Sulfur Dioxide as SO_2;

(c) Oxides of Nitrogen (NO_x) as Nitrogen Dioxide (NO_2);

~~(d) Total Reduced Sulfur (TRS) as H_2S in accordance with OAR 340-234-0010;~~

(~~e~~d) Volatile Organic Compounds as:

(A) VOC for material balance emission reporting; or

(B) Propane (C_3H_8), unless otherwise specified by permit, OAR Chapter 340, or a method approved by the Department, for emissions verified by source testing.

~~(f) Fluoride as F;~~

~~(g) Lead as Pb;~~

~~(h) Hydrogen Chloride as HCl;~~

~~(i) Estimate of Hazardous Air Pollutants as specified in a Department approved method.~~

(2) The owner or operator must report emissions in tons per year and as follows:

(a) Round up to the nearest whole ton for emission values 0.5 and greater; and

(b) Round down to the nearest whole ton for emission values less than 0.5.

(3) The owner or operator electing to pay emission fees on actual emissions for a regulated pollutant must ~~:~~

~~(a) Submit complete information on the forms including all assessable emissions; and~~

~~(b) S~~submit documentation necessary to support the actual emissions ~~calculations~~in accordance with OAR 340-220-0120.

(4) The owner or operator electing to pay on actual emissions must report total emissions, including those emissions in excess of 4,000 tons for each ~~assessable emission~~regulated pollutant and in excess of 7,000 tons for all regulated pollutants.

(5) The owner or operator electing to pay on permitted emissions for ~~an assessable emission~~a regulated pollutant must identify such an election on the form(s) developed by the Department.

(6) If more than one permit is in effect for a calendar year for an Oregon Title V Operating Permit program source, the owner or operator electing to pay on permitted emissions must pay on the most current permitted or actual emissions.

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

340-220-0110

Emission Reporting and Fee Procedures

(1) The owner or operator must submit the required form(s), including the election ~~for~~to pay on permitted or actual emissions for each regulated pollutant~~assessable emission~~, to the Department with the annual permit report in accordance with annual reporting procedures.

(2) The owner or operator may request that information, other than emission information, submitted pursuant to this division be exempt from disclosure in accordance with OAR 340-214-0130.

(3) Records developed in accordance with these rules are subject to inspection and entry requirements in OAR 340-218-0080. The owner or operator must retain records for at least five years in accordance with OAR 340-218-0050(3)(b)(B).

(4) The Department may accept the information submitted or request additional information from the owner or operator. The owner or operator must submit additional actual emission information requested by the Department within 30 days of the date of the request. The Department may approve a request for additional time, up to 30 days, to submit the requested information.

(5) If the Department determines the actual emission information submitted for any ~~assessable emission~~regulated pollutant does not meet the criteria in this division, the Department will assess the emission fee on the permitted emission for that ~~assessable emission~~regulated pollutant.

(6) The owner or operator must submit emission fees payable to the Department by the later of:

(a) August 1 for emission fees from the previous calendar year; or

(b) Thirty days after the Department mails the fee invoice.

(7) Department acceptance of emission fees does not indicate approval of data collection methods, calculation methods, or information reported on Emission Reporting Forms. If the Department determines initial emission fee assessments were inaccurate or inconsistent with this division, the Department may assess or refund emission fees up to two years after emission fees are received by the Department.

(8) The Department will not revise a PSEL solely due to an emission fee payment.

(9) Owners or operators operating sources pursuant to OAR 340 division 218 must submit the emission reporting information with the annual permit report.

Stat. Auth.: ORS 468 & ORS 468A
Stats. Implemented: ORS 468A.025

340-220-0120

Actual Emissions

An owner or operator electing to pay on actual emissions must obtain emission data and determine ~~assessable~~regulated pollutant emissions using one of the following methods:

(1) Continuous monitoring systems used in accordance with OAR 340-220-0130;

(2) Verified emission factors developed for a~~that~~ particular source or a combination of sources venting to a common stack in accordance with OAR 340-220-0170;~~ for:~~

~~(a) Each assessable emission; or~~

~~(b) A combination of assessable emissions if there are multiple devices or activities venting to the atmosphere through one common emission point (e.g., stack). The owner or operator must have a verified emission factor plan approved by the Department before conducting the source testing in accordance with OAR 340-220-0170.~~

(3) Material balances determined in accordance with OAR 340-220-0140, OAR 340-220-0150, or OAR 340-220-0160; or

(4) Verified emission factors for source categories developed in accordance with OAR 340-220-0170(11).

~~(5) For specific assessable emissions of regulated air pollutants listed under OAR 340-244-0040 but not subject by permit to a Plant Site Emission Limit, and where the Department determines there are not applicable methods to demonstrate actual emissions, the owner or operator must use the best representative data to develop an emission factor, subject to Department approval.~~

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

340-220-0150

Determining VOC Emissions Using Material Balance

The owner or operator may determine the amount of VOC emissions for emissions of a regulated pollutant~~an assessable emission~~ by using material balance. The owner or operator using material balance to calculate VOC emissions must determine the amount of VOC added to the process, the amount of VOC consumed in the process, and the amount of VOC recovered in the process, if any, by testing in accordance with **40 Code of Federal Regulations (CFR) Part 60 Appendix A EPA Method 18, 24, 25**, a material balance method, or an equivalent plant specific method specified in the Oregon Title V Operating Permit using the following equation: [Equation not included. See ED. NOTE.]

[ED. NOTE: The equation referenced in this rule is not printed in the OAR Compilation. Copies are available from the agency.]

[Publications: The publication(s) referenced in this rule is available from the agency.]

Stat. Auth.: ORS 468 & ORS 468A
Stats Implemented: ORS 468.020, ORS 468A.025, and ORS 468A.315

340-220-0170

Verified Emission Factors

(1) The owner or operator must verify emission factors before using them to determine ~~assessable~~ emissions of regulated pollutants. To verify emission factors, the owner or operator must perform either source testing in accordance with the Department's Source Sampling Manual or use other methods approved by the Department for source tests. Source tests must be conducted in accordance with testing procedures on file at the Department and the Department approved pretest plan which must be submitted at least 15 days before the testing. All test data and results must be submitted for review to the Department within 30 days after testing, unless the Department approves otherwise or a different time period is specified in a permit.

[**NOTE:** DEQ recommends that the owner or operator notify the Department and obtain pre-approval of the emission factor source testing program before or as part of the first source test notification.]

(2) The owner or operator must conduct or have conducted at least three compliance source tests. Each test must consist of at least three individual test runs for a total of at least nine test runs.

(3) The owner or operator must monitor and record applicable process and control device operating data.

(4) The owner or operator must perform a source test either:

(a) In each of three quarters of the year with no two successive source tests performed any closer than 30 days apart; or

(b) At equal intervals over the operating period if the owner or operator demonstrates and the Department agrees that the device or activity operates or has operated for part of the year; or

(c) At any time during the year if the owner or operator demonstrates, and the Department agrees, that the process is or was not subject to seasonal variations.

(5) The owner or operator must conduct the source tests to test the entire range of operating levels. At least one test must be conducted at minimum operating conditions, at normal or average operating levels, and at anticipated maximum operating levels. If the process rate is constant, all tests must be conducted at that rate. The owner or operator must submit documentation to the Department demonstrating a constant process rate.

(6) The owner or operator must determine an emission factor for each source test by dividing each test run, in pounds of emission per hour, by the applicable process rate during the source test run. At least nine emission factors must be plotted against the respective process rates and a regression analysis performed to determine the best fit equation and the correlation coefficient. If the correlation coefficient is less than 0.50, which indicates that there is a relatively weak relationship between emissions and process rates, the arithmetic average and standard deviation of at least nine emission factors must be determined.

(7) The owner or operator must determine the Emissions Estimate Adjustment Factor (EEAF) as follows:

(a) If the correlation coefficient (R^2) of the regression analysis is greater than 0.50, the EEAF will be $1+(1-R^2)$.

(b) If the correlation coefficient (R^2) is less than 0.50, the EEAF will be: [Equation not included. See ED. NOTE.]

(8) The owner or operator must determine actual emissions for emission fee purposes using one of the following methods:

(a) If the regression analysis correlation coefficient is less than 0.50, the actual emissions is the average emission factor determined from at least nine test runs multiplied by the EEAF multiplied by the total production for the entire year; or [Equation not included. See ED. NOTE.]

(b) If the regression analysis correlation coefficient is greater than 0.50, perform the following calculations :

(A) Determine the average emission factor (EF) for each production rate category (maximum = EF_{max}, normal = EF_{norm}, and minimum = EF_{min});

(B) Determine the total annual production and operating hours, production time (PT_{tot}), for the calendar year;

(C) Determine the total hours operating within the maximum production rate category (PT_{max}). The maximum production rate category is any operation rate greater than the average of at least three maximum operating rates during the source testing plus the average of at least three normal operating rates during the source testing divided by 2;

(D) Determine the total hours while operating within the normal production rate category (PT_{norm}). The normal production rate category is defined as any operating rate less than the average of at least three maximum operating rates during the source testing plus the average of at least three normal operating rates during the source testing divided by 2 and any operating rate greater than the average of at least three minimum operating rates during the source testing plus the average of at least three normal operating rates during the source testing divided by 2;

(E) Determine the total hours while operating within the minimum production rate category (PT_{min}). The minimum production rate category is defined as any operating rate less than the average of at least three minimum operating rates during the source testing plus the average of at least three normal operating rates during the source testing divided by 2;

(F) Actual emissions equals EEAF x ((PT_{max}/PT_{tot}) x EF_{max} + (PT_{norm}/PT_{tot}) x EF_{norm} + (PT_{min}/PT_{tot}) x EF_{min}.)

(9) The owner or operator must determine emissions during startup and shutdown, and for emissions greater than normal, during conditions that are not accounted for in the procedure(s) otherwise used to document actual emissions. The owner or operator must apply 340-220-0170(9)(a) or 340-220-0170(9)(b), (c) and (d) in developing emission factors. The owner or operator must apply the emission factor obtained to the total time the device or activity operated under these conditions.

(a) All emissions during startup and shutdown, and emissions greater than normal are assumed equivalent to operation without an air pollution control device, unless the owner or operator accurately demonstrates otherwise in accordance with OAR 340-220-0170(9)(b), (9)(c), (9)(d), and (9)(e), and approved by the Department. The emission factor plus the EEAF must be adjusted by the air pollution control device collection efficiency as follows: [Equation not included. See ED. NOTE.]

(b) During process startups a Department approved source test may be performed to determine an average startup factor. The average of at least three tests runs plus the standard deviation will be used to determine actual emissions during startups.

(c) During process shutdowns a Department approved source test may be performed to determine an emission factor for shutdowns. The average of at least three test runs plus the standard deviation will be used to determine actual emissions during shutdowns.

(d) During routine maintenance activity the owner or operator may:

(A) Perform routine maintenance activity during source testing for verified emission factors; or

(B) Determine emissions in accordance with Section (a) of this rule.

(e) The emission factor need not be adjusted if the owner or operator demonstrates to the Department that the pollutant emissions do not increase during startup and shutdown, and for conditions that are not accounted for in the procedure(s) otherwise used to document actual emissions (e.g. NO_x emissions during an ESP failure).

(10) A verified emission factor developed pursuant to this division and approved by the Department can not be used if a process change occurs that would affect the accuracy of the verified emission factor.

(11) The owner or operator may elect to use verified emission factors for source categories if the Department determines the following criteria are met:

(a) The verified emission factor for a source category must be based on verified emission factors from at least three individual sources within the source category;

(b) Verified emission factors from sources within a source category must be developed in accordance with this rule;

(c) The verified emission factors from the sources must not differ from the mean by more than twenty percent; and

(d) The source category verified emission factor must be the mean of the source verified emission factors plus the average of the source emission estimate adjustment factors.

[Publications: The publication(s) referenced in this rule is available from the agency.]

[ED. NOTE: The equation(s) referenced in this rule is not printed in the OAR Compilation. Copies are available from the agency.]

Stat. Auth.: ORS 468.020
Stats. Implemented: ORS 468A.025

Oregon Department of Environmental Quality

Proposal to Increase Oregon's Title V Operating Permit Fees

Summary of Public Comments and Agency Responses

Prepared by: Andrea Curtis Date: June 9, 2008

Comment period	The public comment period opened February 27, 2008 and closed March 31, 2008. It reopened May 12, 2008 and closed June 2, 2008. DEQ received written comments from three people: one by mail and two by e-mail.
Organization of comments and responses	Summaries of individual comments and DEQ's responses are provided below. Comments are summarized in categories. The person who provided each comment is referenced by number in parenthesis at the end of the comment. A list of commenters and their reference numbers follows the summary of comments and responses.
Explanation of acronyms used in this document	CAA: Clean Air Act DEQ: Oregon Department of Environmental Quality EQC: Environmental Quality Commission EPA: Environmental Protection Agency MACT: Maximum Achievable Control Technology PM: Particulate Matter ORS: Oregon Revised Statute SB: Senate Bill

Comments and Agency Responses	
1. Consider other options	Comment: Pursuant to ORS 183.335(2)(b)(G), DEQ should have considered other options for achieving the rule's substantive goals. The options we are suggesting (return program to EPA or contract out services) would reduce the negative economic impact on Oregon business and still meet program requirements. DEQ should consider these options before moving forward with a rule that would increase our Title V fees any further. (1)
	Response: *The alternative options suggested are addressed in the next two sections of this document.* *The proposed fee increases are necessary for DEQ to administer an effective Title V program that is fully funded by permit fees, as required by federal law. In 2007, the Oregon Legislature adopted SB 107, which authorized the fee increases that DEQ is proposing in this rulemaking.* *DEQ convened an advisory committee to generate input and recommendations on the fiscal impact statement for the proposed fee increases for 2007 and 2008. The committee concluded that the benefits of an effective Title V program, such as adequate service to businesses and continued protection of public health, outweigh the potential fiscal burdens of the fee increases on small business. Although the committee evaluated the statement before DEQ added the fee increase for 2009 to this proposal, DEQ believes that the committee would still make this conclusion.*

2. Return program to EPA	Comment: DEQ did not consider returning the program to EPA. This option is attractive because of the increasing complexity and volume of regulation promulgated by the federal government. The EPA does not provide resources or sufficient guidance to Oregon to allow DEQ to properly administer the program. In fact, we would prefer to deal with the EPA directly rather than have DEQ try to infer meaning of the complex and poorly written regulations that are increasingly forced upon industry. (1) The Plywood and Composite Wood Products MACT is a recent example of DEQ's failure to interpret the CAA properly. DEQ advised Title V sources that they could "risk out" of provisions of the MACT standard that would have required them to control their Hazardous Air Pollutant emissions. The MACT standard is a technology based standard and the CAA does not allow sources to risk out of the standard's control requirements. The courts overturned the risk out option and wood products manufacturers were forced to install control devices at their facilities on an accelerated schedule. Giving the program back to EPA would allow DEQ to focus on things it does well (e.g. air monitoring, air shed planning and emission inventories). (1)
	Response: *The federal CAA does not allow DEQ to return the program to EPA. The act requires states to administer the Title V program or face severe sanctions.* *DEQ believes that the majority of Title V permit holders including the stakeholders who supported the fee increases in SB 107 prefer to deal with DEQ instead of EPA.* *The Plywood MACT was a rule adopted by EPA over the objections of many state air quality agencies including DEQ. When the courts overturned parts of EPA's rule, DEQ worked hard to address the concerns of the public and the permittees in implementing the remaining requirements. The business community consistently supports DEQ maintaining delegation of the federal program because of DEQ's responsiveness to Oregon's needs.*
3. Hire subcontractors	Comment: DEQ did not consider hiring a subcontractor to perform the tasks that DEQ is currently not performing because of the claimed lack of resources. This option is employed by several states. Arizona uses contractors to write initial permits, permit renewals and permit modifications. The state handles inspections and enforcement actions. (1) Hiring contractors would help DEQ: Manage workload better and eliminate the need to hire more staff to meet short-term periods when workload is high (e.g. when several permit renewals or permit modifications come in at the same time). Maintain a smaller, more manageable workforce and prevent DEQ from hiring staff that remain idle except for short periods when workload increases temporarily. The overhead costs for contract workers are much lower than for full time government workers. Arizona is able to offer faster permit turnaround while maintaining a lower cost structure. (1) DEQ is already using contractors in areas where they lack expertise such as the Columbia Gorge Commission study and for determining the proper level of emission control and reduction for the PGE Boardman coal fired power plant. It wouldn't be a stretch to ask the consulting industry to provide competitive bids for the permitting portion of the Title V program. (1)

	Response: DEQ disagrees that contracting permitting work would result in cost savings and believes that this could actually increase costs and reduce quality. DEQ's regional office staff does both the permitting and the inspections of Title V sources. These two activities are intimately connected; the permit is the basis for the inspections, and the inspections provide staff with the familiarity and expertise needed to prepare the permits. Contracting out the permitting work would cause a duplication of these activities. DEQ would incur additional costs because it would be responsible for contract oversight and quality assurance; and DEQ would still be responsible for deficiencies in the permits. The public comment and public hearing process is a key part of the Title V program, and many members of the public participate in this when Title V permits are issued or renewed. Many of the questions raised by the public have to do with issues that go beyond the actual permit, including the accuracy of emission estimates from the facilities, the stringency of underlying regulations that result in permit conditions, and the ambient air quality in neighborhoods near Title V facilities. A contractor would not be able to address these concerns, nor would the public likely be satisfied commenting to a contractor rather than the agency. Finally, there would be potential conflicts of interest since many of the contractors that would be qualified to develop Title V permits also provide engineering consulting to Title V facilities. This could lead to increased oversight costs, a lack of available contractors to conduct the work and lowered public confidence in the program.
4. Implementation of SB 107	Comment: Although SB 107 authorized the fee increase phase-in through 2009, the current rulemaking only covers the years 2007 and 2008. Why does the rulemaking not cover the entire period authorized by SB 107? (2)
	Response: *DEQ added the fee increase for 2009 to the proposed rulemaking. DEQ renoticed the rulemaking with the revised language for an additional 22 days to allow for public comment on this revision.* *DEQ chose not to include the fee increase for 2009 in the original rulemaking proposal because the information needed to adjust the fees by inflation is not yet available. DEQ will propose a CPI adjustment by the amount of the 2008 CPI at a later date.*
5. Particulate Matter	Comment: The definition of particulates in 340-220-0020(1) of the rule does not include PM2.5. Why is PM2.5 not included along with PM and PM10? (2)
	Response: *DEQ added PM2.5 to the definition of particulates in the proposed rulemaking. DEQ renoticed the rulemaking with the revised language for an additional 22 days to allow for public comment on these revisions.* *The statute requires the EQC to establish the size fraction of particulates subject to emission fees. Including PM2.5 in the proposed rules will provide for DEQ to assess fees on PM2.5 if a permit specifies PM2.5 and not PM or PM10.*
6. Support for regulation	Comment: As an industrial manufacturer in the urban core, you might expect our perspective on pollution and the cost of permits to be against regulation. Quite the opposite, we want

	to see permits become rarer and more expensive, penalties become so high as to actually change corporations' behavior, and we want to see Oregon's precious environment preserved for future generations. Our company is proof that it can be done sustainably and in a way that the economy is strengthened at the same time. (3) Our child goes to preschool about six blocks from the ESCO foundry in Northwest Portland. Not only are the fumes from the factory unpleasant to breathe, our background in the metal casting industry informs us that those fumes are potentially dangerous. We can smell them at our home and business in North Portland when the wind blows in that direction. We are baffled as to why the Oregon DEQ doesn't do something about this travesty of our environment and public safety as well as many others. (3)
	Response: *Thank you for your comments and the sustainable practices you employ at your business.* *Oregon establishes Title V permit fees based on the reasonable costs of implementing the Title V program, as required by federal law; the state is not authorized to increase fees beyond what is needed to fund the program.* *All major sources are required to obtain a Title V permit from DEQ. DEQ uses its authority to issue administrative penalties and has enforcement provisions where knowing endangerment from the release of air toxics can carry imprisonment of up to 15 years and fines up to $1 million.* *DEQ makes periodic compliance determinations of facilities like ESCO through inspections and review of emission reports and records. Some facilities may have odorous emissions, but still comply with state and federal emissions standards.* *DEQ's air toxics program continues to work on better assessment on health risks from air emissions, and is working on a Portland air toxics plan that will further improve Portland's air quality.*

List of People Submitting Comments (by Commenter Number)			
Commenter Number	**Name**	**Organization**	**Submittal date**
1	Rick Colgan	Calpine Corp.	March 17, 2008
2	Dona Hippert		March 31, 2008*
3	Sattie Clark	Eleek Inc.	May 12, 2008*

*Comments submitted via e-mail.

Oregon Department of Environmental Quality

Proposal to Increase Oregon's Title V Operating Permit Fees

Title V Fee Increase Advisory Committee

Findings and Recommendations

Overview and purpose

The Oregon Department of Environmental Quality established the Title V Fee Increase Rulemaking Advisory Committee to review the fiscal and economic impacts of DEQ's proposed rulemaking to increase Oregon's Title V Operating Permit Fees. DEQ requested that each of the committee members provide comments and recommendations on DEQ's draft Statement of Need and Fiscal and Economic Impact and answer three questions derived from the Administrative Procedures Act requirements for fiscal impact analysis (ORS 183.333) as follows:

- Do the rules have a fiscal and economic impact?
- What is the extent of that fiscal and economic impact?
- Will the rules have a significant adverse impact on small businesses?

Committee members

Bob Anderson, Northwest Automotive Trades Association
Dona Hippert, Oregon Toxics Alliance and Northwest Environmental Defense Center
Chris Rich, Oregon Business Association
Tom Wood, Stoel Rives

DEQ staff: Uri Papish and Andrea Curtis

Proposed rule background

Oregon's Title V Operating Permit program requires additional funding to continue protecting Oregon's air quality. The federal Clean Air Act requires that each state's Title V program be fully funded through permit fees. To address the problem of inadequate funding, DEQ proposed and the 2007 Oregon Legislature passed Senate Bill (SB) 107. This increases Oregon's Title V Operating Permit fees in statute (ORS 468A.315). This rulemaking proposal would increase Oregon's Title V fees in rule by the amounts authorized in statute for 2007 and 2008, increase fees by the consumer price index, and comply with other requirements of SB 107. The revenue from the proposed fees would fund the Title V program in the 2007-2009 biennium and help DEQ:

- Issue and renew Title V permits in a timely manner
- Complete required Title V inspections
- Monitor and enforce compliance with air quality regulations
- Comply with federal requirements to maintain a federally approved and delegated Title V program
- Issue public notices and information on the Title V program

Meeting summary

This meeting took place November 16, 2007 from 1 p.m. to 2:30 p.m. at DEQ Headquarters and was audio recorded. DEQ provided the committee DEQ's draft Statement of Need and Fiscal and Economic Impact for the proposed rules, the Administrative Procedures Act requirements for fiscal impact analysis, Senate Bill 107, and a handout that describes the direct effect of the proposed fees on businesses holding Title V permits. These materials are available upon request.

DEQ staff explained the need for the Title V Fee Increase Rulemaking Advisory Committee and gave an overview of the proposed rules, the Administrative Procedures Act requirements, and the draft Statement of Need and Fiscal and Economic Impact. The committee provided comments and recommendations on the statement and answered the three questions derived from ORS 183.333. DEQ modified the fiscal statement as recommended by the committee.

Committee recommendations
The three questions derived from ORS 183.333 as well as the committee's answers are summarized as follows:

1. Do the rules have a fiscal and economic impact?

Yes

2. What is the extent of that fiscal and economic impact?

The extent of the impact is outlined adequately in DEQ's Statement of Need and Fiscal and Economic Impact and in the handout that describes the direct effect of the proposed fees on businesses holding Title V permits. The committee recommends adding a statement that revenue from the proposed fees will help DEQ issue public notices and information on the Title V program.

3. Will the rules have a significant adverse impact on small businesses?

The committee concluded that the rules could have a significant adverse impact on the six small businesses that DEQ indicated would be directly effected by the fee increase, but it does not have enough information to conclusively make a finding to that effect. However, the committee stated that despite any possible adverse impact on small business they did not believe there is a need at this time for additional mitigation steps as outlined in ORS 183.540. The benefits of an effective Title V program, such as adequate service to businesses and continued protection of public health, outweigh the potential fiscal burdens on small business.

State of Oregon
Department of Environmental Quality **Memorandum**

Date: March 28, 2008

To: Environmental Quality Commission

From: Gregg Dahmen, Air Quality Division

Subject: Presiding Officer's Report for Rulemaking Hearing

Hearing Date and Time:	March 27, 2008, 6:00 p.m.
Hearing Location:	Department of Environmental Quality Conference Room EQC-A, Floor 10 811 SW Sixth Avenue Portland, Oregon 97204

Rule Caption: Proposal to Increase Oregon's Title V Operating Permit Fees

DEQ convened the public hearing on the rulemaking proposal referenced above at 6:00 p.m. and closed it at 6:30 p.m. No members of the public attended the hearing. No written or oral comments were received.

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Relationship to Federal Requirements

RULE CAPTION

Proposal to Increase Oregon's Title V Operating Permit Fees

Answers to the following questions identify how the proposed rulemaking relates to federal requirements and potential justification for differing from, or adding to, federal requirements. This statement is required by OAR 340-011-0029(1).

1. Is the proposed rulemaking different from, or in addition to, applicable federal requirements? If so, what are the differences or additions?

No. The proposed rules are not different from, or in addition to, applicable federal requirements. This rulemaking implements the federal requirements of the Clean Air Act and EPA rules (40 CFR Part 70) that Oregon's Title V Operating Permit program be fully funded through permit fees.

2. If the proposal differs from, or is in addition to, applicable federal requirements, explain the reasons for the difference or addition (including as appropriate, the public health, environmental, scientific, economic, technological, administrative or other reasons).

Not applicable.

3. If the proposal differs from, or is in addition to, applicable federal requirements, did the Department consider alternatives to the difference or addition? If so, describe the alternatives and the reason(s) they were not pursued.

Not applicable.

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Chapter 340
Proposed Rule Change:
Oregon Title V Operating Permit Fee Increase

Statement of Need and Fiscal and Economic Impact

Rule Caption	Proposal to increase Oregon's Title V Operating Permit fees
Need for the Rules	Oregon's Title V Operating Permit program requires additional funding to continue protecting Oregon's air quality. Due to inadequate revenue, DEQ reduced staffing by three positions in the 2005-2007 biennium. Without a fee increase, DEQ would have had to reduce staffing by an additional one-and-a-half positions in the 2007-2009 biennium. Failure to maintain adequate staff levels needed to operate Oregon's Title V program could affect DEQ's ability to maintain federal approval and delegation of the state program. The federal Clean Air Act requires each state's Title V program to be fully funded through permit fees. To address the problem of inadequate funding, DEQ proposed and the 2007 Oregon Legislature passed Senate Bill (SB) 107. This increased Oregon's Title V Operating Permit fees in statute (ORS 468A.315) by 24 percent, to be phased in over three years: 2007, 2008 and 2009. The statute also allows annual increases in Title V fees based on increases in the Consumer Price Index . DEQ proposed and the Legislature approved DEQ's budget package for the Title V program that restores Title V positions through a phase-in process based on the timing of the fee increase. This is the first fee increase beyond the CPI increase since the Environmental Protection Agency authorized Oregon's Title V program in 1994. The objective of this rulemaking is to align fees in rule with fees in statute and comply with other requirements of SB 107. This rulemaking would make permanent a fee increase for 2007 that was already adopted in a temporary rule and invoiced to permittees in August 2007. It would also increase Title V fees for 2008 and 2009. The fees for 2007 include the 2006 CPI increase and the fees for 2008 and 2009 include the 2007 CPI increase. The revenue from the proposed fees will fund the Title V program through fiscal year 2009 and help DEQ: • Issue and renew Title V permits in a timely manner • Complete required Title V inspections • Monitor and enforce compliance with air quality regulations • Comply with federal requirements to maintain a federally approved and delegated Title V program • Issue public notices and information on the Title V program
Documents Relied Upon for Rulemaking	Documents relied upon to provide the basis for this proposal include: 2007-2009 Legislatively Approved Budget 2007-2009 Title V Revenue Forecast Federal Clean Air Act Amendments of 1990 Senate Bill 107 Oregon Statutes (ORS 468.020, 468.065, 468A.025, 468A.040, 468A.310, and 468A.315) US Department of Labor, Bureau of Statistics, Consumer Price Index through December 2007 Title V Fee Increase Rulemaking Advisory Committee Findings and Recommendations Copies of these documents may be reviewed at the Department of Environmental Quality's office at

	811 SW 6th Avenue, Portland, Oregon 97204.
Fiscal and Economic Impact	
Overview	Title V of the federal Clean Air Act requires each state to develop and implement a comprehensive operating permit program for major industrial sources of air pollution. Through permitting, inspections, and technical assistance, Oregon's Title V program contributes to the prevention of air pollution and helps reduce the number of unhealthy air days and the risks from toxic air pollutants. The Oregon Legislature established Oregon's Title V fees in three categories: an annual base fee (assessed to all Title V permittees), emission fee (per ton on regulated emissions), and specific activity fees (assessed when a source owner or operator modifies a permit). Title V fees pay for permitting, technical assistance, inspections, enforcement, rule and policy development, data management and reporting to the EPA. Title V fees also support a portion of air quality monitoring, air quality planning and air program management costs. SB 107 increased the annual base fee and emission fee in statute by 24 percent over a three year period. In 1989 dollars, it increased the annual base fee by $200 each year, from $2,500 in 2006 to $2,700 in 2007, $2,900 in 2008 and $3,100 in 2009. It increased the emission fee by $2.00 per ton each year, from $25 in 2006 to $27 in 2007, $29 in 2008 and $31 in 2009. The fees in statute do not reflect the annual increases, which are adopted by rule to reflect the change in the CPI since 1989. This rulemaking would increase Title V fees for 2008 and 2009 and reinstate a fee increase already adopted and invoiced for 2007. Until this rulemaking, the fee increase for 2007 had been temporary. This rulemaking will not require retroactive collection of fees. In August 2007, the Environmental Quality Commission adopted temporary rule amendments that increased fees for 2007 by the amounts proposed in this rulemaking. This allowed DEQ to issue invoices to Title V permittees in accordance with the normal billing schedule and avoid the need for a supplemental billing. The proposed annual base fee and emission fee are provided in the table below. The annual base fee is small in comparison to the emission fees paid by most sources. DEQ is proposing specific activity fees, described in Attachment A, based on changes in the 2006 and 2007 CPIs. Specific activity fees contribute a small portion of Title V program revenue.

Proposed Title V Fees for 2007, 2008 and 2009 by Fee Category

Fee Category	From 2006 fees	To 2007 fees (already invoiced)	*Increase over 2006 fees*	To 2008 fees (to be invoiced)	*Increase over 2007 fees*	To 2009 fees* (to be invoiced)	*Increase over 2008 fees*
Annual Base Fee	$3,379	$4,390	*$1,011 (29.9%)*	$4,849	*$459 (10.5%)*	$5,183	*$334 (6.9%)*
emission fee (per ton)	$39.38	$43.90	*$4.52 (11.5%)*	$48.49	*$4.59 (10.5%)*	$51.83	*$3.34 (6.9%)*

* This does not include an increase by the 2008 CPI amount. DEQ may propose a CPI increase in a future rulemaking.

This rulemaking implements a correction to the formula that DEQ uses to calculate the change in the CPI for the annual base fee and emission fees. The correction will align the CPI fee increases for all fee categories to the same base year, set in statute (ORS 468A.315). In the past, DEQ calculated the CPI increase to the emission fee using the 1989 CPI and the CPI increase to the annual base fee and specific activity fees using the 1993 CPI. To conform to the statute, DEQ will use the 1989 CPI as the baseline for the annual base fee and specific activity fees. Because of the correction, the percentage increase for last year's previously invoiced fee increase is larger for the annual base fees and specific activity fees than it is for the emission fee.

This rulemaking will affect all 123 businesses required to maintain Title V permits. The requirement for a Title V permit is based on quantity of emissions from a facility. In general, lower emitting sources with less complex permits would experience a smaller annual dollar impact from the proposed fee increases. The table below shows the effect of the proposed fees on invoices issued to sources emitting 50, 500, or 5,000 tons per year. About 15 percent of Title V permittees emit below 50 tons/year, 62 percent emit between 50 and 500 tons/year, 21 percent emit between 500 and 5,000 tons/year and 2 percent emit above 5,000 tons/year.

Proposed Title V Fees for 2007, 2008 and 2009 by Tons of Source Emissions:

Emissions (per calendar year)	From 2006 Fees	To 2007 Fees	*Increase over 2006 Fees*	To 2008 Fees	*Increase over 2007 Fees*	To 2009 Fees	*Increase over 2008 Fees*
50 tons	$5,348	$6,585	*$1,237 (23.1%)*	$7,273	*$688 (10.5%)*	$7,774	*$501 (6.9%)*
500 tons	$23,069	$26,340	*$3,271 (14.2%)*	$29,094	*$2,754 (10.5%)*	$31,098	*$2,004 (6.9%)*
5,000 tons	$200,279	$223,890	*$23,611 (11.8%)*	$247,299	*$23,409 (10.5%)*	$264,333	*$17,034 (6.9%)*

This rulemaking changes the regulated pollutants assessed emission fees and changes the emissions fee cap to comply with requirements of SB 107:

- It changes the regulated pollutants assessed emission fees to four pollutant categories: particulates, sulfur dioxide, oxides of nitrogen, and volatile organic compounds. Previously, there were additional pollutants in the Title V fee rules, such as fluoride, lead, and toxic air pollutants, that were assessed emission fees but contributed a small amount to program revenue. For the most part, the additional pollutants are a subset of the four pollutant categories. However, DEQ believes that these amendments will result in a small reduction (about 2 percent) in emission fee revenue for the Title V program.
- It changes the emission fee cap in 2011 from a maximum of 4,000 tons per year on each regulated pollutant to a maximum of 7,000 tons per year of all regulated pollutants. In a future rulemaking, DEQ will propose the annual base fee set by SB 107 in 2010. In 2010, SB 107 increases the annual base fee by $1,000 before CPI adjustment. These changes will make revenue more stable by reducing reliance on emission fees and increasing reliance on base fees. This will prevent a significant loss of revenue when new federal regulations significantly reduce emissions from the highest emitting Title V sources in the coming years.

Requests for Other Options

Pursuant to ORS 183.335(2)(b)(G), DEQ requests public comment on whether other options should be considered for achieving the rule's substantive goals while reducing negative economic impact of the rule on business.

Impacts on the General Public	DEQ does not anticipate any fiscal or economic impacts from the proposed fee increases on the general public. The proposed fee increases could indirectly affect the general public because the fee increases could be passed through by Title V permit holders, resulting in a slight increase in the costs of products or services provided by businesses with Title V permits. Air pollution creates public health problems that can have negative economic impacts. The proposed fee increases could create positive economic benefits and improvements in public health and welfare resulting from an adequately funded Title V program. A fee increase that provides sufficient resources for compliance and technical assistance may help avoid public health costs associated with lower compliance and increased air pollution.	
Impacts on Small Business (50 or fewer employees – ORS183.310(10))	The proposed fee increases would directly impact all 123 businesses with Title V permits in Oregon. DEQ estimates that approximately 5 percent, or 6, are small businesses with 50 or fewer employees. According to DEQ's understanding, none of the small businesses holding Title V permits emitted more than 125 tons in the 2006 calendar year. A source emitting 125 tons per year would pay: • \$9,877 in 2007, an increase of \$1,576 over 2006 fees • \$10,910 in 2008, an increase of \$1,033 over 2007 fees • \$11,661 in 2009, an increase of \$751 over 2008 fees The proposed fee increases could also indirectly affect small businesses because the fee increases could be passed through by Title V permit holders, resulting in a slight increase in the costs of products or services provided by businesses with Title V permits.	
Cost of Compliance on Small Business (50 or fewer employees - ORS183.310(10))	a) The estimated number of small businesses subject to the proposed fee increases	Typically, Title V permits apply to large businesses, but applicability is dependent on potential emission levels rather than business size. Approximately 6 small businesses, such as fiberglass reinforced plastic facilities and smaller wood refinishing operations, are required to hold Title V permits because their potential emissions exceed Title V applicability thresholds.
	b) The types of businesses and industries with small businesses subject to the proposed fee increases	See answer to (a) above.
	c) The projected reporting, recordkeeping and other administrative activities required by small businesses for compliance with the proposed fee increases	The proposed rule amendments do not establish any additional reporting, recordkeeping or other administrative activities.
	d) The equipment, supplies, labor, and increased administration required by small businesses for compliance with the proposed fee increases	The proposed rule amendments do not require any additional equipment, supplies, labor or increased administration.
	e) A description of the manner in which DEQ involved small businesses in the development of the proposed fee increases	In fall 2006, DEQ described the proposed Title V fee increases at air quality permit program information sessions held in Medford, Bend, Pendleton and Portland. DEQ also communicated the proposed fee increases to its Small Business Compliance Advisory Panel in fall 2006 and to the Associated Oregon Industries Air Committee in early 2007. In December 2006, DEQ posted a fact sheet describing the proposed fee increases on its website. As part of its 2007 legislative budget process, DEQ submitted to the legislature detailed information about Title V program funding and the

		proposed fee increases. In July 2007, DEQ mailed a letter to Title V permit holders describing SB 107, the temporary rule amendments adopted by the EQC, and DEQ's intention to propose this rulemaking. DEQ sent a Notice of Proposed Rulemaking by mail or electronically to Title V permit holders and interested parties on February 27, 2008. The notice described the proposed fees for 2007 and 2008. The March 27, 2008 public hearing provided a forum for both large and small Title V permit holders and interested parties to comment on the rule. DEQ revised the proposed rulemaking in response to public comment received during the original comment period. DEQ re-noticed this rulemaking with the revised language for an additional 22 days to allow for public comment on these revisions. DEQ revised the rule to add the fees authorized by SB 107 for 2009, instead of relying on a future rulemaking. DEQ sent the re-notice by mail or electronically to Title V permit holders and interested parties on May 12, 2008.

Impacts on Large Business

The proposed fee increases would directly impact large businesses required to have Title V permits. DEQ estimates that approximately 95 percent, or 117, of Title V permit holders are large businesses with more than 50 employees. The table below shows the effect of the proposed fees on invoices issued to sources emitting 50, 500, or 5,000 tons per year. According to DEQ's understanding, 11 percent of large businesses required to have Title V permits emit below 50 tons/year, 64 percent emit between 50 and 500 tons/year, 22 percent emit between 500 and 5,000 tons/year and 3 percent emit above 5,000 tons/year.

Proposed Title V Fees for 2007, 2008 and 2009 by Tons of Source Emissions

Emissions (per calendar year)	From 2006 Fees	To 2007 Fees	*Increase over 2006 Fees*	To 2008 Fees	*Increase over 2007 Fees*	To 2009 Fees	*Increase over 2008 Fees*
50 tons	$5,348	$6,585	*$1,237 (23.1%)*	$7,273	*$688 (10.5%)*	$7,774	*$501 (6.9%)*
500 tons	$23,069	$26,340	*$3,271 (14.2%)*	$29,094	*$2,754 (10.5%)*	$31,098	*$2,004 (6.9%)*
5,000 tons	$200,279	$223,890	*$23,611 (11.8%)*	$247,299	*$23,409 (10.5%)*	$264,333	*$17,034 (6.9%)*

The proposed fee increases could also indirectly affect large businesses because the fee increases could be passed through by Title V permit holders, resulting in a slight increase in the costs of products or services provided by businesses with Title V permits.

Impacts on Local Government

The proposed fee increases would impact local governments required to have Title V permits. According to DEQ's understanding, the Coos County Solid Waste Department and Metro's St. Johns Landfill are the only local government agencies required to have Title V permits. DEQ estimates that the proposed fee increases would result in the following impacts on local government facilities. These projections are based on 2006 emissions and assume that emissions will be the same in 2007 and 2008.

Local Government Agency	From 2006 Fees	To 2007 Fees	*Increase over 2006 Fees*	To 2008 Fees	*Increase over 2007 Fees*	To 2009 Fees	*Increase over 2008 Fees*
Coos County Solid Waste Department	$9,167	$10,843	*$1,676*	$11,977	*$1,134*	$12,802	*$825*
Metro's St. Johns Landfill	$5,348	$6,585	*$1,237*	$7,273	*$688*	$7,774	*$501*

The proposed fee increases could indirectly affect local governments because the fee increases could be passed through by Title V permit holders, resulting in a slight increase in the costs of products or services provided by businesses with Title V permits.

Impacts on State Entities

The proposed fee increases would impact state entities required to have Title V permits. According to DEQ's understanding, Oregon Health Sciences University (OHSU) is the only state entity required to have a Title V permit. Oregon State University (OSU) was required to have a Title V permit until early 2007 and only paid Title V emission fees on 2006 emissions. DEQ estimates that the proposed fee increases would result in the following impacts on state entities. These projections are based on 2006 emissions and assume that OHSU's emissions will be the same in 2007 and 2008.

State Entity	From 2006 Fees	To 2007 Fees	*Increase over 2006 Fees*	To 2008 Fees	*Increase over 2007 Fees*	To 2009 Fees	*Increase over 2008 Fees*
OHSU	$8,537	$10,140	*$1,603*	$11,201	*$1,061*	$11,972	*$771*
OSU	$4,292	$4,785	*$493*	N/A	*N/A*	N/A	*N/A*

The proposed fee increases could indirectly affect state entities including DEQ and other agencies because the fee increases could be passed through by Title V permit holders, resulting in a slight increase in the costs of products or services provided by businesses with Title V permits.

Impacts on DEQ

DEQ would not incur any additional costs to implement the proposed fee increases. Instead, DEQ would gain additional resources needed to operate its Title V program.

Impacts on other Agencies

DEQ anticipates that no other agencies would be directly affected by the proposed rule amendments. However, the proposed fee increases could indirectly affect other agencies because the fee increases could be passed through by Title V permit holders, resulting in a slight increase in the costs of products or services provided by businesses with Title V permits.

Assumptions

Estimated revenue forecasts and expenditures are based on the assumption that all facilities subject to the Title V program have been identified and that the number of Title V permits and facility emissions will remain approximately the same as in 2006. DEQ estimates that 123 sources will be subject to Title V permitting and fee requirements in fiscal year 2009.

Housing Costs

DEQ has determined that the proposed fee increases may have a negative impact on the development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single family dwelling on that parcel if the fee increases are passed through by Title V permit holders providing products and services for such development and construction. The possible impact appears to be minimal. DEQ cannot quantify this impact at this time because the information available to it does not indicate whether the fee increases would be passed on to consumers and any such estimate would be speculative.

Administrative Rule Advisory Committee	DEQ convened an advisory committee to generate input and recommendations on the fiscal impact statement for the proposed rule amendments. The committee evaluated the fiscal impact statement before DEQ added the fees for 2009 to this proposal [1]. The committee concluded that the proposed fee increases would have a fiscal and economic impact and could have a significant adverse impact on the six small businesses that DEQ indicated would be affected, but did not have enough information to conclusively make a finding to that effect. However, the committee stated that despite any possible adverse impact on small business it did not believe there is a need at this time for additional mitigation steps as outlined in ORS 183.540. The benefits of an effective Title V program, such as adequate service to businesses and continued protection of public health, outweigh the potential fiscal burdens on small business. [1] Although SB 107 authorized a phased-in fee increase over the three-year period from 2007 to 2009 DEQ chose not to include the fees for 2009 in the original rulemaking proposal because the information needed to adjust fees for 2009 by inflation is not yet available. In response to public comment received during the original comment period, DEQ has included the full phase-in of the fees in this rulemaking even though the last year will need to be adjusted for inflation in a future rulemaking.

Prepared by: Andrea Curtis

Approved by DEQ Budget Office: Jim Roys

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Land Use Evaluation Statement

RULE CAPTION

Proposal to Increase Oregon's Title V Operating Permit Fees

1. **Explain the purpose of the proposed rules.**

Oregon's Title V Operating Permit program requires additional funding to continue protecting Oregon's air quality. Due to inadequate Title V revenue, DEQ had to reduce staffing by three positions in the 2005-2007 biennium. Without a fee increase, DEQ would have had to reduce staffing by an additional one-and-a-half positions in the 2007-2009 biennium. Failure to maintain adequate staff levels could affect DEQ's ability to maintain federal approval of the state program.

The federal Clean Air Act requires each state's Title V program to be fully funded through permit fees. To address the problem of inadequate funding, DEQ proposed and the 2007 Oregon Legislature passed Senate Bill (SB) 107. This increased Oregon's Title V Operating Permit fees in statute (ORS 468A.315) by 24%, to be phased in over three years: 2007, 2008, and 2009. In addition, the statute provides for annual increases in Title V fees based on increases in the Consumer Price Index (CPI). DEQ also proposed and the Legislature approved DEQ's budget package for the Title V program that restores Title V positions through a phase-in process based on the timing of the fee increase.

The objective of this rulemaking is to align fees in rule with fees in statute. This rulemaking would make permanent a fee increase for 2007 that was already adopted in a temporary rule and invoiced to permittees in August 2007. It would also increase Title V fees for 2008 and 2009. The fees for 2007 include the increase in the 2006 CPI and the fees for 2008 and 2009 include the increase in the 2007 CPI. The revenue from the proposed fees will fund the Title V program through fiscal year 2009. This rulemaking also implements a correction to the formula that DEQ uses to calculate the change in the CPI and changes the regulated pollutants assessed emission fees and the emissions fee cap to comply with requirements of SB 107.

2. **Do the proposed rules affect existing rules, programs or activities that are considered land use programs in the DEQ State Agency Coordination (SAC) Program?**

Yes.

a. **If yes, identify existing program/rule/activity:**

The proposed rules affect the Oregon Title V program, which regulates air emissions from industrial businesses.

b. **If yes, do the existing statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules?**

Yes.

c. If no, apply the following criteria to the proposed rules.

Not applicable.

In the space below, state if the proposed rules are considered programs affecting land use. State the criteria and reasons for the determination.

The proposed rule amendments would be implemented through DEQ's existing stationary source permitting program. An approved Land Use Compatibility Statement is required from local government before an air permit is issued.

3. If the proposed rules have been determined a land use program under 2. above, but are not subject to existing land use compliance and compatibility procedures, explain the new procedures the Department will use to ensure compliance and compatibility.

Not applicable.

Handout for EQC Agenda Item H

Department of Environmental Quality
Proposal for Rule Amendments

Oregon Title V Operating Permit Fee Increase

What is the Title V Program?

- Required by Clean Air Act
- Permit program for industrial facilities
- Helps prevent air pollution
- Funded by permit fees

Why are rule amendments needed?

- Align rules with statute
- Cover program costs
- Maintain federal approval of the program

What are the effects of this rulemaking?

- Increase fees as authorized in statute
  - Senate Bill 107
  - Consumer Price Index
  - See table below
- Correct CPI formula
- Change pollutant categories covered by Title V fees
  - Simplify invoicing
- Change emission fee cap
  - From 4,000 tons per pollutant to 7,000 tons for all pollutants

Proposed Title V fees

Fee Type	2006 fees	**2007 fees** (already invoiced)	*Increase over 2006 fees*	**2008 fees** (to be invoiced)	*Increase over 2007 fees*	**2009 fees*** (to be invoiced)	*Increase over 2008 fees*
Base Fee	$3,379	$4,390	*$1,011*	$4,849	*$459*	$5,183	*$334*
Emission Fee (per ton)	$39.38	$43.90	*$4.52*	$48.49	*$4.59*	$51.83	*$3.34*
Specific Activity Fees							
Permit Revision:							
Administrative	$338	$406	*$68*	$418	*$12*	$418	*$0*
Simple	$1,352	$1,626	*$274*	$1,672	*$46*	$1,672	*$0*
Moderate	$10,137	$12,194	*$2,057*	$12,540	*$346*	$12,540	*$0*
Complex	$20,273	$24,387	*$4,114*	$25,081	*$694*	$25,081	*$0*
Ambient Review	$2,703	$3,252	*$549*	$3,344	*$92*	$3,344	*$0*

* The proposed 2009 fees do not include an increase by the 2008 CPI amount because the change in the 2008 CPI is not yet available from the federal government. DEQ may propose an increase based on the 2008 CPI in a future rulemaking.

State of Oregon

Department of Environmental Quality — Memorandum

Date: August 4, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda Item I, Rule Adoption: Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements
August 21-22, 2008 EQC Meeting

Why this is Important

Senate Bill 235 (2007) updated Oregon's air quality laws to be consistent with the federal Clean Air Act by allowing the Environmental Quality Commission to limit emissions from agricultural sources if needed to meet federal CAA requirements. This proposed rulemaking would align Department of Environmental Quality rules with the updated statutes.

Department Recommendation

DEQ recommends that the EQC adopt the proposed rule amendments presented in Attachment A to align Oregon Administrative Rules with Oregon Revised Statutes 468A.020 and to make revisions to the State of Oregon Clean Air Act implementation plan and the Oregon Title V operating permit program.

Background and Need for Rulemaking

The CAA does not provide an exemption for agricultural operations while, prior to 2007, Oregon's state law exempted most agricultural operations from air quality regulations. In the fall of 2005, several environmental groups petitioned the U.S. Environmental Protection Agency to revoke its approval of Oregon's air quality permitting program and the State Clean Air Act Implementation Plan, or SIP, because of the blanket exemption for agricultural sources. This proposed rulemaking is needed to align DEQ rules to ORS 468A.020 as updated by SB 235.

Effect of Rule

The effect of these amendments is to update the OAR to be consistent with the statute, which allows agricultural air quality pollution sources to be regulated as necessary to implement the CAA.

Commission Authority

The EQC has authority to take this action under ORS 468.020 and 468A.020.

Stakeholder Involvement

During 2006, representatives from agricultural industries and environmental stakeholders met four times to draft Senate Bill 235 for the governor to submit to the 2007 Legislature on behalf of the Oregon Department of Agriculture and DEQ. These same groups were instrumental in discussions about SB 235 during the 2007 session.

Public Comment

DEQ held a public comment period from April 7, 2008 to May 23, 2008, including a public hearing in Portland on May 19, 2008. Comments and responses to public input are provided in Attachment C.

Key Issues

Because of the revisions to ORS 468A.020, this proposed rulemaking to make DEQ rules consistent with current statute may affect large agricultural operations, particularly the owner/operators of large confined animal feeding operations or CAFOs. Agricultural operations with emissions above federal thresholds may be subject to federal permitting rules and need to obtain a federal air operating permit.

ODA and DEQ are developing a memorandum of understanding to address authority and implementation issues in the event an agricultural facility needs to obtain a federal permit.

Next Steps

The proposed effective date for these rule amendments is September 15, 2008. If adopted by the EQC, DEQ will submit the revised rules to the EPA for approval as a revision of the SIP. This will resolve the petition received by EPA in 2005 and allow the proper functioning of Oregon's air quality program.

No new resources are needed to implement these rule amendments. ORS 468A.020 authorizes the EQC to limit emissions from agricultural sources if needed to meet federal CAA requirements, such as National Ambient Air Quality Standards, federal air toxic requirements, or regional haze issues. However, no such requirements are included in this rulemaking and any such requirements would need to be adopted by the EQC in future rulemakings.

The MOU between the EQC and ODA will be finalized and brought to the EQC for approval at a future meeting.

The Rule Implementation Plan is available upon request.

Attachments

A. Proposed Rule Revisions
B. Summary of Public Comments and Agency Responses
C. Presiding Officer's Report on Public Hearings
D. Relationship to Federal Requirements Questions
E. Statement of Need and Fiscal and Economic Impact
F. Land Use Evaluation Statement

Available Upon Request	1.	Legal Notice of Hearing
	2.	Cover Memorandum from Public Notice
	3.	Written Comment Received
	4.	Rule Implementation Plan

Approved:

Section: Jeffrey G. Stocum

Division: for Andrew Ginsburg

Report Prepared By: Jeffrey G. Stocum

Phone: 503.229.5506

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 200

GENERAL AIR POLLUTION PROCEDURES AND DEFINITIONS

340-200-0030

Exceptions

(1) Except as provided in section (2) of this rule, OAR Chapter 340, divisions 200 through 268 do not apply to:

(a) Agricultural operations, including but not limited to:

(A) Growing or harvesting crops;

(B) Raising fowl or animals;

(C) Clearing or grading agricultural land;

(D) Propagating and raising nursery stock;

(E) Propane flaming of mint stubble; and

(F) Stack or pile burning of residue from Christmas trees, as defined in ORS 571.505, during the period beginning October 1 and ending May 31 of the following year.

(b) Equipment used in agricultural operations, except boilers used in connection with propagating and raising nursery stock.

(c) Barbecue equipment used in connection with any residence.

(d) Heating equipment in or used in connection with residences used exclusively as dwellings for not more than four families, except woodstoves which shall be subject to regulation under this section, ORS 468A.460 to 468A.480, 468A.490 and 468A.515.

(e) Fires set or permitted by any public agency when such fire is set or permitted in the performance of its official duty for the purpose of weed abatement, prevention or elimination of a fire hazard, or instruction of employees in the methods of fire fighting, which in the opinion of the agency is necessary.

(f) Fires set pursuant to permit for the purpose of instruction of employees of private industrial concerns in methods of fire fighting, or for civil defense instruction.

(2) Section (1) of this rule does not apply to the extent:

(a) Otherwise provided in ORS 468A.555 to 468A.620, 468A.790, 468A.992, 476.380 and 478.960;

(b) Necessary to implement the federal Clean Air Act (P.L. 88-206 as amended) under ORS 468A.025, 468A.030, 468A.035, 468A.040, 468A.045 and 468A.300 to 468A.330; or

(c) Necessary for the Environmental Quality Commission, in the commission's discretion, to implement a recommendation of the Task Force on Dairy Air Quality created under section 3, chapter 799, Oregon Laws 2007, for the regulation of dairy air contaminant emissions.

~~(1) Agricultural operations and the growing or harvesting of crops and the raising of fowls or animals, except for field burning regulated pursuant to OAR 340, division 266.~~

~~(2) Use of equipment in agricultural operations in the growth of crops or the raising of fowls or animals, except for field burning regulated pursuant to OAR 340, division 266.~~

~~(3) Barbecue equipment used in connection with any residence.~~

~~(4) Agricultural land clearing operations or land grading.~~

~~(5) Heating equipment in or used in connection with residences used exclusively as dwellings for not more than four families, except woodstoves regulated pursuant to OAR 340, division 262.~~

~~(6) Fires set or permitted by any public officer, board, council or commission when such fire is set or permission given in the performance of such duty of the officer for the purpose of weed abatement, the prevention or elimination of a fire hazard, or the instruction of employees in the methods of fire fighting, which is in the opinion of such officer necessary, or from fires set pursuant to permit for the purpose of instruction of employees of private industrial concerns in methods of fire fighting, or for civil defense instruction.~~

~~(7) The propagation and raising of nursery stock, except boilers used in connection with the propagation and raising of nursery stock.~~

NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as Adopted by the Environmental Quality Commission under OAR 340-200-0040.

Stat. Auth.: ORS 468 & 468A
Stats. Implemented: ORS 468A.025
Hist.: DEQ 15, f. 6-12-70, ef. 9-1-70; DEQ 37, f. 2-15-72, ef. 3-1-72; DEQ 4-1993, f. & cert. ef. 3-10-93; DEQ 14-1999, f. & cert. ef. 10-14-99, Renumbered from 340-020-0003

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 200

GENERAL AIR POLLUTION PROCEDURES AND DEFINITIONS

340-200-0040

State of Oregon Clean Air Act Implementation Plan

(1) This implementation plan, consisting of Volumes 2 and 3 of the State of Oregon Air Quality Control Program, contains control strategies, rules and standards prepared by the Department of Environmental Quality and is adopted as the state implementation plan (SIP) of the State of Oregon pursuant to the federal Clean Air Act, **42 U.S.C.A 7401** to **7671**q.

(2) Except as provided in section (3), revisions to the SIP will be made pursuant to the Commission's rulemaking procedures in division 11 of this chapter and any other requirements contained in the SIP and will be submitted to the United States Environmental Protection Agency for approval. The State Implementation Plan was last modified by the Commission on ~~October 17, 2007.~~ August 21, 2008.

(3) Notwithstanding any other requirement contained in the SIP, the Department may:

(a) Submit to the Environmental Protection Agency any permit condition implementing a rule that is part of the federally-approved SIP as a source-specific SIP revision after the Department has complied with the public hearings provisions of **40 CFR 51.102** (July 1, 2002); and

(b) Approve the standards submitted by a regional authority if the regional authority adopts verbatim any standard that the Commission has adopted, and submit the standards to EPA for approval as a SIP revision.

NOTE: Revisions to the State of Oregon Clean Air Act Implementation Plan become federally enforceable upon approval by the United States Environmental Protection Agency. If any provision of the federally approved Implementation Plan conflicts with any provision adopted by the Commission, the Department shall enforce the more stringent provision.

Stat. Auth.: ORS 468.020

Stats. Implemented: ORS 468A.035

Hist.: DEQ 35, f. 2-3-72, ef. 2-15-72; DEQ 54, f. 6-21-73, ef. 7-1-73; DEQ 19-1979, f. & ef. 6-25-79; DEQ 21-1979, f. & ef. 7-2-79; DEQ 22-1980, f. & ef. 9-26-80; DEQ 11-1981, f. & ef. 3-26-81; DEQ 14-1982, f. & ef. 7-21-82; DEQ 21-1982, f. & ef. 10-27-82; DEQ 1-1983, f. & ef. 1-21-83; DEQ 6-1983, f. & ef. 4-18-83; DEQ 18-1984, f. & ef. 10-16-84; DEQ 25-1984, f. & ef.

11-27-84; DEQ 3-1985, f. & ef. 2-1-85; DEQ 12-1985, f. & ef. 9-30-85; DEQ 5-1986, f. & ef. 2-21-86; DEQ 10-1986, f. & ef. 5-9-86; DEQ 20-1986, f. & ef. 11-7-86; DEQ 21-1986, f. & ef. 11-7-86; DEQ 4-1987, f. & ef. 3-2-87; DEQ 5-1987, f. & ef. 3-2-87; DEQ 8-1987, f. & ef. 4-23-87; DEQ 21-1987, f. & ef. 12-16-87; DEQ 31-1988, f. 12-20-88, cert. ef. 12-23-88; DEQ 2-1991, f. & cert. ef. 2-14-91; DEQ 19-1991, f. & cert. ef. 11-13-91; DEQ 20-1991, f. & cert. ef. 11-13-91; DEQ 21-1991, f. & cert. ef. 11-13-91; DEQ 22-1991, f. & cert. ef. 11-13-91; DEQ 23-1991, f. & cert. ef. 11-13-91; DEQ 24-1991, f. & cert. ef. 11-13-91; DEQ 25-1991, f. & cert. ef. 11-13-91; DEQ 1-1992, f. & cert. ef. 2-4-92; DEQ 3-1992, f. & cert. ef. 2-4-92; DEQ 7-1992, f. & cert. ef. 3-30-92; DEQ 19-1992, f. & cert. ef. 8-11-92; DEQ 20-1992, f. & cert. ef. 8-11-92; DEQ 25-1992, f. 10-30-92, cert. ef. 11-1-92; DEQ 26-1992, f. & cert. ef. 11-2-92; DEQ 27-1992, f. & cert. ef. 11-12-92; DEQ 4-1993, f. & cert. ef. 3-10-93; DEQ 8-1993, f. & cert. ef. 5-11-93; DEQ 12-1993, f. & cert. ef. 9-24-93; DEQ 15-1993, f. & cert. ef. 11-4-93; DEQ 16-1993, f. & cert. ef. 11-4-93; DEQ 17-1993, f. & cert. ef. 11-4-93; DEQ 19-1993, f. & cert. ef. 11-4-93; DEQ 1-1994, f. & cert. ef. 1-3-94; DEQ 5-1994, f. & cert. ef. 3-21-94; DEQ 14-1994, f. & cert. ef. 5-31-94; DEQ 15-1994, f. 6-8-94, cert. ef. 7-1-94; DEQ 25-1994, f. & cert. ef. 11-2-94; DEQ 9-1995, f. & cert. ef. 5-1-95; DEQ 10-1995, f. & cert. ef. 5-1-95; DEQ 14-1995, f. & cert. ef. 5-25-95; DEQ 17-1995, f. & cert. ef. 7-12-95; DEQ 19-1995, f. & cert. ef. 9-1-95; DEQ 20-1995 (Temp), f. & cert. ef. 9-14-95; DEQ 8-1996(Temp), f. & cert. ef. 6-3-96; DEQ 15-1996, f. & cert. ef. 8-14-96; DEQ 19-1996, f. & cert. ef. 9-24-96; DEQ 22-1996, f. & cert. ef. 10-22-96; DEQ 23-1996, f. & cert. ef. 11-4-96; DEQ 24-1996, f. & cert. ef. 11-26-96; DEQ 10-1998, f. & cert. ef. 6-22-98; DEQ 15-1998, f. & cert. ef. 9-23-98; DEQ 16-1998, f. & cert. ef. 9-23-98; DEQ 17-1998, f. & cert. ef. 9-23-98; DEQ 20-1998, f. & cert. ef. 10-12-98; DEQ 21-1998, f. & cert. ef. 10-12-98; DEQ 1-1999, f. & cert. ef. 1-25-99; DEQ 5-1999, f. & cert. ef. 3-25-99; DEQ 6-1999, f. & cert. ef. 5-21-99; DEQ 10-1999, f. & cert. ef. 7-1-99; DEQ 14-1999, f. & cert. ef. 10-14-99, Renumbered from 340-020-0047; DEQ 15-1999, f. & cert. ef. 10-22-99; DEQ 2-2000, f. 2-17-00, cert. ef. 6-ƒ1-01; DEQ 6-2000, f. & cert. ef. 5-22-00; DEQ 8-2000, f. & cert. ef. 6-6-00; DEQ 13-2000, f. & cert. ef. 7-28-00; DEQ 16-2000, f. & cert. ef. 10-25-00; DEQ 17-2000, f. & cert. ef. 10-25-00; DEQ 20-2000 f. & cert. ef. 12-15-00; DEQ 21-2000, f. & cert. ef. 12-15-00; DEQ 2-2001, f. & cert. ef. 2-5-01; DEQ 4-2001, f. & cert. ef. 3-27-01; DEQ 6-2001, f. 6-18-01, cert. ef. 7-1-01; DEQ 15-2001, f. & cert. ef. 12-26-01; DEQ 16-2001, f. & cert. ef. 12-26-01; DEQ 17-2001, f. & cert. ef. 12-28-01; DEQ 4-2002, f. & cert. ef. 3-14-02; DEQ 5-2002, f. & cert. ef. 5-3-02; DEQ 11-2002, f. & cert. ef. 10-8-02; DEQ 5-2003, f. & cert. ef. 2-6-03; DEQ 14-2003, f. & cert. ef. 10-24-03; DEQ 19-2003, f. & cert. ef. 12-12-03; DEQ 1-2004, f. & cert. ef. 4-14-04; DEQ 10-2004, f. & cert. ef. 12-15-04; DEQ 1-2005, f. & cert. ef. 1-4-05; DEQ 2-2005, f. & cert. ef. 2-10-05; DEQ 4-2005, f. 5-13-05, cert. ef. 6-1-05; DEQ 7-2005, f. & cert. ef. 7-12-05; DEQ 9-2005, f. & cert. ef. 9-9-05; DEQ 2-2006, f. & cert. ef. 3-14-06; DEQ 4-2006, f. 3-29-06, cert. ef. 3-31-06; DEQ 3-2007, f. & cert. ef. 4-12-07; DEQ 4-2007, f. & cert. ef. 6-28-07; DEQ 8-2007, f. & cert. ef. 11-8-07

Agenda Item I, Rule Adoption: Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements
August 21-22, 2008 EQC Meeting
Attachment A

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 210

NOTICE OF CONSTRUCTION AND APPROVAL OF PLANS

340-210-0205

Applicability

(1) Except as provided in section (2) of this rule, OAR 340-210-0200 through 340-210-0250 apply to

(a) All stationary sources; and

(b) All air pollution control equipment used to comply with emissions limits or used to avoid Oregon Title V Operating Permits (OAR 340 division 218) or New Source Review (OAR 340 division 224) requirements, or MACT standards (OAR 340 division 244).

(2) OAR 340-210-0200 through 340-210-0250 do not apply to the following stationary sources:

<u>(a) Agricultural operations or equipment that is exempted by OAR 340-200-030</u>

~~(a) Equipment used in agricultural operations and the growing or harvesting of crops or the raising of fowls or animals;~~

~~(b) Agricultural land clearing operations or land grading;~~

(~~c~~<u>b</u>) Heating equipment in or used in connection with residences used exclusively as dwellings for not more than four families;

(~~d~~<u>c</u>) Other activities associated with residences used exclusively as dwellings for not more than four families, including, but not limit to barbecues, house painting, maintenance, and groundskeeping; and

(~~e~~<u>d</u>) Categorically insignificant activities as defined in OAR 340-200-0020 that are not subject to NESHAP or NSPS requirements. This exemption applies to all categorically insignificant activities whether or not they are located at major or non-major sources.

[NOTE: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the EQC under OAR 340-200-0040.]

Stat. Auth.: ORS 468 & ORS 468A
Stats. Implemented: ORS 468 & ORS 468A
Hist.: DEQ 15, f. 6-12-70, ef. 9-1-70; DEQ 37, f. 2-15-72, ef. 3-1-72; DEQ 4-1993, f. & cert. ef. 3-10-93; DEQ 12-1993, f. & cert. ef. 9-24-93; Renumbered from 340-020-0025; DEQ 19-1993, f. & cert. ef. 11-4-93; DEQ 22-1995, f. & cert. ef. 10-6-95; DEQ 14-1999, f. & cert. ef. 10-14-99, Renumbered from 340-028-0810; DEQ 6-2001, f. 6-18-01, cert. ef. 7-1-01, Renumbered from 340-210-0210

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION 264

RULES FOR OPEN BURNING

340-264-0040

Exemptions, Statewide

Except for the provisions contained in OAR 340-264-0050 and 340-264-0060, this Division does not apply to:

(1) Recreational fires and ceremonial fires, for which a fire is appropriate.

(2) ~~The operation of any barbecue equipment.~~ Barbecue equipment used in connection with any residence

(3) Fires set or permitted by any public agency when such fire is set or permitted in the performance of its official duty for the purpose of weed abatement, prevention or elimination of a fire hazard, or a hazard to public health or safety, or for instruction of employees in the methods of fire fighting, which in the opinion of the public agency is necessary. Open burning fires otherwise exempt from the requirements of this division are still subject to the requirements and prohibitions of local jurisdictions and the State Fire Marshall.

(4) Agricultural open burning pursuant to ORS 468A.020. Agricultural open burning is still subject to the requirements and prohibitions of local jurisdictions and the State Fire Marshal.

(5) Open field burning, propane flaming, and stack and pile burning in the Willamette Valley between the crests of the Cascade and Coast Ranges pursuant to OAR Chapter 340, Division 266, Rules for Field Burning.

(6) Slash burning on forest land or within one-eighth mile of forest land permitted under the Oregon Smoke Management Program regulated by the Department of Forestry pursuant to ORS 477.515.

(7) Fires set pursuant to permit for the purpose of instruction of employees of private industrial concerns in methods of fire fighting, or for civil defense instruction.

(8) Fires set for the purpose of disposal of dry tumbleweed plants (typically Russian Thistle and Tumbleweed Mustard plants) that have been broken off, and rolled about, by the wind.

(9) Agricultural burning for disease or pest control when the fire is set or authorized in writing by the Department of Agriculture.

(10) When caused by an authorized representative of the Department of Agriculture, open burning of carcasses of animals that have died or been destroyed because of an animal disease emergency.

[**NOTE**: This rule is included in the State of Oregon Clean Air Act Implementation Plan as adopted by the Environmental Quality Commission under OAR 340-200-0040.]

Stat. Auth.: ORS 468, ORS 468A & ORS 477
Stats. Implemented: ORS 468A.555
Hist.: DEQ 123, f. & ef. 10-20-76; DEQ 23-1979, f. & ef. 7-5-79; DEQ 27-1981, f. & ef. 9-8-81; DEQ 10-1984, f. 5-29-84, ef. 6-16-84; DEQ 6-1992, f. & cert. ef. 3-11-92; DEQ 4-1993, f. & cert. ef. 3-10-93; DEQ 14-1999, f. & cert. ef. 10-14-99, Renumbered from 340-023-0035; DEQ 21-2000, f. & cert. ef. 12-15-00

Summary of Public Comment and Agency Response

Title of Rulemaking: Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements

Prepared by: Jeffrey Stocum **Date:** July 7, 2008

Comment period The public comment period opened April 7, 2008 and closed at 5:00 p.m. May 23, 2008. DEQ held a public hearing on May 19, 2008, 6:30 p.m. at the DEQ Headquarters Building, EQC-A. No one attended the hearing. The only comments received were from EPA Region 10. They were provided in a letter dated May 12, 2008.

Organization of comments and responses Summaries of individual comments and the DEQ's responses are provided below. US EPA Region 10 provided the only comments on this rulemaking, Comments 1-4.

Summary of Comments and Agency Responses	
Comment 1	US EPA Region 10 General: We are aware that ORS 468A.790 requires ODEQ and ODA to enter into a Memorandum of Understanding (MOU) that addresses the administration and enforcement of air quality laws that apply to agricultural operations and equipment. Please be advised that transfer of any of ODEQ's authority to ODA under any EPA approved Clean Air Act program would be considered a program revision, and must be submitted to EPA for review and approval before any of the permits issued or actions taken by ODA under the MOU will be considered permits or actions under Oregon's EPA-approved Clean Air Act programs. See, e.g., 70.4(i)(2)(v).
Response	Current plans are for DEQ to maintain authority for the Clean Air Act program and to jointly issue any permits issued to agricultural operations with ODA under the MOU. If any transfer of authority occurs in the future, DEQ will submit the change to EPA for approval.

Comment 2	US EPA Region 10 General: We think it is important that ODEQ adds a definition of agricultural operations so that it is clear that for federal Clean Air Act permitting purposes, agricultural operations do not include the use of fuel burning equipment in post-harvest activities.
Response	ORS 468A.020 and OAR 340-200-0030 describe "agricultural operations" that are exempt from Oregon's air pollution laws, and these descriptions do not include fuel burning equipment used in post-harvest activities. These rule amendments do not exempt post-harvest fuel burning equipment used in connection with agricultural crop or animal harvesting (such as boilers used for the drying or processing of an agricultural commodity). Depending on the type and size of the facility this equipment is already regulated under OAR Division 216 or 218.

Comment 3	US EPA Region 10 OAR 340-210-0205(2): OAR 340-210-0205(2)(a) must be clear that only the activity or equipment that is exempt under 340-200-030, is exempt from 340-210-0200 through 340-210-0250, not the entire source.
Response	DEQ agrees and proposes the following change to OAR 340-210-0205: **340-210-0205** (2) OAR 340-210-0200 through 340-210-0250 do not apply to the following stationary sources: *(a)* ~~Those sources conducting certain activities~~ Agricultural operations or equipment that is exempted by OAR 340-200-030.

Comment 4	US EPA Region 10 OAR 340-210-0205(2): except for paragraph (d), this section seems duplicative of the exceptions listed in 340-200-030. We recommend that 340-210-0205(2) be either removed or revised to use the same language as 340-200-030, including the "necessary to implement the federal Clean Air Act" language.
Response	DEQ does not agree that OAR 340-210-0205(2) is duplicative with OAR 340-200-0030. Paragraphs (b), (c) and (d) describe equipment and activities in addition to those listed in OAR 340-200-0030 that are exempt from construction approval. However, DEQ agrees that the cross reference to OAR 340-200-0030 should be. clarified consistent with comment 3: (2) OAR 340-210-0200 through 340-210-0250 do not apply to the following stationary sources: (a) ~~Those sources conducting certain activities~~ Agricultural operations or equipment that is exempted by OAR 340-200-030;

Agenda Item I, Rule Adoption: Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements
August 21-22, 2008 EQC Meeting
Attachment C

State of Oregon
Department of Environmental Quality **Memorandum**

Presiding Officer's Report

Date: May 27, 2008

To: Environmental Quality Commission

From: Jeffrey Stocum, Air Quality Division

Re: Presiding Officer's Report for Rulemaking Hearings
Title of Proposal: Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements
Hearing Date and Time: May 19, 2008, 6:30 p.m.
Hearing Location: DEQ Headquarters, Portland, Oregon

The Department convened the rulemaking hearing on the proposal referenced above at 6:30 p.m. and closed it at 7:15 p.m.

No one attended the hearing or testified about the rulemaking.

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Relationship to Federal Requirements

RULE CAPTION

Authorizing the Environmental Quality Commission to implement the Clean Air Act requirements for agriculture in Oregon

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Answers to the following questions identify how the proposed rulemaking relates to federal requirements and potential justification for differing from, or adding to, federal requirements. This statement is required by OAR 340-011-0029(1).

1. Is the proposed rulemaking different from, or in addition to, applicable federal requirements? If so, what are the differences or additions?

No. This rulemaking will make Oregon's rules equal to applicable federal requirements and will align Oregon Administrative Rules with ORS 468A.020 to allow regulation of agriculture to the extent necessary to comply with the federal Clean Air Act. These proposed rules align Oregon's regulation of agriculture with the Clean Air Act and are not different from, or in addition to the requirements of the Act.

2. If the proposal differs from, or is in addition to, applicable federal requirements, explain the reasons for the difference or addition (including as appropriate, the public health, environmental, scientific, economic, technological, administrative or other reasons).

NA

3. If the proposal differs from, or is in addition to, applicable federal requirements, did the Department consider alternatives to the difference or addition? If so, describe the alternatives and the reason(s) they were not pursued.

NA

DEPARTMENT OF ENVIRONMENTAL QUALITY
Chapter 340
Proposed Rulemaking
STATEMENT OF NEED AND FISCAL AND ECONOMIC IMPACT

Authorizing the Environmental Quality Commission to implement Clean Air Act requirements for agriculture in Oregon

This form accompanies a Notice of Proposed Rulemaking

Title of Proposed Rulemaking	Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements
Statutory Authority or other Legal Authority	ORS 468.020 and ORS 468A.020
Statutes Implemented	ORS 468.020 and ORS 468A.020
Need for the Rule(s)	The 2007 Legislature passed SB235 amending ORS 468A.020, 468A.550 and 561.400. This rulemaking is needed to align DEQ rules to ORS 468A.020.
Documents Relied Upon for Rulemaking	• Oregon Statutes (ORS 468A.020 and 468A.550) • Federal Clean Air Act (CAA) Amendments of 1990 • Senate Bill 235 (2007) • National Air Emissions Monitoring Study (NAEMS) Copies of these documents may be reviewed at the Department of Environmental Quality's office at 811 SW 6th Avenue, Portland, Oregon 97204. Please contact Jeffrey Stocum at 503-229-5506 or stocum.jeffrey@deq.state.or.us.
Requests for Other Options	**Pursuant to ORS 183.335(2)(b)(G), DEQ requests public comment on whether other options should be considered for achieving the rule's substantive goals while reducing negative economic impact of the rule on business.**
Fiscal and Economic Impact, Statement of Cost Compliance	
Overview	This rulemaking updates Oregon rules to make them consistent with Oregon Revised Statutes (ORS) and the federal Clean Air Act (CAA). DEQ does not anticipate that this rulemaking will have an economic or fiscal impact on any Oregon entity. As a result of revisions made to ORS 468A.020 during the 2007 legislative session, it is possible that agricultural sources may be subject to the permitting requirements of the CAA in the future if their emissions are above federal permitting thresholds.
Impacts to General Public	DEQ does not anticipate any fiscal or economic impacts to the public by these proposed rules. However, if agricultural sources are required to apply for and obtain a federal operating permit in the future because of the revisions to ORS 468A.020, indirect fiscal or economic impacts to the public may occur through increased cost of agricultural products (dairy products, chickens, eggs, and meat products).
Impacts to Small Business (50 or fewer employees – ORS183.310(10))	The level of emissions, not the size of the business, triggers permitting requirements. Therefore, it is possible that small businesses with high emissions could be subject to federal permitting requirements because of the revisions to ORS 468A.020. Certain major new or modified sources are subject to the New Source Review/Prevention of Significant Deterioration (NSR/PSD) requirements and must obtain an Air Contaminant Discharge Permit (ACDP). Other major sources must obtain a federal Title V operating permit (Title V).

Cost of Compliance on Small Business (50 or fewer employees – ORS183.310(10))	a) Estimated number of small businesses subject to the proposed rule	Currently, there are approximately 600 CAFO facilities permitted by the Oregon Department of Agriculture (ODA) for water quality protection purposes in Oregon, 98 percent of which are small businesses. According to ODA, the number fluctuates year to year by small amounts. It is the responsibility of the owner or operator of a source to determine if NSR/PSD or Title V requirements apply based on the potential to emit certain pollutants, the nature of the emissions, anticipated changes in emission levels and other factors. Therefore, it is not possible for DEQ to accurately determine the number of small businesses that could be required to obtain a permit because of the revisions to ORS 468A.020.
	b) Types of businesses and industries with small businesses subject to the proposed rule	These rule updates may eventually affect small businesses involved in the agricultural operations sector, particularly the owner/operators of large confined animal feeding operations (CAFOs).
	c) Projected reporting, recordkeeping and other administrative activities required by small businesses for compliance with the proposed rule, including costs of professional services	DEQ does not anticipate any reporting, record keeping or other administrative activities required by this rule. However, if agricultural source types are required to obtain a federally required permit because of the revisions to ORS 468A.020, then they will need to comply with existing testing, monitoring, recordkeeping and reporting requirements under Divisions 216 (ACDP), 218 (Title V) or 224 (major New Source Review).
	d) The equipment, supplies, labor, and increased administration required by small businesses for compliance with the proposed rule	DEQ does not anticipate that this rule will require additional equipment, supplies, labor or increased administration. However, if an agricultural source is required to obtain a permit under the CAA due to the revisions to ORS 468A.020, then it may be necessary to generate electronic records and emissions calculation models. It is estimated that computer hardware costing approximately $2,000 would be adequate for the necessary tasks. Software programs necessary to perform emission estimation calculations are available for no cost from the EPA. Major new or modified sources subject to the NSR/PSD program or to a case-by-case MACT determination may be subject to significant costs for emission control equipment and ambient modeling demonstrations
	e) A description of the manner in which DEQ involved small businesses in the development of this rulemaking	Stakeholders participated in the design of SB 235 during four meetings in 2006. They also provided input considered for this rulemaking during the 2007 legislative session.
Impacts to Large Business (all businesses that are not "small businesses" under ORS183.310(10))	The level of emissions, not the size of the business, triggers permitting requirements. Therefore, it is possible that CAFOs that are large businesses with high emissions could be subject to federal permitting requirements because of the revisions to ORS 468A.020. Impacts to these businesses would be the same as those described for small businesses.	
Local Government	DEQ does not anticipate any fiscal or economic impacts to local government by these proposed rules. However, if agricultural sources are required to apply for and obtain a federal operating permit in the future because of the revisions to ORS 468A.020, indirect fiscal or economic impacts to local governments that purchase agricultural products (dairy products, chickens, eggs, and meat products) may be incurred.	
State Agencies Other Than DEQ	This rule does not affect other agencies. However, SB 235 (2007) requires the Environmental Quality Commission to enter into a Memorandum of Understanding (MOU) with the Department of Agriculture (ODA) for the establishment of policies and procedures governing the administration of air quality laws that apply to agricultural operations and equipment. This MOU will consider the desirability of having the ODA serve as the lead agency responsible for the administration of these policies. The development of this MOU will have a minor fiscal and economic impact on ODA. However, if any agricultural	

	sources become subject to permitting, ODA may incur a significant fiscal and economic impact to issue permits and conduct inspections. Funding for this work would be provided from permit fees as specified in the MOU.
DEQ	Development of the MOU with ODA will have a minor fiscal and economic impact on DEQ. However, if any agricultural sources become subject to permitting, DEQ may incur a significant fiscal and economic impact to issue permits and conduct compliance assurance. Funding for this work would be provided from permit fees.
Assumptions	It is assumed that the nationwide analysis of CAFO emissions that the EPA is conducting will lead to guidance that can assist facilities, the DEQ and the ODA in accurately estimating the emissions released by agricultural operations. This guidance will help determine how many sources in Oregon will need to be permitted, if any. That determination will affect the size and the complexity of the program needed to manage and implement the federal CAA as it applies to Oregon agricultural sources.
Housing Costs	DEQ has determined that this proposed rulemaking will have no effect on the cost of development of a 6,000 square foot parcel and the construction of a 1,200 square foot detached single family dwelling on that parcel.
Administrative Rule Advisory Committee	This rulemaking is strictly designed to update Oregon rules to make them consistent with the state statutes and the CAA. No advisory committee was involved in this rule amendment.

Prepared by Printed name Date

Approved by DEQ Budget Office Printed name Date

Agenda Item I, Rule Adoption: Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements
August 21-22, 2008 EQC Meeting
Attachment F

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
Land Use Evaluation Statement

Rulemaking Proposal
for
Conforming Oregon Air Quality Rules to Federal Clean Air Act Requirements

RULE CAPTION

Authorizing the Environmental Quality Commission to implement the Clean Air Act requirements for agriculture in Oregon

1. **Explain the purpose of the proposed rules.**
The Oregon Department of Environmental Quality (DEQ) is proposing to align Oregon Administrative Rules (OARs) with ORS 468A.020 to allow regulation of agriculture to the extent necessary to comply with the federal Clean Air Act.

2. **Do the proposed rules affect existing rules, programs or activities that are considered land use programs in the DEQ State Agency Coordination (SAC) Program?**

Yes X **No**____

a. **If yes, identify existing program/rule/activity:**
The proposed rule amendments affect the land use applicability in OAR 340-018-0030 (d) Issuance of Air Contaminant Discharge Permit.

The CAA requires large sources of air pollution to obtain a permit. There is the potential that large agricultural sources may trigger federal requirements for a facility operating permit.

b. **If yes, do the existing statewide goal compliance and local plan compatibility procedures adequately cover the proposed rules?**

Yes X **No**____ **(if no, explain):**

Existing procedures already adequately cover these new rule impacts. The Air Quality Permit program requires that a source provide a Land Use Compatibility Statement (LUCS) when applying for a permit. This assures that the source is an approved use for the property where it is located.

c. If no, apply the following criteria to the proposed rules.

NA

3. If the proposed rules have been determined a land use program under 2. above, but are not subject to existing land use compliance and compatibility procedures, explain the new procedures the Department will use to ensure compliance and compatibility.

NA

Handout from DEQ staff

1

Agenda Item O: Informational Report on the Fish Consumption Rate Project EQC
August 22, 2008, 10:00 am–1:00 pm*

Topic	Presenter	Time (min.s)
Introductory remarks	Neil Mullane, DEQ; Mike Gearheard, EPA; Conf. Tribes of the Umatilla Indian Reservation	10
Project Overview and Status • Why DEQ is reviewing the FCR • Process and current status • Factors affecting project timeline • October Action Item	Jennifer Wigal, DEQ	10
Summary of the Public Workshops	Mary Lou Soscia, EPA	5
Summary of the HHFG Report	Debra Sturdevant, DEQ; Pat Cirone, HHFG	15
The FCR in Context – How the FCR is used to calculate human health criteria	Debra Sturdevant	10
Why the 3 governments are "coalescing" around 175 g/d as a recommended FCR	CTUIR, Neil Mullane, Mike Gearheard	10
Fiscal Impact and Implementation • SAIC report • Overview of FIIAC work • Implementation approaches • FIIAC members' comments • Questions	 Jennifer Wigal; Sarah Kruse, FIIAC co-chair; Willie Tiffany, League of Oregon Cities	 15 10 10 15 10
Wrap up & next steps; projected rulemaking schedule	Jennifer Wigal	5
Panel of participants and stakeholders • Cheryle Kennedy, Chairwoman of the Grande Ronde Tribal Council • LLewellyn Matthews, Northwest Pulp & Paper Association • Written statement from Nina Bell, Northwest Environmental Advocates • Janet Gillaspie, Association of Clean Water Agencies		25

* There will be a 30 minute lunch break at approximately 11:30.

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 4, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director Dick Pedersen

Subject: Agenda Item J, Informational Item: Dairy Air Quality Task Force Update
August 21-22, 2008 EQC Meeting

Purpose of Item The Dairy Air Quality Task Force completed its work in June 2008, and issued its final report on July 1, 2008. The purpose of this item is to present the consensus findings and recommendations of the task force to the Environmental Quality Commission, and to answer questions about the task force's deliberations and final report. Implementing the task force recommendations will require future EQC rulemaking.

Background With the exception of field burning in the Willamette Valley, Oregon law exempted agricultural operations from air quality regulations. In 2005, several environmental and public interest groups petitioned the U.S. Environmental Protection Agency asserting that Oregon's air quality program was deficient because Oregon statute exempted agriculture from regulation. They argued that Oregon law cannot exempt agriculture from regulation if those regulations are needed to comply with the federal Clean Air Act.

In 2007, Oregon Senate Bill 235 resolved the inconsistency between state and federal law by allowing the EQC to regulate agricultural operations to the extent needed under the CAA. SB235 also created a task force on dairy air quality, in part to evaluate the potential for regulation beyond CAA requirements for the dairy industry. The task force was asked to study the emissions from dairy operations, evaluate available alternatives for reducing emissions, and present findings and recommendations to the DEQ and Oregon Department of Agriculture by July 1, 2008. Findings and recommendations could include technical studies, voluntary actions, regulation, and proposed legislation.

The task force met seven times from January through June 2008. It studied, explored, and debated the current state of the science, regulatory frameworks outside of Oregon, and various options from doing nothing to traditional regulation. The members reached a consensus on the findings and recommendations included in the attached report, which required the task force members to navigate through difficult issues and collaboratively balance deeply held, diverse opinions.

One unique provision of SB235 is that it grants the EQC authority to adopt by rule any recommendations of the Dairy Task Force that go beyond CAA requirements. However, the task force was clear that the recommendations represent a unified package that should be taken as a whole. Specifically, the task force recommends the EQC, working with the ODA, DEQ and the Department of Human Services, adopt rules to implement the proposed "Oregon Dairy Air Emissions Program" as outlined in the final report.

Task Force membership

The task force consisted of legislators; representatives from DEQ, ODA, and DHS; and representatives from the dairy industry, environmental groups, and higher education. Task force members are listed in the final report in Attachment A.

Key Issues

Program Features

The task force findings include guiding principles and program elements to be used in designing and implementing the Oregon Dairy Air Emissions Program. Key features include:

- Using best management practices to reduce air emissions from dairy operations. Based on information available today, the task force agreed that the Oregon Dairy Air Emissions Program should focus initially on reducing ammonia and methanol emissions and odors.
- Beginning the program as a voluntary effort ("Phase I"), and transitioning to a mandatory program ("Phase II,") pursuant to the conditions and schedules established by task force recommendations and EQC rule, and as adequate resources become available. New dairies should be required to comply with the proposed program upon startup.
- Establishing an initial list of air quality BMPs that are compatible with existing water quality BMPs, and establishing targets to be reached under the program. State agencies should continue to evaluate and develop the BMP program as more is learned about dairies and air quality.

Dairy Advisory Committee

DEQ and ODA, in consultation with DHS, should convene a Dairy Air Advisory Committee to advise and make recommendations about program implementation details. The advisory committee will consider new information about dairy emissions and the effectiveness of reduction methods as it becomes available, and recommend changes to the program over time.

Quantifying Air Emissions

The task force heard presentations from national experts on air emissions from dairies and discussed the current state of the science. The task force agreed that actions can begin now on a BMP program to reduce emissions, and that emissions from dairies will become better understood in the future as more research is conducted and emission estimation methods are improved.

Funding Support

The task force made a strong consensus recommendation that the legislature should provide the resources for: tax credits to farmers; scientific research on management practices for Oregon State University; and additional staff for the agencies providing information, assistance, and oversight of the program. DEQ and ODA are currently drafting a legislative concept for a tax credit bill to support the task force recommendations. DEQ and ODA have also developed position requests as part of their budgets to provide staff assistance to the program.

Next Steps

1. A presentation of the Task Force's findings and recommendations to the Board of Agriculture was scheduled August 1, 2008.
2. DEQ and ODA will present the Task Force recommendations to the legislature in September or October 2008.
3. DEQ and ODA are drafting legislative packages to provide resources to implement and administer the program.
4. The Oregon Dairy Farmers Association is moving ahead with its plans to educate their members about air quality issues and emissions reduction methods.

EQC Involvement

The task force recommends that the EQC, working with DEQ, the ODA, and the DHS, adopt rules to implement the proposed Oregon Dairy Air Emissions Program based upon the attached Dairy Task Force recommendations.

The task force also recommends that DEQ and ODA, in consultation with DHS, convene a Dairy Air Advisory Committee to advise and make recommendations about program implementation details.

Attachments

A. Oregon Dairy Air Quality Task Force Final Report: July 1, 2008.
- Executive Summary, Page 2
- Recommendations, Page 11
- Recommended Program Structure, Staging and Funding, Page 15

B. Oregon Dairy Air Quality Task Force Technical Support Document (on CD)

Available On-line

Oregon Dairy Air Quality Task Force Charter
http://www.deq.state.or.us/aq/dairy/docs/charter.pdf

Oregon Dairy Air Quality Task Force Final Report to the Environmental Quality Commission and the Board of Agriculture
http://www.deq.state.or.us/aq/dairy/docs/finalReport.pdf

Technical Support Document with Appendices
http://www.deq.state.or.us/aq/dairy/report.htm

Approved:

Section: David Collier

Division: for Andy Ginsburg

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Oregon Dairy Air Quality Task Force

Final Report to the Department of Environmental Quality and Department of Agriculture

July 1, 2008

Executive Summary

The 2007 Oregon Legislature passed Senate Bill 235 to address the inconsistency between state and federal law by allowing the Oregon Environmental Quality Commission (EQC) to regulate agricultural operations to the extent needed under the Clean Air Act. The Bill directed the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA) to enter into a Memorandum of Understanding in order to implement the federal Clean Air Act requirements for agriculture. **(Section I)**. Additionally, SB 235 established a Task Force on Dairy Air Quality, legislated its membership, **(Section II)** charged it with, among other things, studying the emissions from dairy operations, evaluating available alternatives for reducing emissions, and presenting findings and recommendations to the DEQ and ODA.

The Task Force met seven times from January through June 2008. It studied, explored, and debated the current state of the science, regulatory frameworks outside of Oregon, and various options from doing nothing to traditional regulation. The members reached a consensus on the included Findings **(Section III)** and Recommendations **(Section IV)**. The package recommendation was the thoughtful and deliberate result of the Task Force members navigating through very thorny issues and collaboratively balancing deeply held, diverse opinions.

By way of overview, the Task Force found that under certain circumstances, air emissions from dairy operations might become subject to regulation under the Clean Air Act. However, the current uncertainties in our quantitative knowledge of air emissions from dairies make the application of Clean Air Act requirements uncertain. There is a need to improve our understanding of emissions from dairies and improve our ability to quantify these emissions, especially if those estimates are to inform future regulatory decisions. While we build our knowledge and certainty of dairy emissions, there is a desire by the Task Force to reduce these air emissions to prevent future problems from arising.

Specifically, the Task Force recommends the EQC, working with ODA, DEQ, and the Department of Human Services (DHS), should adopt rules to implement the proposed "Oregon Dairy Air Emissions Program" (Program), as a whole, **(Section IV. A.)**, based upon carefully crafted Guiding Principles **(Section IV. B.)**. The Program **(Section IV. C.)** would start as a voluntary program, and move into a state mandatory program pursuant to the recommended conditions and schedule. The Task Force also recommends that DEQ and ODA, in consultation with DHS, should convene a Dairy Air Advisory Committee (DAAC) to advise and make recommendations about the Program implementation details. **(Section IV. D.)** It recommends the needed resources **(Section IV. E.)** that are essential to implement and administer the Program. Finally, the Task Force provides an overall recommended program structure, staging and funding. **(Section IV. E.)**

In conclusion, The Task Force thanks the Legislature for the opportunity to serve and formulate this consensus package of recommendations. Taken as a whole, the recommendations represent an optimal balance between the need to protect air quality and ensure the viability of Oregon's dairies, and they chart a clear and positive path forward for all Oregonians. These recommendations were created because the Task Force worked hard to achieve the necessary levels of understanding, trust, and respect. In order to maintain this positive and balanced momentum, the Task Force believes it is imperative that the Legislature provide the funding for this necessary and evolving program. The monetary requests are modest and responsibly staged over time to ensure the Program can accomplish its purposes without negatively affecting the state's other priorities.

Table of Contents

I. BACKGROUND

Until 2007, Oregon law exempted agricultural operations from air quality regulations with the exception of field burning in the Willamette Valley. In the fall of 2005, several environmental and public interest groups petitioned the U.S. Environmental Protection Agency (EPA) asserting that Oregon's air quality program was deficient because Oregon statute exempted agriculture from regulation if those regulations were necessary to comply with the Clean Air Act.

Senate Bill 235 addressed the inconsistency between state and federal law by allowing the Oregon Environmental Quality Commission (EQC) to regulate agricultural operations to the extent needed under the Clean Air Act. The Bill directed the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Agriculture (ODA) to enter into a Memorandum of Understanding in order to implement federal Clean Air Act requirements for agriculture. In addition, it established a Task Force on Dairy Air Quality, and charged it with, among other things, studying the emissions from dairy operations, evaluating available alternatives for reducing emissions, and presenting findings and recommendations to the DEQ and ODA by July 1, 2008. The findings and recommendations could include technical studies, voluntary actions, regulation, and proposed legislation. The recommendations are not limited to current requirements of the federal Clean Air Act and may recommend that the EQC adopt rules beyond the authorities in the Clean Air Act. The Task Force Charter can be found in the Technical Supporting Document.

The Task Force's work plan follows:

A. Study the emission of air contaminants from dairy operations, including but not limited to, emissions regulated under the Clean Air Act.

B. Study available data on the emission of air contaminants, including but not limited to, the United States EPA national air study of animal feeding operations.

C. Determine the problem(s) that need to be solved.

D. Formulate a plan to reduce emissions.

E. Identify the option(s) to reduce emissions:
   1) voluntary measures, including education, demonstration projects, and incentives;
   2) regulatory measures;
   3) legislative measures or funding; and
   4) other recommendations.

F. Select the solutions(s) for fixing the problem(s) and accomplishing the goals by taking into consideration:
   1) The diverse nature and economic viability of dairies and the economic contribution dairies make to the state economy;
   2) The impact that federal Clean Air Act regulations have, and that actions to address air emissions would have, on Oregon's dairies in the Pacific Northwest markets;
   3) The protection of human health, the environment, and scenic and cultural resources; and
   4) The impact of available alternatives on other environmental media, energy, the cost of producing dairy products, and the feasibility of implementation.

G. Make Other Observations and Recommendations

The Task Force began its work in January 2008 and has studied the air emissions associated with dairy operations, including but not limited to, emissions regulated under the Clean Air Act. It has evaluated alternatives for reducing air emissions, and explored voluntary measures, including education, demonstration projects, and incentive options, together with regulatory and/or legislative options for emission reduction.

This summary Report provides a broad overview of the Task Force findings and the information related to quantifying, managing, and reducing air emissions from dairy operations. The Technical Support Document (TSD), http://www.deq.state.or.us/aq/dairy/report.htm, accompanying this Report provides considerably more detail, served as the foundation for some of discussions, contains the Task Force Meeting Notes, and is intended for background purposes only. This Report contains the final Task Force findings and recommendations.

II. TASK FORCE MEMBERS

- Two members of the Senate, appointed by the President of the Senate:
  - Senator Betsy Johnson
  - Senator David Nelson

- Two members of the House of Representatives, appointed by the Speaker of the House:
  - Representative Debbie Boone
  - Representative Jackie Dingfelder

- One representative from the Oregon Department of Environmental Quality (DEQ), appointed by the DEQ Director:
  - Andrew Ginsburg, Air Quality Division Administrator, DEQ

- One representative from the Oregon Department of Agriculture (ODA), appointed by the ODA Director:
  - Lisa Hanson, Deputy Director, ODA

- One representative from the Department of Human Services (DHS) having expertise in public health, appointed by the Director of Human Services:
  - Gail Shibley, Administrator, Environmental Public Health , ODHS

- Three representatives, appointed by the governor from the dairy industry:
  - Dan Bansen, Dairyman, Forest Glen Jerseys, Forest Glen Heifer Ranch, and Forest Glen Oaks
  - Martin Myers, General Manager, Threemile Canyon Farms
  - Dr. Mark Wustenberg, Vice President, Dairy Services Tillamook Creamery Association

- Three representatives, appointed by the governor from environmental-public interest organizations:
  - Jeremiah Baumann, Environment Oregon
  - Dana Kaye, Executive Director for Oregon Chapter American Lung Association
  - Kendra Kimbirauskas, Friends of Family Farmers

- Two representatives, appointed by the governor from institutions of higher education listed in ORS 352.002 having expertise in science and technology relevant to air emissions generated by dairy operations:
  - Dr. Jim Males, Department Head Animal Science, OSU
  - Dr. Jim Moore, Professor Emeritus, OSU

III. Findings

A. Oregon Dairy Farm Overview

There are currently more than 60,000 dairy farms in the United States. Seventy seven percent of these dairies have herds of less than 100 mature cows. The remaining dairies provide 77% of all milk sold in the United States. To place Oregon within the national context, as of October 31, 2007, there were 370 permitted dairy operations. Of those 370 permitted dairy operations, 39 of them were heifer raising facilities and 331 of them were milking operations with 116,335 milking cows contained in the milking operations. Of the 331 permitted dairy operations, 39 were registered as large federal concentrated animal feeding operations (CAFOs), meaning that they had 700 or more dairy milking cows. All dairies in Oregon that provide milk for public consumption (grade A licensed) are permitted by the ODA Confined Animal Feeding Operation (CAFO) Program.

Oregon dairies are an important component of the state's economy. Milk products were the fifth most valuable agricultural commodity in Oregon in 2006 with a farm gate value of $329,574,000. Oregon dairies range in size from 25 to 16,000 milking cows and produce both conventional and organic milk; most are family farms and a few are corporately owned. Dairy production in Oregon spans across the state with at least one permitted dairy operation in 27 of Oregon's 36 counties. Currently, dairy production systems in Oregon include pasture-based production systems, partial confinement in free stall barns, total confinement in free stall barns, and dry lot operations.

During the last decade, the increased cost of fuel, feed, and transportation have had a direct effect on the cost of operating a dairy and, therefore, net dairy income. Milk price volatility has become greater in recent years, and this increased volatility has added significant challenges for dairy farm businesses. The number of dairy operations in Oregon has remained fairly constant over the last several years, but following a national trend, the Oregon industry has seen smaller farms ceasing milking operations or consolidating and the newer operations coming into production tending to be larger than the ones going out of business.

While the three new dairy facilities registered to the CAFO Permit in the last five years are all located on the east side of the Cascades, a large geographic movement or relocation of facilities does not seem to be occurring in Oregon at this time. This is because niche marketing of artisan cheeses and organic production have provided opportunities for dairies to remain in their current locations and current sizes.

There are significant regional differences in the conditions under which Oregon dairies operate. These include variations in climate (i.e. temperature, humidity, rainfall) and site characteristics (soil types for growing crops, availability of grassland for feed, etc.). The variation in these conditions affects what types of approaches and challenges operators evaluate when considering changing the production system to address existing and future environmental regulations.

B. Environmental Regulations

The EPA, under the authority of the federal Clean Water Act (CWA), primarily drives today's environmental requirements for large dairies. The Oregon CAFO program began in the early 1980s to prevent CAFO wastes from contaminating groundwater and surface water. When the program began, the DEQ was the permit issuing and enforcement authority, and the ODA acted as program administrator and investigating authority. This relationship has been modified and changed over time so that currently ODA operates the program under Memoranda of Agreement (MOA) with DEQ and EPA.

All CAFOs that require a permit are required to prepare an animal waste management plan. This plan is a detailed description of facilities and operations with respect to containment, treatment, storage, and disposal of waste including wastewater. The plan also describes how compliance with permit conditions and water quality laws will be achieved and maintained. The level and amount of information required will depend upon the size, complexity, and other specifics of each facility. The Oregon CAFO Program is a national leader in adopting and implementing innovative and effective ways to address water quality. Good communication with the industry and regular routine inspections of permitted operations have contributed to the participants actively seeking opportunities that meet, and in many cases exceed, state water quality expectations. It serves as a strong model and foundation to address air quality issues.

Other states have recently begun regulating dairy air emissions through permitting and by requiring the adoption of "best management practices." These regulations have targeted specific emissions of local concern.

Current Regulations for Air Quality in Oregon

1. **Federal Clean Air Act**

    a) National Ambient Air Quality Standards (NAAQS) – The EPA establishes standards to protect public health, including sensitive people. State and local air agencies determine if these standards are being met, and devise emissions reduction strategies in any location where standards are exceeded.

    b) Hazardous Air Pollutants - Congress provided EPA with a list of hazardous air pollutants and EPA has identified categories of sources for control of these pollutants. Currently, dairies are not one of the identified categories, although methanol emissions may be large enough to require an air quality permit.

    c) Regional Haze – The Clean Air Act requires air agencies to protect visibility in wilderness areas and National Parks. Visibility degradation in the Columbia River Gorge Scenic Area, however, is not subject to authorities in the Clean Air Act.

2. **Oregon Air Program**

    a) Air Toxics – Oregon has established a program to complement the federal approach by focusing on urban areas where many smaller sources contribute to air toxics concentrations that affect public health.

    b) Nuisance – DEQ has the authority to identify and reduce certain nuisance odors through existing rules. (OAR 340-208-0300). However, this state authority does not include odors from agricultural operations under ORS 30.930. Finally, odors are not subject to regulation under the Federal Clean Air Act.

3. **Other Federal Authorities**

    a) Occupational Safety and Health - Worker health concerns are within the authority of OR-OSHA, which has established standards for exposure.

    b) Emergency Planning and Community Right to Know Act (EPCRA) and Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) – Reporting to EPA is required for both episodic and continuous releases of regulated substances by facilities that meet certain criteria.

C. Air Emissions from Dairies

The National Research Council of the National Academy of Sciences, in its 2003 report titled *Air Emissions from Animal Feeding Operations: Current Knowledge and Future Needs,* identified these air pollutants from animal feeding operations in general, not specifically from dairies. The report identified: Ammonia (NH_3); Nitrous Oxide (N_2O); Nitrogen Oxides (NOx); Methane (CH_4); Volatile Organic Compounds (VOC); Hydrogen Sulfide (H_2S); and Particulate Matter (PM_{10} and $PM_{2.5}$). In addition, the Task Force identified Methanol, a Hazardous Air Pollutant, and Odors as important emissions.

D. Human Health and Dairy CAFOs

There is very sparse research regarding human health issues related to dairy CAFO air emissions. No Oregon industry-wide study was presented to the Task Force that established there was or was not a human health problem associated with dairies. However, if inhaled at sufficiently high concentrations, each of the emissions types associated with dairy CAFOs could be harmful to human health. Health impacts may be acute (immediate) or chronic (long-term). This dairy-specific data gap is important to fill, in order to better understand and protect human health because conclusions drawn from other livestock CAFO studies are not directly transferable to dairy operations.

Research in this area is needed to identify, quantify health risks, and determine appropriate measures to protect: 1) *worker health* (because of their proximity to emission sources, people working and residing on dairies have the greatest risk of experiencing health effects.) 2) *community health* (little is known about health effects on nearby people that are a direct result from dairy air emissions), and 3) *odors* (sensitive individuals experience these effects at lower levels than the general population, and concentrated odors over time are known to cause changes in behavior.)

E. Environmental Impacts

Air emissions from dairies, together with emissions from many other sources, contribute to the following environmental effects:

1. Visibility Degradation: Ammonia plays a key role in the formation of small sulfate and nitrate particles leading to haze pollution, thus degrading scenic vistas in our wilderness areas, National Park, and the Columbia River Gorge Scenic Area.

2. Acidic Deposition: The same pollutants that affect visibility (sulfates and nitrates) can also increase acidic deposition, increasing risks to ecosystems and cultural resources.

3. Climate Change: Methane is a potent Greenhouse Gas (GHG). The role that methane emissions from Oregon dairies play in overall statewide greenhouse gas emissions is not well understood.

In summary, dairy operations have the potential to release several different kinds of air emissions that under certain circumstances could contribute to environmental degradation. The extent to which this occurs in Oregon is currently unclear because of uncertainty in quantifying air emissions from dairies (discussed below).

F. Quantifying Emissions from Oregon Dairies

DEQ estimates air emissions from all types of sources. A compilation of emissions estimates from all source sectors is known as an "emissions inventory." These inventories are routinely developed by DEQ and updated over time to reflect changing conditions. Each source category in the emissions inventory (such as transportation, industry, burning, and agriculture) has its own state-of-knowledge and level of uncertainty inherent in its emissions estimate.

In the absence of a national emissions estimation method, DEQ currently estimates dairy emissions by simply multiplying the number of animals reported for each dairy operation by a fixed amount of emission per animal for each air pollutant, using the best available factors from the scientific literature. This methodology does not reflect what occurs on individual dairies, as it does not consider the variation of emissions over time or the variation in mitigation practices that may be in place. Using the current methods and understanding their limitations, initial statewide dairy emissions estimates indicate that they are a notable portion of Oregon's ammonia and methane emissions, but are a relatively small portion of other types of emissions on a statewide level.

In 2006, the National Air Emission Monitoring Study (NAEMS) was initiated to address the lack of scientific data needed to estimate emissions accurately from individual agricultural operations, including dairies. It originated from a voluntary air compliance agreement (also known as a consent decree) between the EPA and the pork, dairy, egg, and broiler industries. Livestock producers have provided the financial support for the NAEMS so that emissions data can be collected at select sites to:

1. Accurately assess emissions from livestock operations and compile a database for estimation of emissions rates, and

2. Promote a national consensus for emissions estimation methods/procedures from livestock operations.

This study is being led by Purdue University and researchers are currently collecting data at twelve sites across the nation. While interim results from these studies will provide useful information, improved national guidance on estimating emissions from individual dairies will not be available until approximately 2012. EPA has said that the results from this research will be used to construct the official method for estimating CAFO emissions, and that it will be of sufficient quality to be used in regulatory decisions.

IV. Recommendations:

The Task Force respectfully and strongly makes the following recommendations:

A. Program Development

The EQC, working with ODA, DEQ, and DHS, should adopt the rules to implement the following "Oregon Dairy Air Emissions Program" (Program), as a whole, as authorized by ORS 468A.020(2)(c) (SB 235). The Program consists of and is guided by this Recommendation. (Report Section (IV). Over time, Program adjustments should be made, as needed, to implement the intent of these recommendations.

B. Guiding Principles

The Program development, implementation, and compliance are guided by the following principles:

1. Initially focus on reducing ammonia, methanol, and odors, and instill public confidence in the Program.
2. Make technical decisions based on a review of the available existing science.
3. Allow flexibility for dairy farmers to make decisions that are compatible with their operations and other environmental obligations.
4. Provide economic feasibility and stability for dairy farmers.
5. Model program implementation after the development of Oregon's CAFO Program to prevent water pollution, which was phased from a voluntary program to a regulatory program in a gradual manner as information and experience were obtained.
6. Encourage early, voluntary action and efforts to go beyond requirements.
7. Tailor Program over time to the realities of the state budget, and regularly review and update it as more is learned about dairy emissions.
8. Ensure level playing field and equity for all Oregon dairy producers within Oregon and in the Northwest.
9. Recognize that the Clean Air Act, the Clean Water Act, and the Occupational Safety and Health Act still apply.
10. Create a solution that all interests can support.

C. Program Elements

The Program development, implementation, and compliance are guided by the following elements:

1. Apply to all existing Grade A dairies in Oregon that have or need a CAFO permit;
2. Based on a Best Management Practices (BMP) approach using California and Idaho models as points of reference and the recommendations of a Dairy Air Advisory Committee (DAAC) as specified in section IV. D., below. The BMPs should:
    a) Include structural and management practices to reduce air emissions while considering

other impact factors specified herein;

b) Establish clearly defined BMP targets that are economically feasible for Oregon dairy producers; and

c) Provide guidance on implementation;

3. Start as a voluntary program, known as "Phase I" at the completion of the Dairy Air Quality Task Force process. Move into a state mandatory program during "Phase II," pursuant to the conditions and schedule contained below, and as adequate resources to implement and administer the Program become available. New dairies should be required to comply with the Program upon startup.

4. ODA and DEQ develop an interim list of recommended air BMPs in collaboration with the Oregon Dairy Farmers Association (ODFA), Oregon State University (OSU), National Resources Conservation Service (NRCS), and the stakeholders identified for DAAC. Collect and assess baseline data about what is currently occurring on Oregon dairies to decrease air emissions as soon as practical after the creation of an interim list of air Best Management Practices (BMPs). This data set should be as inclusive as resources allow.

5. Level of implementation, monitoring, and compliance may change over time as resources and research results become available;

6. Tax incentives should be provided to encourage dairies to meet BMP targets established for Phase I and should be provided for dairies to create an incentive for early action. Any proposed tax credits should be transferable to a third party and should be phased out over time. Tax credits should be reauthorized beyond five years for those dairies that go beyond the minimum requirements in Phase II. If tax credits are adopted by the legislature, DEQ or ODA could administer the tax credits. Tax incentives will require approval of the Governor and legislative authorization. They should be subjected to the usual restrictions (e.g. only available for voluntary capital investments made for the primary purpose of reducing emissions).

7. DEQ, ODA, DHS, NRCS, and OSU, working with the industry, should provide technical assistance, education, and outreach, as follows:

   a) develop and maintain technical expertise in BMPs to reduce ammonia, methanol, and odors;

   b) provide technical assistance to dairies in selecting BMPs that are compatible with water quality and other factors pursuant to the Guiding Principles;

   c) develop and distribute educational materials encouraging dairies to participate in the Program hold a series of meetings held around the state to describe the Program to all dairy producers;

   d) provide information to dairies about potential federal requirements, including the potential for methanol emissions to trigger Title V permitting;

   e) provide information about dairies, emissions, and health to the public, the media, and neighboring communities; and

   f) provide information of federal regulations and the new state Program; and

8. ODA should receive funds necessary to determine compliance, provide technical assistance,

and conduct any enforcement. ODA should develop a periodic report of BMPs in use based on reports and inspections. ODA should check Program implementation and compliance at the time of the annual CAFO water quality inspection. The annual reports should be provided to EQC and the Board of Agriculture, posted on the web, and otherwise communicated to the public. ODA should communicate to CAFO permit holders the requirements for air BMPs, record keeping, and reporting. ODA should determine compliance, provide technical assistance, and conduct any enforcement.

D. Dairy Air Advisory Committee

DEQ and ODA, in consultation with DHS, should convene a Dairy Air Advisory Committee (DAAC) to advise and make recommendations about Program implementation details. While the overall Program direction is within the purview of the EQC in consultation with ODA and DHS, DAAC should be structured and empowered as follows:

1. A balanced committee with knowledge of the dairy industry, such as representatives from OSU, NRCS, ODA, USDA, DEQ, DHS, ODFA, dairy farmers, health, environmental groups and the public The initial members of DAAC should include members of the Dairy Air Quality Task Force;

2. Use of consensus decision making. If no consensus can be reached, a majority and minority report should be prepared;

3. Make implementation detail recommendations for both Phases that are designed to accomplish the Program in a fashion consistent with these recommendations;

4. Have, if it desires, subcommittees to manage the work, (e.g. a technical committee and a policy subcommittee), each with balanced representation;

5. Create a program that accommodates the diversity of the Oregon dairy industry;

6. Recommend BMPs as soon as possible, including:

    a) Structural and management approaches to reduce ammonia, methanol, and odors;

    b) Guidance for the implementation of the BMPs;

    c) Tiers based on dairy size/resources (for example, 700 cows and above could be one level, 200 - 699 could be another level, and less than 200 cows could be another level); and

    d) Phase I and II BMP targets for each tier;

7. Evaluate BMP effectiveness on air emissions while considering other impact factors like compatibility with water or land quality issues, affects on other air emissions and livestock health. DAAC should also consider existing third party standards when evaluating BMPs. To the extent possible, the menu should be coordinated with BMPs developed by neighboring states, particularly Washington.

8. Consult with DEQ, ODA, and DHS on procedures and criteria for evaluating the potential for public health risks from any air emissions from dairy operations. These procedures could be used, as needed, if public health concerns at specific dairies need to be investigated. Criteria and procedures to be discussed may cover topics such as emissions estimation, air quality analysis methods, and risk assessment procedures.

9. Report regularly to DEQ, ODA, and DHS on the progress and success of the Program; and

10. Recommend changes to the Program, as needed over time, based on new scientific information and an evaluation of Program effectiveness. This could include updates to the emissions of concern. DAAC should not make recommendations that change the core of this recommended Program and this Task Force's intent.

E. Overall Program Resources

The Task Force recommends that the following resources be provided to implement the recommended Program:

1. Tax credits for voluntary participation during Phase I and exceeding the requirements during Phase II if the tax credit program is extended;

2. Resources to ODA for Program implementation, monitoring and compliance;

3. Resources to DEQ for rule development, Program implementation, and air monitoring;

4. Resources to DHS for technical assistance, consultation, and risk communication; and

5. Funding for OSU to conduct research and development of demonstration projects, BMPs tailored to Oregon's needs, the effectiveness of BMPs, their impact on air emissions, and funds for education, outreach, and technical assistance.

F. Overall Recommended Program Structure, Staging and Funding Summary

The Task Force recommends that the following structure, staging and funding:

July 2008	Oregon Dairy Air Quality Task Force (With Co-Chairs) report to ODA and DEQ.
Sept 2008	Task Force, ODA, and DEQ report (with Co-Chairs) to interim legislative committees.
Oct/Nov 2008	Possible Task Force reconvening based upon interim legislative committee input.
Late 2008	ODA and DEQ approve an interim list of recommended air BMPs in collaboration with ODFA, OSU, NRCS, and the stakeholders identified for DAAC.
Jan 2009	ODFA begins outreach to educate industry about the Program and encourage the use of the interim air BMPs.
Jan-July 2009	**2009 Legislative Session:** a) Request initial staffing for the program: 1 ODA and 1 DEQ staff to do outreach and assistance, conduct a baseline survey, develop rules, and implement tax credits; b) Request $500K for OSU research and development of BMPs that are specific to Oregon's needs; and c) Request tax credits for voluntary BMPs to begin in 2010 and continue through 2014.
Late 2009	1) EQC adopts initial program rules under ORS 468A.020(2)(c) based upon the Dairy Air Quality Task Force recommendations in section IV of this report, including: a) Framework for Program; b) Membership and structure of the Dairy Air Advisory Committee (DAAC); d) Tax credits if EQC is authorized by the 2009 legislature. 2) DAAC starts. Initial focus is to refine the air BMP list. Subsequent focus is to

	refine the program structure. 3) ODA conducts baseline survey of air BMPs in use in Oregon.
2010	**Phase I Begins:** 1) ODA/DEQ/OSU Outreach / Education begins to encourage voluntary participation in phase 1 of the Program and provide assistance to dairies in the selection of BMPs; 2) DEQ implements the tax credits for dairies that meet the phase 1 targets. 3) DAAC recommends Program revisions, including revisions to the BMP list, targets and program structure.
2011	**2011 Legislative Session:** a) Request increased staffing for the program: 2 additional ODA staff to expand outreach implementation, and 1 DHS FTE (parts of three positions) to conduct risk communication. b) Request additional funding for BMP research and development if needed. c) Request $500K for OSU research and development of BMPs that are specific to Oregon's needs. DAAC continues to evaluate Program and make recommendations, including mandatory targets to apply in 2015.
Late 2011 and 2012	EQC revises rules to incorporate DAAC recommendations. ODA expands outreach and assistance, conducts follow-up survey of BMP use in Oregon, and issues Annual Program Report. DEQ continues to implement tax credits for dairies that meet the phase 1 targets. DAAC continues to evaluate Program, assess EPA's NAEMS preliminary results, and make recommendations as needed.
2013	**2013 Legislative Session:** a) Request increased staffing for the program: 2 additional ODA staff to further implementation, monitoring, and compliance. b) Request $500 K for OSU research and development of BMPs that are specific to Oregon's needs. DAAC continues to evaluate Program and make recommendations as needed.
Late 2013 and 2014	EQC revises rules to incorporate any further DAAC recommendations. ODA conducts follow-up survey of BMP use in Oregon, and issues Biennial Program Report. DEQ continues to implement tax credits for dairies that meet the phase 1 targets. DAAC continues to evaluate Program, assess EPA's NAEMS results, and make recommendations as needed.
2015	**2015 Legislative Session:** a) Request $500 K for OSU research and development of BMPs that are specific to Oregon's needs.
2015	**Phase II begins:**

	Targets become mandatory. ODA implements the program, ensures compliance, and issues annual Program Report. DAAC continues to evaluate Program and make recommendations, as needed.

V. Conclusion

In conclusion, The Task Force thanks the Legislature for the opportunity to serve and formulate this consensus package of recommendations. Taken as a whole, they represent an optimal balance between the competing interests and chart a clear and positive path forward for all Oregonians. These recommendations were created because the Task Force worked hard to achieve the necessary levels of understanding, trust, and respect. In order to maintain this positive and balanced momentum, the Task Force believes it is imperative that the Legislature provide the funding for this necessary and evolving program. The monetary requests are modest and responsibly staged over time to ensure the Program can accomplish its purposes without negatively affecting the state's other priorities.

Respectfully Submitted on July 1, 2008

Oregon Dairy Air Quality Task Force

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 4, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda Item K, Action Item: Pollution Control Tax Credit Considerations
August 21-22, 2008 EQC Meeting

Why This is Important

The Environmental Quality Commission approves or denies the certification of a pollution control facility.

Background

The EQC certification entitles an Oregon taxpayer to subtract up to 35 percent of the facility's cost from its Oregon tax liability. The taxpayer may take the tax credit in equal parts over the remaining useful life of the facility, but for no more than ten years.

The Pollution Control Facilities Tax Credit regulations direct the EQC to "certify a pollution control, solid waste, hazardous waste or used oil facility or portion thereof, if the commission finds that the facility qualifies as a pollution control facility." ORS 468.170 (4)(a).

Department Recommendation

The Department of Environmental Quality recommends the EQC:

- Approve 42 Pollution Control Facilities Tax Credit applications summarized in Attachment A and detailed in Attachment B.
- Grant or deny two requests for extensions of time to file an application presented in Attachment C. If the EQC determines the circumstances causing the untimely filing were:
  - Beyond the applicant's control, the EQC should grant the request and approve the application summarized in Attachment A and detailed in Attachment C; or
  - Within the applicant's control, the EQC should deny the request and deny the application summarized in Attachment A and detailed in Attachment C.
- Reissue three certificates presented in Attachment D.

EQC Action Alternatives

The EQC may postpone an application to a future meeting if the EQC:

- Requires additional information from DEQ or the applicant; or
- Makes a determination different from DEQ that may have an adverse effect on the applicant.

Attachments

A. Summary of Recommendations
B. Background and References for Final Certification
C. Requests for Extensions of Time to File
D. Certificate Administration
E. Tax Expenditure Liability Report
F. Certified Wood Chipper Report

Available Upon Request

ORS 468.150 to 468.190 and OAR 340-016-0005 to 340-016-0080

Approved:

Section: Maggie Vandehey

Division: Gregory K. Aldrich

Report Prepared By: Maggie Vandehey
Phone: (503) 229-6878

Attachment A

Summary of Recommendations

From Attachment B: Recommended for Approval

Tab	App #	Applicant	Claimed	Certified	Difference*	% Allocable	Max Percent	Tax Credit	EQC Action
Water	7498	Evraz Inc. NA	60,455	60,455	0	100%	35%	21,159	
Water	7603	Hampton Lumber Mills, Inc.	340,757	293,507	-47,250	100%	35%	102,727	
Air	7607	Evraz Inc. NA	142,233	142,233	0	100%	35%	49,782	
Mat Rec	7707	5C, LLC	49,833	49,833	0	100%	35%	17,442	
Water	7739	Drs. Howerton & Hopkins, LLC	1,065	1,065	0	100%	35%	373	
Mat Rec	7753	McKenzie Recycling, Inc.	34,977	34,977	0	100%	35%	12,242	
Mat Rec	7770	Umpqua Bank Leasing	486,124	486,124	0	90%	35%	153,129	
Water	7786	Stephanie R White, DMD, LLC	892	892	0	100%	35%	312	
NPS	7797	Bruce J Ruddenklau	22,340	22,340	0	95%	35%	7,428	
Water	7801	Truax Corporation	182,083	182,257	174	100%	35%	63,790	
Water	7802	Lisa M Gitelson DMD PC	900	900	0	100%	35%	315	
Water	7803	Barichello Family Dentistry PC	968	968	0	100%	35%	339	
Water	7804	Thomas R Housel	891	891	0	100%	35%	312	
Water	7805	Raelyn N Sutton DMD PC	2,255	2,255	0	100%	35%	789	
HW	7806	Chris Davis	1,200	1,200	0	100%	35%	420	
Water	7810	Ronald Packham	1,635	1,635	0	100%	35%	572	
Water	7814	William C Underwood and Douglas C	3,052	3,052	0	100%	35%	1,068	
Mat Rec	7817	Safeway Inc.	37,084	37,084	0	100%	35%	12,979	
NPS	7818	TRICO Farms	28,120	28,120	0	100%	35%	9,842	
Water	7823	Derek James Bevans, DMD	1,841	1,841	0	100%	35%	644	
Water	7824	Darryl D. Farely, DMD, PC	736	736	0	100%	35%	258	
Water	7825	Gary R Underhill DMD PC	1,648	1,648	0	100%	35%	577	
Water	7826	L Emery Karst DDS PC	1,700	1,700	0	100%	35%	595	
Mat Rec	7827	Lanz Cabinet Shop, Inc.	18,425	18,425	0	100%	35%	6,449	
Mat Rec	7828	Lanz Cabinet Shop, Inc.	18,425	18,425	0	100%	35%	6,449	
Air	7829	Lanz Cabinet Shop, Inc.	8,666	8,666	0	100%	35%	3,033	
Water	7831	Michael Hazel	1,106	1,106	0	100%	35%	387	
Mat Rec	7883	Waste Connection of Oregon, Inc.	10,930	10,930	0	100%	35%	3,826	
Mat Rec	7884	Waste Connection of Oregon, Inc	14,641	14,641	0	100%	35%	5,124	
Mat Rec	7885	Waste Connection of Oregon, Inc	3,756	3,756	1	100%	35%	1,315	
Mat Rec	7886	Waste Connection of Oregon, Inc	4,155	4,155	0	100%	35%	1,454	

Attachment A

Summary of Recommendations

Tab	App #	Applicant	Claimed	Certified	Difference*	% Allocable	Max Percent	Tax Credit	EQC Action
Mat Rec	7887	Waste Connection of Oregon, Inc	2,789	2,789	0	100%	35%	976	
Mat Rec	7888	Waste Connection of Oregon, Inc	2,364	2,364	0	100%	35%	827	
Mat Rec	7889	Waste Connection of Oregon, Inc	1,277	1,277	0	100%	35%	447	
Water	7890	Lillan G Harewood	1,068	1,068	0	100%	35%	374	
Mat Rec	7892	Waste Connection of Oregon Inc	4,355	4,355	0	100%	35%	1,524	
Water	7893	Kenneth David Carneiro	1,470	1,264	-206	100%	35%	442	
Water	7894	Steven Abbott DMD	932	932	0	100%	35%	326	
Water	7895	Wesley F. Rampton DMD	712	712	0	100%	35%	249	
Water	7896	Kevin H Wu	2,396	2,396	0	100%	35%	839	
Mat Rec	7903	Miller Associated Enterprises Inc	21,224	21,224	0	100%	35%	7,428	
Water	7904	Peter C Snyder DDS	913	913	0	100%	35%	320	
42 Applications		Sum	$ 1,522,392	$ 1,475,111				$ 498,884	
		Average	$ 36,247	$ 35,122				$ 11,878	
		Minimum	$ 712	$ 712				$ 249	
		Maximum	$ 486,124	$ 486,124				$ 153,129	

From Attachment C: Request for Extension of Time to File

Tab	App #	Applicant	Claimed	Certified	Difference*	% Allocable	Max Percent	Tax Credit	EQC Action
NPS	7815	Steve Spence	1,679	1,679	0	1	0	588	
NPS	7821	MC Ranch Inc	282,000	282,000	0	1	0	98,700	
2 Applications		Sum	$ 283,679	$ 283,679				$ 99,288	

From Attachment D: Certificate Administration

Action	Cert #	Transaction	From	To	
Reissue	4530	Operator Address Change	Fiber, Halsey Mill	Cascade Pacific Pulp, LLC	
Reissue	4551		1500 SW First Avenue, Suite 200	701 East Lake Street, Suite 300	
Reissue	4567		Portland, OR 97201	Wayzata, MN 55391	
3 Certificates					

* The difference is the facility cost on the application minus the facility cost DEQ recommends for certification. DEQ discussed the differences with the applicant and each applicant indicated agreement with the subtractions.

Attachment B
Background and References for Final Certifications

Recommendation

The Department of Environmental Quality recommends that the Environmental Quality Commission approve **$498,884** in tax credits to **42** pollution control and material recovery facilities summarized in Attachment A and detailed in this attachment.

To make its recommendation, DEQ relied on the application records, the Pollution Control Facilities Tax Credit regulations, pertinent legal advice, and previous EQC decisions and directions.

Organization of Application Reviews

DEQ organized the application reviews in application ascending order behind the tabs for the following categories.

Tax Credit Type	Tab
1. Air Pollution Controls	*Air*
2. Hazardous Waste Pollution Controls	*HW*
3. Material Recovery	*Mat Rec*
4. Nonpoint Source Pollution Controls	*NPS*
5. Water Pollution Controls	*Water*

Each tab includes three sections:

1. Recommendation and Eligibility Criteria
2. Reviews
3. References

Each tab includes the eligibility criteria and the decisions required for certifying a pollution control or material recovery facility and for determining the amount of the tax credit. Each tab and the reviews behind the tab provide DEQ's analysis regarding the:

- Facility's qualifications for certification as a pollution control facility
- Eligible facility cost
- Percentage of the tax credit attributed to pollution control
- Maximum allowable tax credit.

DEQ will use the information in this attachment to:

- Notify the applicants of the EQC's certification
- Develop the Pollution Control Facility Tax Credit Certificate
- Develop the taxpayer's Department of Revenue form for claiming the credit on the Oregon Tax Return, and
- Develop reports for the EQC, agency management, the Department of Revenue, the Governor's Office, Legislators and other interested parties.

Pollution Control Facility Certification Authority

ORS 468.170(4)(a) provides the EQC its authority to certify pollution control facilities.

Regulation	Department Interpretation
468.170[1] (4)(a) The commission shall certify a pollution control, solid waste, hazardous waste or used oil facility or portion thereof, for which an application has been made under ORS 468.165, if the commission finds that the facility:	The applicant filed a valid application.
(A) Was erected, constructed or installed in accordance with the requirements of ORS 468.165 (1);	The applicant constructed the facility after effective date of authorizing legislation.
(B) Is designed for, and is being operated or will operate in accordance with the requirements of ORS 468.155; and	The facility meets the definition of a pollution control facility.
(C) Is necessary to satisfy the intents and purposes of ORS 454.010 to 454.040, 454.205 to 454.255, 454.505 to 454.535, 454.605 to 454.755, ORS chapters 459, 459A, 466 and 467 and ORS chapters 468, 468A and 468B and rules thereunder.	The facility is necessary to satisfy DEQ administered regulations.

[1] ORS 468.170 Action on application; rejection; appeal; issuance of certificate; certification.

ORS 468.170(1) provides EQC with the authority to certify the facility cost and the portion of the cost allocable to pollution control. ORS 468.170(10) provides authority to certify the applicable percentage (Maximum Allowable Percentage) of the certified cost of the facility eligible for tax credit.

Regulation	Department Interpretation
468.170 (1) The Environmental Quality Commission shall act on an application for certification before the 120th day after the filing of the application under ORS 468.165. The action of the commission shall include certification of the actual cost of the facility and the portion of the actual cost properly allocable to the prevention, control or reduction of air, water or noise pollution or solid or hazardous waste or to recycling or appropriately disposing of used oil.	The certified facility cost represents the actual cost. The claimed items control pollution, solid or hazardous waste, or recycle.
The actual cost or portion of the actual cost certified may not exceed the taxpayer's own cash investment in the facility or portion of the facility. Each certificate shall bear a separate serial number for each such facility.	The cost represents the applicant's investment.
468.170 (10) If the construction or installation of a facility is commenced after December 31, 2005, the facility may be certified only if the facility or applicant is described in ORS 468.173 (3). A facility described in ORS 468.173 (2) for which construction or installation is commenced after December 31, 2005, may not be certified under this section.	The applicant, the facility or the location of the facility qualifies for a maximum percentage above zero (0) percent.

Air Pollution Controls

Recommendations and Eligibility Criteria

DEQ recommends the EQC approve **$52,815** in tax credits to **two** applicants that claim air cleaning devices (facilities) used to reduce air pollution. Each facility is eligible for a tax credit because it meets the criteria in:

- ☑ ORS 468.155 (1)(a) and OAR 340-016-0060 (2)(a) - The principal purpose of the facility is to reduce air pollution in response to a DEQ, federal EPA or a regional air pollution authority imposed condition, or the sole purpose of the facility is to reduce a substantial quantity of air pollution.
- ☑ ORS 468.155 (1)(b)(B) – The facility accomplishes the prevention, control or reduction by disposal or elimination of air pollution, air contaminants or air contamination source and the use of an air cleaning device defined in ORS 468A.005.
- ☑ ORS.468.170 (4)(a) - The facility satisfies the intents and purposes of ORS chapter 468A - Air Pollution.
- ☑ ORS 468.155(3), ORS 468.170(1) and OAR 340-016-0070 - The facility cost recommended for certification represents the actual pollution control cost of the installation and does not exceed the taxpayer's (applicant) own cash investment in the facility.
- ☑ ORS 468.190 (3) for facilities that cost less than $50,001, ORS 468.170(1) and ORS 468.190(1) for facilities that cost over $50,000 - The applicant accurately determined and DEQ verified the percentage of the facility cost allocable to air pollution control.
- ☑ ORS 468.173(3)(h) - The maximum tax credit is 35 percent because the applicant submitted applications between January 1, 2002, and December 31, 2008, inclusively, and the certified cost would not exceed $200,000, or the facility is located in an enterprize zone at the time of certification.

Reviews

7607

Evraz Inc. NA
C Corp 94-506370

Facility Cost		**$142,233**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$49,782

Description

Two Camfil Farr Inc., model Farr Gold Series® GS8 baghouses, serial numbers 77585-A and 77585-B
One Camfil Farr Inc., model Farr Gold Series® GS16 baghouse, serial number 773393

Evraz, Inc. NA manufactures steel plate, steel coil, and American Petroleum Institute certified large diameter steel pipe used in oil/gas transmission pipelines. The new spiral weld mill has two pipe-forming lines, and a pipe-cutting table. All three areas produce smoke and metal oxide fumes.

The company claims three baghouse systems to capture very fine (10 micrograms) particulate matter (PM10) from the plasma cutting processes. Two are located inside the building on the east and west pipe-forming lines and the third is located outside the building at the pipe-cutting table. The pipe mill is not a permanent total enclosure; therefore, emissions would migrate with air movement through air vents and the large, north and south bay doors, which all remain open during the manufacturing process.

Two negatively pressured fume hoods capture particulate matter (PM10) emissions on the pipe-forming lines, and the 90 percent efficient GS8 baghouses reduce approximately 36 tons per year of PM10 emissions. The GS16 baghouse reduces approximately 18 tons per year of PM10 emissions. The applicant attaches flexible ducting on the end of pipes cut on the table, and the negative pressure from the baghouse draws the smoke and oxide fumes to the filter media. The applicant claims 90 percent PM capture efficiency.

The principal purpose of the three baghouses is to comply with the applicant's Title V Permit Number 261865 by reducing PM10 emission by approximately 54 tons per year.

7607 Evraz Inc. NA continued…

The State of Oregon has issued 11 Pollution Control Facilities Tax Credit Certificates under the applicant's previous name, Oregon Steel Mills, at this location. The claimed facility does not replace a previously certified facility. The applicant and DEQ calculated the percentage of the facility cost allocable to pollution control according to the standard method in OAR 340-016-0075(3). The maximum tax credit is 35 percent because the applicant submitted the application prior to January 1, 2008, and the facility is located within north/northeast Portland, a designated enterprise zone at the time of certification.

Applicant Address
1000 SW Broadway, Suite 2200
Portland, OR 97205

Facility Address
14400 N Rivergate Boulevard
Portland, OR 97203

7829

Lanz Cabinet Shop, Inc.
S Corp 93-0581543

Facility Cost		**$8,666**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$3,033

Description

One Spray Systems model I-10107 Industrial Dry Filter Booth.

Lanz Cabinets designs and builds cabinets for homes. The company applies a water-based topcoat to cabinet components.

The sole purpose of the claimed facility is to capture approximately 6 tons of chemicals, thus preventing particulate matter and approximately six pounds of VOCs from discharge to atmosphere each year. Neither product integrity nor OSHA require the paint booth.

The applicant provided cost documentation equal to the claimed facility cost. The EQC has issued five certificates to the applicant at this location. The claimed facility is not a replacement of the previously certified facility.

Applicant Address
3025 West 7th Place
Eugene, OR 97402

Facility Address
Same as the applicant's address.

References

ORS 468.155[2]

(1)(a) As used in ORS 468.155 to 468.190 and 468.962, unless the context requires otherwise, "pollution control facility" or "facility" means any land, structure, building, installation, excavation, machinery, equipment or device, or any addition to, reconstruction of or improvement of, land or an existing structure, building, installation, excavation, machinery, equipment or device reasonably used, erected, constructed or installed by any person if:

(A) The principal purpose of such use, erection, construction or installation is to comply with a requirement imposed by the Department of Environmental Quality, the federal Environmental Protection Agency or regional air pollution authority to prevent, control or reduce air…pollution…; or

(B) The sole purpose of such use, erection, construction or installation is to prevent, control or reduce a substantial quantity of air…pollution…

(1)(b) Such prevention, control or reduction required by this subsection shall be accomplished by:…(B) The disposal or elimination of or redesign to eliminate air contaminants or air pollution or air contamination sources and the use of air cleaning devices as defined in ORS 468A.005;…

ORS 468A.005 provides the following definitions.

Air contamination is dust, fume, gas, mist, odor, smoke, vapor, pollen, soot, carbon, acid or particulate matter or any combination thereof.

Air pollution is the presence in the outdoor atmosphere of one or more air contaminants, or any combination thereof, in sufficient quantities and of such characteristics and of a duration as are or are likely to be injurious to public welfare, to the health of human, plant or animal life or to property or to interfere unreasonably with enjoyment of life and property throughout such areas of the state as shall be affected thereby.

Air contamination source is any source at, from, or by reason of which there is emitted into the atmosphere any air contaminant, regardless of who the person may be who owns or operates the building, premises or other property in, at or on which such source is located, or the facility, equipment or other property by which the emission is caused or from which the emission comes.

An air cleaning device is any method, process or equipment that removes, reduces or renders less noxious air contaminants prior to their discharge in the atmosphere.

OAR 340-016-0060[3]

[2] Definitions for ORS 468.155 to 468.190 and 468.962

(4) Eligible Activities. The facility shall prevent, reduce, control, or eliminate:...(a) Air contamination by use of air cleaning devices as defined in ORS 468A.005 or through equipment designed to prevent, reduce or eliminate air contaminants prior to discharge to the outdoor atmosphere;...

[3] Eligibility

Hazardous Waste Controls

Recommendations and Eligibility Criteria

DEQ recommends the EQC approve a **$420** tax credit to **one** applicant claiming a parts washer that changed from using solvents to water-based cleaning products. The facility is eligible for a tax credit because it meets the criteria in:

- ☑ ORS 468.155 (1)(a)(B) and OAR 340-016-0060 (2)(a) – The sole purpose of changing from a solvent– to water–based parts washer is to reduce a substantial quantity of hazardous waste.

- ☑ ORS 468.155 (1)(b)(E) – The aqueous parts washer eliminates the use of hazardous waste and its hazardous waste stream. The washers use aqueous surfactant based cleaner rather than solvent based cleaner containing Toluene and Benzene, which are known to cause birth defects, other reproductive harm or cause cancer.

- ☑ ORS.468.170 (4)(a) – The facility satisfies the intents and purposes of ORS chapter 466 – Hazardous Waste and Hazardous Materials.

- ☑ ORS 468.155(3), ORS 468.170(1) and OAR 340-016-0070 – The facility cost recommended for certification represents the actual pollution control cost of the installation and does not exceed the taxpayer's (applicant) own cash investment in the facility. The EQC did not certify a parts washer to the applicants or the used parts washer to a previous owner; therefore, the parts washers are not a replacement facility.

- ☑ ORS 468.190 (3) for facilities that cost less than $50,001 – The applicant accurately determined and DEQ verified the percentage of the facility cost allocable to hazardous waste pollution control.

- ☑ ORS 468.173(3)(f) – The maximum tax credit is 35 percent because the applicant submitted the application between January 1, 2002, and December 31, 2008, inclusively, and the certified facility cost does not exceed $200,000.

Reviews

7806

Chris Davis
S Corp 93-1273514

Facility Cost		**$1,200**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 420

Description

One Used Smart Washer SW-928, serial number SW281-120-2100987

Applicant Address
35893 Bain Lane
Creswell, OR 97426

Facility Address
Sam's Auto Service, Inc.
5125 Main Street
Springfield, OR 97478

References

ORS 468.155[4]

(1)(a) As used in ORS 468.155 to 468.190 and 468.962, unless the context requires otherwise, "pollution control facility" or "facility" means any land, structure, building, installation, excavation, machinery, equipment or device, or any addition to, reconstruction of or improvement of, land or an existing structure, building, installation, excavation, machinery, equipment or device reasonably used, erected, constructed or installed by any person if:

(A) The principal purpose of such use, erection, construction or installation is to comply with a requirement imposed by the Department of Environmental Quality, the federal Environmental Protection Agency … to prevent, control or reduce … hazardous waste …; or

(B) The sole purpose of such use, erection, construction or installation is to prevent, control or reduce a substantial quantity of … hazardous waste….

(b) Such prevention, control or reduction required by this subsection shall be accomplished by:

(E) The treatment, substantial reduction or elimination of or redesign to treat, substantially reduce or eliminate hazardous waste as defined in ORS 466.005.

ORS 466.005 provides or references the following definition.

Hazardous Waste Pollution is the presence of residues resulting from any process of industry, manufacturing, trade or business or government or from the development or recovery of any natural resources, if such residues cause or contribute to an increase in mortality or an increase in serious irreversible illness; or pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported or disposed of.

[4] Definitions for ORS 468.155 to 468.190 and 468.962

Hazardous waste does not include radioactive material or the radioactively contaminated containers and receptacles used in the transportation, storage, use or application of radioactive waste, unless the material, container or receptacle is classified as hazardous waste under paragraph (a), (b) or (c) of this subsection on some basis other than the radioactivity of the material, container or receptacle. Hazardous waste does include all of the following which are not declassified by the commission under ORS 466.015 (3):

(a) Discarded, useless or unwanted materials or residues resulting from any substance or combination of substances intended for the purpose of defoliating plants or for the preventing, destroying, repelling or mitigating of insects, fungi, weeds, rodents or predatory animals, including but not limited to defoliants, desiccants, fungicides, herbicides, insecticides, nematocides and rodenticides.

(b) Residues resulting from any process of industry, manufacturing, trade or business or government or from the development or recovery of any natural resources, if such residues are classified as hazardous by order of the commission, after notice and public hearing. For purposes of classification, the commission must find that the residue, because of its quantity, concentration, or physical, chemical or infectious characteristics may:

(A) Cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness; or

(B) Pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, or disposed of, or otherwise managed.

(c) Discarded, useless or unwanted containers and receptacles used in the transportation, storage, use or application of the substances described in paragraphs (a) and (b) of this subsection.

OAR 340-016-0060 [5]

(4) Eligible Activities. The facility shall prevent, reduce, control, or eliminate: ... (c) Hazardous Waste. The facility shall treat, substantially reduce or eliminate hazardous waste as defined in ORS 466.005... .

[5] Eligibility

Material Recovery

Recommendations and Eligibility Criteria

DEQ recommends that the EQC approve **$231,611** in tax credits to **15** applicants who invested in recycling containers, trucks and balers (facility) used in a material recovery process. Each facility is eligible for a tax credit because it meets the criteria in:

☑ ORS 468.155 (1)(a) and OAR 340-016-0060 (2)(a) – The sole purpose of the facility is to prevent, control, or reduce a substantial quantity of solid waste.

☑ ORS 468.155 (1)(b)(D), OAR 340-016-0010(7) and OAR 340-016-0060(4)(e) – The facility prevents, controls, or reduces waste material by using a material recovery process. The process obtains useful material from material that would otherwise be solid waste.

☑ ORS.468.170 (4)(a) – Each facility satisfies the intents and purposes of ORS chapter 459A – Refuse and Recycling.

☑ ORS 468.155(3), ORS 468.170(1) and OAR 340-016-0070 – The facility cost recommended for certification represents the actual material recovery cost and does not exceed the taxpayer's (applicant) own cash investment in the facility.

☑ ORS 468.190 (3) for facilities that cost less than $50,001, ORS 468.170(1) and ORS 468.190(1) for facilities that cost over $50,000 – Each applicant accurately determined and DEQ verified the percentage of the facility cost allocable to material recovery.

☑ ORS 468.173(3)(d) – The maximum tax credit is 35 percent because the applicants submitted their applications between January 1, 2002, and December 31, 2008, inclusively, and the applicant uses the certified facility in a material recovery process or for recycling.

Reviews

7707

5C, LLC
LLC 93-1310548

Facility Cost		**$49,833**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$17,442

Description

One – CH 260 Chipper Mill, serial # 3293051 and auger model 91Z04058

Cook Woods produces lumber and specialty woods from logs. The process produces about 100 cubic meters of scrap woody material each year.

The applicant claims a waste wood processing system that includes a 24 inches x 42 feet incline conveyor to feed the waste into the 100 horsepower chipper. An auger moves the chipped material onto a 30 feet by 25 feet by 6-inch reinforced concrete pad where it is collected for landscape use. Prior to installing the chipper mill, the company or its neighbors burned the waste wood. The sole purpose of the claimed facility is to recover approximately 65 tons of waste wood each year through a material recovery process.

The EQC has not issued any certificates to the applicant or to this location. The claimed facility does not replace a previously certified facility.

Applicant Address
1650 East Main Street
Klamath Falls, OR 97601

Facility Address
Same as the applicant's address.

7753

McKenzie Recycling, Inc.
S Corp 93-1285863

Facility Cost		**$34,977**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$12,242

Description

One 1.7-yard model FB23280 DeWald self-dumping hopper, serial number 201237
Six 2-yard model FB200G00 DeWald self-dumping hoppers, serial numbers 201467-201469, 201030-201032
Seven 3-yard model 74E fron-loading containers, serial numbers 197382-197384, 198618, 198621, 201778, 201779
Three 4-yard model 75E front-loading containers, serial numbers 197379-197381
One Used CAT model 906 mini-wheel loader, serial number 6ZS01090

McKenzie Recycling, Inc. operates a material recover facility that accepts commingled materials from commercial haulers.

The applicant claims various recycling containers and a used loader for sorting metal and cardboard from other commingled materials. The company bales the material and ships the cardboard and metal to area mills and the commingled material to S & P Recycling for additional processing and eventual use to manufacture of new products.

The sole purpose of the claimed facility is to remove approximately 45 tons of commingled material from the solid waste stream each year.

The EQC has not issued any certificates to the applicant, to this location, or for the used loader; therefore, the claimed facility is not a replacement to a previously certified facility.

Applicant Address
88604 Oak Hill Cemetary Road
Eugene, OR 97408

Facility Address
Same as the applicant's address.

7770

Umpqua Bank Leasing
C Corp 93-1261319

Facility Cost		**$486,124**
Percentage Allocable	X	**90%**
Maximum Percentage	X	**35%**
Tax Credit		$153,129

Description

One Peterson model 4710B track mounted grinder, serial number 29B-49-1383

Umpqua Bank Leasing (lessor) is a commercial bank that claims a grinder leased to Rexius Forest By-Products, Inc. (lessee). The lessee processes green waste into compost, mulch, and barkdust used in landscaping.

Residential and commercial haulers deliver green waste to the lessee for grinding to the optimal size and composition required to make compost. Additionally, the lessee collects and delivers waste to the facility for use in manufacturing compost.

The sole purpose of the grinder is to convert approximately 23,169 tons of green waste into compost each year. Ten percent of the green waste is burned as fuel which is an ineligible material recovery process.

The EQC has issued 26 Pollution Control Facilities Certificates to the lessor but none for facilities leased to the lessee or to this location. The EQC issued six certificates, one for a portable grinder that operates. The claimed facility is not a replacement of a previously certified facility.

Applicant Address
6400 SW Corbett Avenue
Portland, OR 97239-3558

Facility Address
Rexius Forest By-Products, Inc
1250 Bailey Hill Road
Eugene, OR 97402

7817

Safeway Inc.
C Corp 94-3019135

Facility Cost		**$37,084**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$12,979

Description

Four M60STD Harmony Enterprises hydraulic balers:

- Sandy Boulevard Store #1447, serial number M60STD3063
- Keizer Store # 1516, serial number M60STD3167
- Cedar Mill Store # 1525, serial number M60STD3062
- Redmond Store #1665. serial number M60STD3160

Safeway, Inc is a retail grocer. The company claims four hydraulic balers to recycle corrugated cardboard. Cardboard originates from cartons used to ship grocery products to stores. Each baler processes the used cardboard into bales reducing the stores' solid waste disposal by 45 to 50 percent. The company transports the baled cardboard to a central consolidation point where recycling vendors collect the material and delivers it to regional mills for incorporation into paper or wood products. Stores without balers dispose of cardboard in dumpsters for landfill disposal. The company's 2007 cardboard recycling program diverted about 19,158 tons of cardboard. The sole purpose of each baler is to prevent approximately 165 tons of cardboard per year per store from landfill disposal.

The EQC issued 22 certificates to Safeway, Inc certifying a wastewater treatment system, underground storage tank upgrades, and bailers. The claimed balers are not replacements to any previously certified facility.

Applicant Address
5918 Stoneridge Mall Road
Pleasanton, CA 94588

Facility Address
Same as the applicant's address.

7827

Lanz Cabinet Shop, Inc.
S Corp 93-0581543

Facility Cost		**$18,425**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$6,449

Description

One West Salem Machinery model 1012 High Torques Horizontal Grinder, serial number 154107
One West Salem Machinery model FSUB-6/10 Natural Frequency Vibrating Infeed Conveyor

Lanz Cabinets designs and builds cabinets for homes. The manufacturing process produces hardwood trims. The company claims a grinder system to reduce the wood waste to less than one inch for remanufacture into wood materials or products.

The sole purpose of the grinder system is to prevent approximately 400 tons of wood waste from landfill disposal each year.

The applicant provided cost documentation equal to the claimed facility cost. The EQC has issued five certificates to the applicant at this location. One certificate was for a grinder still operating at the site; therefore, the claimed facility is not a replacement of the previously certified facility.

Applicant Address
3025 West 7th Place
Eugene, OR 97402

Facility Address
Same as the applicant's address.

7828

Lanz Cabinet Shop, Inc.
S Corp 93-0581543

Facility Cost		**$18,425**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$6,449

Description

One West Salem Machinery model 1012 High Torques Horizontal Grinder, serial number 153107
One West Salem Machinery model FSUB-6/10 Natural Frequency Vibrating Infeed Conveyor

Lanz Cabinets designs and builds cabinets for homes. The manufacturing process produces hardwood trims. The company claims a grinder system to reduce the wood waste to less than one inch in size for remanufacture into wood materials or products.

The sole purpose of the grinder system is to prevent approximately 400 tons of wood waste from landfill disposal each year.

The applicant provided cost documentation equal to the claimed facility cost. The EQC has issued five certificates to the applicant at this location. One certificate was for a grinder that is still in operation; therefore, the claimed facility is not a replacement of the previously certified facility.

Applicant Address
3025 West 7th Place
Eugene, OR 97402

Facility Address
Same as the applicant's address.

7883

Waste Connection of Oregon, Inc.
C Corp 93-0599115

Facility Cost		**$10,930**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$3,826

Description

18 four-yard front loading recycling containers, serial numbers 198448-198465

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to 17,714 residential and 2,199 commercial and multi-family customers in Multnomah County.

The applicant claims recycling bins placed with commercial and multi-family customers to accumulate cardboard. The company delivers the recyclable materials to a recovery facility or mill for additional processing and manufacture into new products.

The sole purpose of the contianers is to remove approximately 234 tons of cardboard from landfill disposal each year.

The EQC issued 30 certificates to the applicant and five certificates to Oregon Paper Fiber; however, the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Oregon Paper Fiber
12820 NE Marx
Portland, OR 97031

7884

Waste Connection of Oregon, Inc
C Corp 93-0599115

Facility Cost		**$14,641**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$5,124

Description

18 four-yard front loading recycling containers

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to 17,714 residential and 2,199 commercial and multi-family customers in Multnomah County.

The applicant claims recycling bins placed with commercial and multi-family customers to accumulate cardboard. The company delivers the recyclable materials to a recovery facility or mill for additional processing and manufacture into new products.

The sole purpose of the contianers is to remove approximately 234 tons of cardboard from landfill disposal each year.

The EQC issued 30 certificates to the applicant and five certificates to Oregon Paper Fiber; however, the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Oregon Paper Fiber
12820 NE Marx
Portland, OR 97031

7885

Waste Connection of Oregon, Inc
C Corp 93-0599115

Facility Cost		**$3,756**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$1,315

Description

550 eighteen-gallon recycling bins

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to 4,530 residential and commercial customers throughout Lane County.

The applicant claims recycling bins placed with residential customers to accumulate recyclable materials. The company delivers the recyclable materials to a recovery facility for additional processing and manufacture into new products.

The sole purpose of the bins is to remove approximately 143 tons of recyclable materials from landfill disposal each year.

The EQC issued 30 certificates to the applicant and four certificates to Curry Transfer & Recycling; however, the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Curry Transfer & Recycling
17498 Carpenterville Road
Brookings, OR 97415

7886

Waste Connection of Oregon, Inc
C Corp 93-0599115

Facility Cost		**$4,155**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$1,454

Description

90 ninety-five gallon roll carts for yard debris

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to 4,530 residential and commercial customers throughout Lane County.

The applicant claims recycling bins placed with residential customers to accumulate recyclable materials. The company delivers the recyclable materials to a recovery facility for additional processing and manufacture into new products.

The sole purpose of the bins is to remove approximately 159 tons of recyclable materials from landfill disposal each year.

The EQC issued 30 certificates to the applicant and four certificates to Curry Transfer & Recycling; however, the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Curry Transfer & Recycling
85040 Highway 101 South
Florence, OR 98661

7887

Waste Connection of Oregon, Inc
C Corp 93-0599115

Facility Cost		**$2,789**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 976

Description

480 fourteen-gallon recycling bins
18 four-yard front loading recycling containers

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to 17,714 residential and 2,199 commercial and multi-family customers in Multnomah County.

The applicant claims recycling bins placed with commercial and multi-family customers to accumulate cardboard. The company delivers the recyclable materials to a recovery facility or mill for additional processing and manufacture into new products.

The sole purpose of the containers is to remove approximately 234 tons of cardboard from landfill disposal each year.

The EQC issued 30 certificates to the applicant and five certificates to Oregon Paper Fiber; however, the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Oregon Paper Fiber
12820 NE Marx
Portland, OR 97031

7888

Waste Connection of Oregon, Inc
C Corp 93-0599115

Facility Cost		**$2,364**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 827

Description

300 eighteen-gallon recycling bins

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to 5,851 residential and commercial customers throughout Curry County.

The applicant claims recycling bins placed with residential customers to accumulate recyclable materials of fiber and metal. The company delivers the recyclable materials to a recovery facility for additional processing and manufacture into new products.

The sole purpose of the bins is to remove approximately 78 tons of recyclable materials from landfill disposal each year.

The EQC issued 30 certificates to the applicant and four certificates to Curry Transfer & Recycling; however, the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Curry Transfer & Recycling
17498 Carpenterville Road
Brookings, OR 97415

7889

Waste Connection of Oregon, Inc
C Corp 93-0599115

Facility Cost		**$1,277**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 447

Description

162 eighteen-gallon recycling bins

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to 5,851 residential and commercial customers throughout Curry County.

The applicant claims recycling bins placed with residential customers to accumulate recyclable glass. The company delivers the recyclable materials to a recovery facility for additional processing and manufacture into new products.

The sole purpose of the bins is to remove approximately 42 tons of recyclable glass from landfill disposal each year.

The EQC issued 30 certificates to the applicant and four certificates to Curry Transfer & Recycling; however, the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Curry Transfer & Recycling
17498 Carpenterville Road
Brookings, OR 97415

7892

Waste Connection of Oregon Inc
C Corp 93-0599115

Facility Cost		**$4,355**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$1,524

Description

10 one-and-a-half yard containers manufactured by Capital Industries, Inc.

Waste Connections of Oregon, Inc. provides solid waste collection and disposal services to its residential and commercial customers throughout Hood River County.

The applicant claims containers for 10 of its 1,106 commercial customers for accumulating cardboard and paper. The company collects the materials and delivers it to a material recovery facility or mill recovery center for additional processing and incorporation into resalable products.

The sole purpose of the bins is to remove approximately 49 tons of recyclable materials from landfill disposal each year.

Paid invoices document the claimed cost of the carts. The EQC has issued 30 certificates to the applicant and two to Hood River Garbage Service, Inc. but the bins do not replace a previously certified facility.

Applicant Address
35 Iron Point Circle, Suite 200
Folsom, CA 95630

Facility Address
Hood River Garbage Service, Inc.
3440 Guignard Drive
Hood River, OR 97031

7903

Miller Associated Enterprises Inc
S Corp 93-0941217

Facility Cost		**$21,224**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$7,428

Description

100 sixty-five gallon Rehrig Pacific yard debris roll carts, serial numbers Y20001-Y20100
316 sixty-five-gallon Rehrig Pacific recycling roll carts, serial numbers LAR 20001- LAR 20316

Miller Associated Enterprises, Inc. provides solid waste collection and disposal services to its 8,000 residential customers and 334 commercial customers in the City of Eugene.

The applicant claims yard debris and recycling carts to collect commingled materials that include cardboard, newspaper, junk mail, magazines, tin cans, aluminum, and plastic. The company collects and delivers the yard debris to Lane Forest Products for composting and processing to manufacture landscape materials. Recyclable materials are collected and delivered to EQCSort for additional processing to develop viable resalable products.

The sole purpose of the yard debris carts is to remove approximately 605 tons of yard waste and 397 tons of recyclable materials from landfill disposal each year.

Applicant Address
PO Box 40097
Eugene, OR 97404

Facility Address
Lane Apex Disposal service
2399 Highway 99 N
Eugene, OR 97402

References

ORS 468.155[6]

Such prevention, control or reduction required by this subsection shall be accomplished by the use of a material recovery process which obtains useful material from material that would otherwise be, hazardous waste as defined in ORS 466.005, or used oil as defined in ORS 459A.555. ORS 459.005 provides the following definition of solid waste.

> Solid Waste: All useless or discarded putrescible and non-putrescible materials, including but not limited to garbage, rubbish, refuse, ashes, paper and cardboard, sewage sludge, septic tank and cesspool pumpings or other sludge, useless or discarded commercial, industrial, demolition and construction materials, discarded or abandoned vehicles or parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semisolid materials, dead animals and infectious waste as defined in ORS 459.386. ORS 459.005(24).

OAR 340-016-0060[7]

(4) Eligible Activities. The facility shall prevent, reduce, control, or eliminate hazardous waste, solid waste and used oil. The facility shall eliminate or obtain useful material from material that would otherwise be solid waste as defined in ORS 459.005, hazardous waste as defined in ORS 466.005, or used oil as defined in ORS 468.850. The facility shall produce an end product of utilization that is an item of real economic value and is competitive with an end product produced in another state. The facility shall produce the end product by mechanical processing, chemical processing; or through the production, processing, pre-segregation, or use of materials which:

(A) Have useful chemical or physical properties which may be used for the same or other purposes; or

(B) May be used in the same kind of application as its prior use without change in identity.

[6] Definitions for ORS 468.155 to 468.190 and 468.962
[7] Eligibility

Nonpoint Source Pollution Controls

Recommendations and Eligibility Criteria

DEQ recommends the EQC approve a **$17,270** tax credits to **two** applicants that claim no-till drill systems for certification as nonpoint source (NPS) pollution control facility. The facilities are eligible for a tax credit because they meet the criteria in:

☑ ORS 468.155 (1)(a)(B), OAR 340-016-0060 (2)(a) and OAR 340-041-0006(17) – The sole purpose of the facility is to reduce a substantial quantity of NPS.

☑ ORS 468.155 (2)(b), OAR 340-016-0060 (4)(h)(B)(i) – The applicant invested in a method the EQC determined to reduce significant amounts of nonpoint source pollution supported by United States Department of Agriculture or Oregon State University research.

☑ ORS.468.170 (4)(a) – The facility satisfies the intents and purposes of ORS chapters 468A and 468B – Air and Water Pollution.

☑ ORS 468.155(3), ORS 468.170(1) and OAR 340-016-0070 – The facility cost recommended for certification represents the actual pollution control cost of the installation and does not exceed the taxpayer's (applicant) own cash investment in the facility.

☑ ORS 468.190 (3) for facilities that cost less than $50,001, ORS 468.170(1) and ORS 468.190(1) for facilities that cost over $50,000 – The applicant accurately determined and DEQ verified the percentage of the facility cost allocable to NPS pollution control.

☑ ORS 468.173(3)(c) – The maximum tax credit is 35 percent because the applicant submitted the application between January 1, 2002, and December 31, 2008, inclusively, and the certified facility is a NPS pollution control.

Reviews

7797

Bruce J Ruddenklau
Individual

Facility Cost		**$22,340**
Percentage Allocable	X	**95%**
Maximum Percentage	X	**35%**
Tax Credit		$7,428

Description

The farm grows grass seed, grain, and specialty seed crops on 800 acres. The farm owns 385 acres of which 333 are tillable and leases the remaining acres. The farm grows legumes as a rotational crop to replenish the soil. The no-till drill allows the farm to direct seed and fertilize without any tillage to minimize soil erosion, a nonpoint source pollutant.

The Yamhill Agricultural Water Quality Area Management Plan (Senate Bill 1010) identified voluntary objectives to reduce erosion and sediment delivery from agricultural land (page 21) and recommended practices such as switching from conventional tillage to no-till (page 28) to achieve this objective. The United States Department of Agriculture's Natural Resource Conservation Service (USDA NRCS) provided a letter on behalf of the applicant, "NRCS has recognized no-till as a critical management tool in reducing the identified NPS pollution from cropland (sediment and attached nutrients and pesticides) in Oregon (and locally in the Yamhill Basin)." The sole purpose of the no-till drill is to reduce a substantial amount of nonpoint source pollution as determined by the USDA NRCS and other conservation partners.

A purchase order, payment agreement, payment listing and invoices documented the claimed cost. The farm uses the no-till drill 95 percent of the time to reduce nonpoint source pollution. The EQC has not issued any Pollution Control Facilities Tax Credit certificates to the applicant.

Applicant Address
12500 SW Salt Creek Rd
Amity, OR 97101

Facility Address
Same as the applicant's address.

7818

TRICO Farms
Partnership 93-0756968

Facility Cost		**$28,120**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$9,842

Description

One John Deere model StarRire RTK no-till drill, serial number PCSR09A502992
One John Deere model 0432PC Autotrac system, serial number PC0432A114232

TRICO Farms operates a farm in Union County. The farm grows a variety of grain, grass seed, vegetables, and oilseed crops. The drill allows the dryland farm to direct seed and apply chemicals without tillage to minimize soil erosion, a source of nonpoint source pollution. The global positioning system (GPS) reduces overlapping; thereby, reducing soil disturbance and chemical application.

The Oregon State University Extension Office in Pendelton, Oregon provided a letter on behalf of the applicant stating the reduction in tillage and GPS system reduce nonpoint pollution.

Cost documentation supports the claimed faility cost. The EQC has issued an alternative to field burning certificate to the applicant. The claimed facility is not a replacement to the previously certified facility.

Applicant Address
66911 Hunter Road
Summerville, OR 97876-8128

Facility Address
Same as the applicant's address.

References

ORS 468.155[8]

(2)(a) As used in ORS 468.155 to 468.190, "pollution control facility" or "facility" includes a nonpoint source pollution control facility.

(b) As used in this subsection, "nonpoint source pollution control facility" means a facility that the Environmental Quality Commission has identified by rule as reducing or controlling significant amounts of nonpoint source pollution.

OAR 340-016-0010[9]

Nonpoint Source Pollution means pollution that comes from numerous, diverse, or widely scattered sources of pollution that together have an adverse effect on the environment. The meaning includes:

(a) The definition provided in OAR 340-041-0006(17); or

(b) Any sources of air pollution that are:

(A) Mobile sources that can move on or off roads; or

(B) Area sources.

[8] Definitions for ORS 468.155 to 468.190 and 468.962
[9] Definitions

OAR 340-016-0060[10]

(4) Eligible Activities. The facility shall prevent, reduce, control, or eliminate: … (h) Nonpoint Source Pollution. Pursuant to ORS 468.155(2)(b), the EQC has determined that the following facilities reduce or control significant amounts of nonpoint source pollution:

(A) Any facility that implements a plan, project, or strategy to reduce or control nonpoint source pollution as documented:

(i) By one or more partners listed in the Oregon Nonpoint Source Control Program Plan; or

(ii) In a federal Clean Air Act State Implementation Plan for Oregon; or

(B) Any facility effective in reducing nonpoint source pollution as documented in supporting research by:

(i) Oregon State University, Agricultural Experiment Station; or

(ii) The United States Department of Agriculture, Agriculture Research Service; or

(iii) The Oregon Department of Agriculture; or

(C) Wood chippers used to reduce openly burned woody debris; or

(D) The retrofit of diesel engines with a diesel emission control device, certified by the U.S. Environmental Protection Agency.

[10] Eligibility

Water Pollution Controls

Recommendations and Eligibility Criteria

DEQ recommends the EQC approve **$196,768** in tax credits to **22** applicants that claim systems (facilities) that control water pollution. The majority of the installed systems are separators installed in dental offices to prevent mercury from discharge to sanitary sewer systems. Each facility is eligible for a tax credit because it meets the criteria in:

☑ ORS 468.155 (1)(a) and OAR 340-016-0060 (2)(a) – The principal purpose of the facility is to reduce water pollution in response to a DEQ or federal EPA imposed condition or the sole purpose of the facility is to reduce a substantial quantity of water pollution.

☑ ORS 468.155 (1)(b)(B) – The facility accomplishes the prevention, control or reduction by disposal or elimination of industrial wastewater and the use of a treatment works for industrial waste defined in ORS 468B.005.

☑ ORS.468.170 (4)(a) – The facility satisfies the intents and purposes of ORS chapter 468B – Water Pollution.

☑ ORS 468.155(3), ORS 468.170(1) and OAR 340-016-0070 – The facility cost recommended for certification represents the actual pollution control cost of the installation and does not exceed the taxpayer's (applicant) own cash investment in the facility.

☑ ORS 468.190 (3) for facilities that cost less than $50,001, ORS 468.170(1) and ORS 468.190(1) for facilities that cost over $50,000 – The applicant accurately determined and DEQ verified the percentage of the facility cost allocable to water pollution control.

☑ ORS 468.173(3) – The maximum tax credit is 35 percent because the applicant submitted their applications between January 1, 2002, and December 31, 2008, inclusively, and the facility or the applicant met one of the conditions in the law as identified in the review.

Reviews

7498

Evraz Inc. NA
C Corp 94-0506370

Facility Cost		**$60,455**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$21,159

Description

One Grassy Stormwater Treatment Swale

Evraz, Inc. NA produces abrasion resistant and armor plates at the Heat Treat facility. Runoff from the site contains pollutants and sediments washed from roofs, paved areas, and unpaved areas. The concentration of metallic dust, petroleum, and abnormal pH water are a concern due to the proximity of the mill to the Columbia Slough. Sources of the pollutants are:

- Fugitive emissions not captured by air pollution controls in the production area; particulate matter containing various metals settles in areas around the plant.
- Scale, rust, and metals washed from plate products placed on paved and unpaved areas adjacent to the building.
- Incidental oil, gasoline, and diesel spilled from plate transport trucks.

The company constructed storm water controls consistent with City of Portland Guidance Manual criteria on the north side of the Heat Treat building. The primary and most important purpose of the controls is to collect and treat contaminated runoff in compliance with NPDES 1200-COLS storm water discharge permit. The claimed components include the grass-lined treatment swale and drains at the base of the building to direct runoff into the swale that replaced a rock-lined ditch. Two swale segments promote infiltration, and six check dams reduce flow velocity allowing suspended solids to settle.

7498 Evraz, Inc., NA continued…

Paid invoices document the eligible facility cost. The maximum tax credit is 35 percent because the applicant submitted the application prior to January 1, 2008, and the facility is located within north/northeast Portland, a designated enterprise zone at the time of certification. The EQC has issued eleven Pollution Control Facilities Tax Credit Certificates to the applicant under the previous name Oregon Steel Mills, Inc. but none to this location. The claimed facility is not a replacement of a previously certified facilities.

Applicant Address	**Facility Address**
1000 SW Broadway, Suite 2200	10400 N Swift Court
Portland, OR 97205	Portland, OR 97203

7603

Hampton Lumber Mills, Inc.
C Corp 93-0589650

Facility Cost		**$293,507**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$102,727

Description

One 75,000 cubic feet settling pond with a vegetated bioswale chamber

Hampton Lumber Mills, Inc. manufactures kiln-dried lumber at its mill located in the City of Tillamook. Log storage and scaling activities on unpaved areas create high sediment loads, total suspended solids (TSS), and floating solids in stormwater runoff.

The applicant claims a two-chambered treatment structure that includes a settling chamber with a series of baffles and a vegetated bioswale chamber. The structure has 5-feet high walls constructed of large ecology blocks secured to a concrete foundation. The 4- to 6-inch base is compacted gravel. The west log yard and roads are graded to direct runoff to the settling 60 feet by 250 feet chamber capable of retaining stormwater in excess of 458,000 gallons for approximately 44 hours in a typical 24-hour storm event. The treated water flows over the concrete separation between the two chambers into the 28 feet by 62 feet bioswale planted with phalaris arundinacea (Reed Canary Grass) to allow slow, filtered discharge to Holden Creek. Winter flooding in the City of Tillamook damaged the bioswale but the company expects the TSS to drop lower as the new vegetation grows.

Prior to installing the claimed facility, runoff flowed from the log yard and roads into a series of ditches that had the potential to discharge excess turbidity and TSS laden industrial wastewater to Holden Creek. The principal and primary purpose of the claimed facility is to reduce TSS from a range of 275-5,140 mg/l (miligrams per liter) to a range of 84-544 mg/l.

Paid invoices document the facility cost. DEQ subtracted the ineligible costs associated with the log bunks ($46,700) and city connections ($550) from the claimed cost in agreement with the applicant. The EQC has issued three Pollution Control Facilities Tax Credit Certificates to the applicant at this location. The claimed facility is not a replacement of these previously certified facilities.

Applicant Address
311 3rd Street
Tillamook, OR 97141

Facility Address
Tillamook Lumber Company
311 Third Street
Tillamook, OR 97141

7739

Drs. Howerton & Hopkins, LLC
LLC 72-1526279

Facility Cost		**$1,065**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 373

Description

One SolmeteX Hg5 mini-amalgam separator, serial number Hg5-K-17473

Applicant Address
2266 Mission Street SE
Salem, OR 97302

Facility Address
Same as the applicant's address.

7786

Stephanie R White, DMD, LLC
LLC 20-3083468

Facility Cost		**$ 892**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 312

Description

One SolmeteX model Hg5 amalgam separator, serial number K17981

Applicant Address
3095 Highway 101 N, Suite B-20
Gearhart, OR 97138

Facility Address
Same as the applicant's address.

7801

Truax Corporation
S Corp 93-0730691

Facility Cost		**$182,257**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$63,790

Description

One 20,000-gallon double-wall steel/fiberglass underground storage tanks with two compartments, 680 feet of double-wall product piping, 5 spill containment devices, automatic tank gauge system, 3 leak detectors, sumps at the dispensers and tanks, monitoring well, 2 oil/water separator, automatic shutoff valves, and tank vent risers.

Truax Corporation operates retail gas stations. The applicant claims environmental components installed at the retail fueling station identified as Facility Identification Number 6951 in Sweet Home, Oregon. The installation included the cost to decommission four tanks and install two tanks. One installed tank, a 20,000-gallon double-walled fiberglass tank, was previously installed at the applicant's station in Florence and recertified to meet the requirements of OAR 340-150-0300.

The principal purpose of the claimed components is to meet EPA standards to detect, deter, and prevent spills or unauthorized releases of petroleum and petroleum vapors.

The applicant submitted cost documentation for the claimed facility and excluded the cost of the older tank and its recertifiction and portions of the work not associated with pollution control. Additionally, the applicant accurately subtracted the standard deductions for the equivalent bare steel tank and piping, and the portion of the guage system cost associated with inventory control. The eligible facility cost is $174.31 over the claimed cost due to a calaculation error associated with invoice 3031.

The EQC has issued 54 Pollution Control Facilities Tax Credit Certificates to the applicant and its previous associations. The EQC has not certified any facilities at this location. The older tank was not certifed for tax credit purposes at the Florence location; therefore, no part of the claimed facility is a replacement facility. The applicant and DEQ calculated the percentage of the facility cost allocable to pollution control according to the standard method in OAR 340-016-0075(3). The maximum tax credit is 35 percent because the applicant submitted the application prior to January 1, 2008, and the facility cost does not exceed $200,000.

Applicant Address
4221 SW Research Way
Corvallis, OR 97333

Facility Address
Sweet Home Towne Pump
Sweet Home, OR 97386

7802

Lisa M Gitelson DMD PC
S Corp 87-0707901

Facility Cost		**$ 900**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 315

Description

One REBEC model Catch 400 amalgam separator, serial numbers J401954/J30016494-07

Applicant Address
4734 River Road North
Keizer, OR 97303

Facility Address
Same as the applicant's address.

7803

Barichello Family Dentistry PC
S Corp 83-0355787

Facility Cost		**$ 968**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 339

Description

One SolmeteX model Hg5 amalgam separtorm serial number HG5-K18168

Applicant Address
602 Monrue Street
Oregon City, OR 97045

Facility Address
Same as the applicant's address.

7804

Thomas R Housel
Sole Proprietor

Facility Cost		**$ 891**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 312

Description

One SolmeteX model Hg5 amalgam separtor, serial number 070823688772

Applicant Address
P.O Box 1488
Cave Junction, OR 97523

Facility Address
Same as the applicant's address.

7805

Raelyn N Sutton DMD PC
Sole Proprietor 930-787-063

Facility Cost		**$2,255**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 789

Description

One REBEC model REB1008 Plus amalgam separator, serial number J2002079

Applicant Address
828 N.E. A Street
Grants Pass, OR 97526

Facility Address
Same as the applicant's address.

7810

Ronald Packham	Facility Cost		**$1,635**
S Corp 93-1180698	Percentage Allocable	X	**100%**
	Maximum Percentage	X	**35%**
	Tax Credit		$ 572

Description

One SolmeteX Hg5 amalgam separator, serial number HG5-K-17809

Applicant Address
19755 SW Tualatin Valley Highway
Aloha, OR 97006

Facility Address
Same as the applicant's address.

7814

William C Underwood and Douglas C Boyd	Facility Cost		**$3,052**
LLC	Percentage Allocable	X	**100%**
	Maximum Percentage	X	**35%**
	Tax Credit		$1,068

Description

One SolmeteX model Hg5 amalgam separator, serial number HG5-HV-0245

Applicant Address
4465 SW Bernard Drive
Portland, OR 97239

Facility Address
Professional Plaza
13908 SE Stark Street
Portland, OR 97233

7823

Derek James Bevans, DMD
Sole Proprietor 93-1263787

Facility Cost		**$1,841**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 644

Description

One SolmeteX model Hg5 amalgam separator, serial number HG5-K-17951

The applicant claimed the cost of a shed that houses the amalgam separator and vacuum system. The sole and exclusive purpose of the vacuum system is not to provide pollution control. The applicant stated the amalgam separator uses 80 percent of the floor space; therefore, DEQ subtracted $144 in ineleigible cost calculated by multiplying the $720 shed cost by 20 percent of the floor space used to house vacuum system.

Applicant Address
721 Country Club Road
Eugene, OR 97401

Facility Address
Same as the applicant's address.

7824

Darryl D. Farely, DMD, PC
S Corp 46-0476225

Facility Cost		**$ 736**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 258

Description

One SolmeteX model RAMVAC Hg5 amalgam separator, serial number RVK-18417

Applicant Address
17952 SW Blanton Street
Aloha, OR 97007

Facility Address
Same as the applicant's address.

7825

Gary R Underhill DMD PC
LLC 93-0948958

Facility Cost		**$1,648**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 577

Description

One REBEC model Catch 1000 amalgam separator, serial number J1002335, J30016110-07

Applicant Address
120 South River Street
Enterprise, OR 97828

Facility Address
Same as the applicant's address.

7826

L Emery Karst DDS PC
S Corp 93-0646678

Facility Cost		**$1,700**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 595

Description

One REBEC model Catch 1000 amalgam separator, serial numberJ1001023, J30015916

Applicant Address
2510 12th Street SE
Salem, OR 97302

Facility Address
Same as the applicant's address.

7831

Michael Hazel
Sole Proprietor

Facility Cost		**$1,106**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 387

Description

One REBEC model Catch 400 amalgam separator, serial number J401920, 730016313-07

Applicant Address
6407 Skyland Drive
West Linn, OR 97068

Facility Address
Same as the applicant's address.

7890

Lillan G Harewood
LLC 20-0491605

Facility Cost		**$1,068**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 374

Description

One Rasch System 890 amalgam separator, serial number 2786, 23439

Applicant Address
833 SW 11th Avenue, Suite 525
Portland, OR 97205

Facility Address
Same as the applicant's address.

7893

Kenneth David Carneiro
Sole Proprietor 68-0499559

Facility Cost		**$1,264**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 442

Description

One SolmeteX model Hg5 amalgam separator, serial number Hg5-K18520. The applicant agree to the subtraction of $206 from the claimed cost for unrelated plumbing charges.

Applicant Address
1775 Exchange St
Astoria, OR 97103

Facility Address
Same as the applicant's address.

7894

Steven Abbott DMD
Sole Proprietor 93-1219079

Facility Cost		**$ 932**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 326

Description

One SolmeteX model HG5 amalgam separator, serial number HG5-K-18046, SC-MBX-K-58008

Applicant Address
PO Box 1346
Veneta, OR 97487

Facility Address
Same as the applicant's address.

7895

Wesley F. Rampton DMD
Sole Proprietor 93-0700311

Facility Cost		**$ 712**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 249

Description

One SolmeteX model HG5 amalgam separator, serial number HG5-K-18710

Applicant Address
190 4th Street
La Grande, OR 97850

Facility Address
Same as the applicant's address.

7896

Kevin H Wu
C Corp 93-1205454

Facility Cost		**$2,396**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 839

Description

One REBEC model REB1001 amalgam separator, serial number J20011021

Applicant Address
2201 E Barnett Road
Medford, OR 97504

Facility Address
Same as the applicant's address.

7904

Peter C Snyder DDS

Facility Cost		**$ 913**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 320

Description

One SolmeteX model HG5 amalgam separator, serial number HG5-K-17616

Applicant Address
3647 W 18th Avenue
Eugene, OR 97402

Facility Address
Same as the applicant's address.

References

ORS 468.155[11]

(1)(a) As used in ORS 468.155 to 468.190 and 468.962, unless the context requires otherwise, "pollution control facility" or "facility" means any land, structure, building, installation, excavation, machinery, equipment or device, or any addition to, reconstruction of or improvement of, land or an existing structure, building, installation, excavation, machinery, equipment or device reasonably used, erected, constructed or installed by any person if:

(A) The principal purpose of such use, erection, construction or installation is to comply with a requirement imposed by the Department of Environmental Quality, the federal Environmental Protection Agency or regional air pollution authority to prevent, control or reduce…water …pollution…; or

(B) The sole purpose of such use, erection, construction or installation is to prevent, control or reduce a substantial quantity of…water…pollution…

(1)(b) Such prevention, control or reduction required by this subsection shall be accomplished by:… (B) The disposal or elimination of or redesign to eliminate industrial waste and the use of treatment works for industrial waste as defined in ORS 468B.005 …

ORS 468B.005 provides the following pertinent definitions.

Industrial waste means any liquid, gaseous, radioactive or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade or business, or from the development or recovery of any natural resources.

Treatment works means any plant or other works used for the purpose of treating, stabilizing or holding wastes.

Wastes means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive or other substances that will or may cause pollution or tend to cause pollution of any waters of the state.

Water pollution means such alteration of the physical, chemical or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive or other

[11] Definitions for ORS 468.155 to 468.190 and 468.962

substance into any waters of the state, which will or tends to, either by itself or in connection with any other substance, create a public nuisance or which will or tends to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational or other legitimate beneficial uses or to livestock, wildlife, fish or other aquatic life or the habitat thereof.

OAR 340-016-0060(4)[12]

Eligible Activities. The facility shall prevent, reduce, control, or eliminate industrial waste. The facility shall dispose of, eliminate or be redesigned to eliminate industrial waste and the use of treatment works for industrial wastewater as defined in ORS 468B.005.

For underground storage tank systems,

(g) Spills or Unauthorized Releases. The facility shall be used to detect, defer or prevent spills or unauthorized releases. This does not include any facility installed, constructed or used for cleanup after a spill or unauthorized release has occurred…

[12] Eligibility

Attachment C

Request for Extension of Time to File an Application

The pollution control facility tax credit law provides one year from the construction completion date to submit an application for the pollution control facilities tax credit. For equipment similar to wood chippers, the EQC determined the construction completion date is the date the applicant took possession of the equipment.

The law authorizes the EQC to grant extensions of time to file an application for circumstances beyond the control of the applicant[1]. Two applicants request an extension of time to file their applications for wood chipper for certification.

Application	Applicant	Reason
7815	Steve Spence	Mr. Spence took possession of the wood chipper on February 12, 2007, and filed the application more than one year later. The applicant states he was unaware a tax credit was available for a wood chipper. **Past EQC Decisions:** The EQC consistently denies an extension of time to file an application when the taxpayer became aware of the program after the filing period expired.
2821	MC Ranch, Inc.	MC Ranch, Inc. took possession of a large forest mulcher on June 1, 2006, and filed the application more than one year later on March 14, 2008. Earlier in 2006, DEQ told the applicant they were uncertain if the EQC would certify this type of equipment as a wood chipper.

[1] "Circumstances Beyond the Control of the Applicant" means facts, conditions and circumstances which the applicant's due care and diligence would not have avoided. OAR 340-016-0010(2)

Application	Applicant	Reason
2821	MC Ranch, Inc.	continued… At the December 13-14, 2008 EQC Meeting (Agenda Item G, Attachment C), DEQ presented three similar pieces of equipment for EQC deliberation. The EQC certified the equipment after determining it serves the same purpose as the smaller wood chippers. The applicant filed the application after learning of the EQC's determination. **Past EQC Decisions:** The EQC has approved extensions of time to file an application when DEQ communications may have caused confusion.

Recommendations and Eligibility Criteria

If the EQC approves either request for an extension of time to file an application, the applications would be eligible as a subset of the nonpoint source (NPS) pollution control facility tax credit. The facilities would be eligible for a tax credit because they meet the criteria in:

- ☑ ORS 468.155 (1)(a)(B), OAR 340-016-0060 (2)(a) and OAR 340-041-0006(17) – The sole purpose of the facility is to reduce a substantial quantity of NPS.
- ☑ ORS 468.155 (2)(b), OAR 340-016-0060 (4)(h)(B)(i) – The applicant invested in a method the EQC determined to reduce significant amounts of nonpoint source pollution supported by United States Department of Agriculture or Oregon State University research.
- ☑ ORS.468.170 (4)(a) – The facility satisfies the intents and purposes of ORS chapters 468A and 468B – Air and Water Pollution.
- ☑ ORS 468.155(3), ORS 468.170(1) and OAR 340-016-0070 – The facility cost recommended for certification represents the actual pollution control cost of the installation and does not exceed the taxpayer's (applicant) own cash investment in the facility.
- ☑ ORS 468.190 (3) for facilities that cost less than $50,001, ORS 468.170(1) and ORS 468.190(1) for facilities that cost over $50,000 – The applicant accurately determined and DEQ verified the percentage of the facility cost allocable to NPS pollution control.
- ☑ ORS 468.173(3)(c) – The maximum tax credit is 35 percent because the applicant submitted the application between January 1, 2002, and December 31, 2008, inclusively, and the certified facility is a NPS pollution control.

Reviews

7815

Steve Spence
Sole Proprietor 564-66-0961

Facility Cost		**$1,679**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$ 588

Description

One Mighty Mac model 12/p wood chipper, serial number 049752

Applicant Address
1932 NW Overton
Portland, OR 97209

Facility Address
Same as the applicant's address.

7821

MC Ranch Inc
S Corp 93-1218961

Facility Cost		**$282,000**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$98,700

Description

One SuperTrak Model SK -200- TR Wood Chipper Serial Number D5G00114

Applicant Address
1001 SE Sandy Blvd
Portland, OR 97214

Facility Address
Same as the applicant's address.

References

ORS 468.165(6)

The application shall be submitted after construction of the facility is substantially completed and the facility is placed in service and within one year after construction of the facility is substantially completed[2]. Failure to file a timely application shall make the facility ineligible for tax credit certification. An application may not be considered filed until it is complete and ready for processing. The **commission may grant** an extension of time to file an application for circumstances beyond the control of the applicant[3] that would make a timely filing unreasonable. However, the period for filing an application may not be extended to a date beyond December 31, 2008.

ORS 468.155[4]

(2)(a) As used in ORS 468.155 to 468.190, "pollution control facility" or "facility" includes a nonpoint source pollution control facility.

(b) As used in this subsection, "nonpoint source pollution control facility" means a facility that the Environmental Quality Commission has identified by rule as reducing or controlling significant amounts of nonpoint source pollution.

OAR 340-016-0010[5]

Nonpoint Source Pollution means pollution that comes from numerous, diverse, or widely scattered sources of pollution that together have an adverse effect on the environment. The meaning includes:

(a) The definition provided in OAR 340-041-0006(17); or

(b) Any sources of air pollution that are:

---

[2] "Substantial Completion" means the completion of the erection, installation, modification, or construction of all elements of the claimed facility which are essential to perform its purpose. OAR 340-016-0010 (12).

[3] "Circumstances Beyond the Control of the Applicant" means facts, conditions and circumstances which the applicant's due care and diligence would not have avoided. OAR 340-016-0010(2)

[4] Definitions for ORS 468.155 to 468.190 and 468.962

[5] Definitions

(A) Mobile sources that can move on or off roads; or

(B) Area sources.

OAR 340-016-0060[6]

(4) Eligible Activities. The facility shall prevent, reduce, control, or eliminate: … (h) Nonpoint Source Pollution. Pursuant to ORS 468.155(2)(b), the EQC has determined that the following facilities reduce or control significant amounts of nonpoint source pollution:

(A) Any facility that implements a plan, project, or strategy to reduce or control nonpoint source pollution as documented:

(i) By one or more partners listed in the Oregon Nonpoint Source Control Program Plan; or

(ii) In a federal Clean Air Act State Implementation Plan for Oregon; or

(B) Any facility effective in reducing nonpoint source pollution as documented in supporting research by:

(i) Oregon State University, Agricultural Experiment Station; or

(ii) The United States Department of Agriculture, Agriculture Research Service; or

(iii) The Oregon Department of Agriculture; or

(C) Wood chippers used to reduce openly burned woody debris; or

(D) The retrofit of diesel engines with a diesel emission control device, certified by the U.S. Environmental Protection Agency.

[6] Eligibility

Attachment D
Certificate Administration

One taxpayer notified DEQ of status changes involving three Pollution Control Tax Credit Certificates.

Action	Cert. #	Background	
Reissue		On June 20, 2008, Cascade Pacific Pulp, LLC, purchased the facility and other operating assets of the Halsey pulp mill and the Halsey ClO2 plant in Chapter 7 bankruptcy proceeding with respect to Pope & Talbot Ltd., Pope & Talbot Pulp Sales U.S., Inc., and P&T Power Company. Although the operator of the certified facilities has changed, Halsey ClO2 Limited Partnership will continue to claim the credit. The new operator submitted an affidavit stating the certified facilities will continue to operate according to the conditions of the original certification. DEQ will notify the Oregon Department of Revenue of the new facility operator.	
	4530 4551 4567	Operator Address Change From: To:	 Pope & Talbot Ltd. 1500 SW First Ave, Suite 200 Portland, OR 97201 Cascade Pacific Pulp, LLC 701 East Lake Street, Suite 300 Wayzata, MN 55391

Certificate Administration References

315.304 Pollution control facilities.

(8) Upon any sale, exchange or other disposition of a facility, notice thereof shall be given to the Environmental Quality Commission who shall revoke the certification covering such facility as of the date of such disposition. Notwithstanding ORS 468.170 (4)(c), the transferee may apply for a new certificate under ORS 468.170, but the tax credit available to such transferee shall be limited to the amount of credit not claimed by the transferor. The sale, exchange or other disposition of shares in an S corporation as defined in section 1361 of the Internal Revenue Code or of a partner's interest in a partnership shall not be deemed a sale, exchange or other disposition of a facility for purposes of this subsection.

ORS 468.155 (e)(B)

(e) Replacement or reconstruction of all or a part of any facility for which a pollution control facility certificate has previously been issued under ORS 468.170, except:

...

(B) If a facility is replaced or reconstructed before the end of its useful life then the facility may be eligible for the remainder of the tax credit certified to the original facility;

468.185 Procedure to revoke certification; reinstatement.

(1) Pursuant to the procedures for a contested case under ORS chapter 183, the Environmental Quality Commission may order the revocation of the certification issued under ORS 468.170 of any pollution control or solid waste, hazardous wastes or used oil facility, if it finds that:

(a) The certification was obtained by fraud or misrepresentation; or

(b) The holder of the certificate has failed substantially to operate the facility for the purpose of, and to the extent necessary for, preventing, controlling or reducing air, water or noise pollution or solid waste, hazardous wastes or used oil as specified in such certificate.

(2) As soon as the order of revocation under this section has become final, the commission shall notify the Department of Revenue and the county assessor of the county in which the facility is located of such order.

(3) If the certification of a pollution control or solid waste, hazardous wastes or used oil facility is ordered revoked pursuant to subsection (1)(a) of this section, all prior tax relief provided to the holder of such certificate by virtue of such certificate shall be forfeited and the Department of Revenue or the proper county officers shall proceed to collect those taxes not paid by the certificate holder as a result of the tax relief provided to the holder under any provision of ORS 307.405 and 315.304.

(4) Except as provided in subsection (5) of this section, if the certification of a pollution control or solid waste, hazardous wastes or used oil facility is ordered revoked pursuant to subsection (1)(b) of this section, the certificate holder shall be denied any further relief provided under ORS 307.405 or 315.304 in connection with such facility, as the case may be, from and after the date that the order of revocation becomes final.

(5) The commission may reinstate a tax credit certification revoked under subsection (1)(b) of this section if the commission finds the facility has been brought into compliance. If the commission reinstates certification under this subsection, the commission shall notify the Department of Revenue or the county assessor of the county in which the facility is located that the tax credit certification is reinstated for the remaining period of the tax credit, less the period of revocation as determined by the commission. [Formerly 449.645; 1975 c.496 §7; 1977 c.795 §7; 1979 c.802 §7; 1987 c.596 §6]

Attachment E
Tax Expenditure Liability Report

When the Environmental Quality Commission issues a Pollution Control Facilities Tax Credit (PCTC) Certificate, the State of Oregon incurs a tax expenditure liability.

The Tax Expenditure Liability Report shows the maximum potential fiscal impact of the EQC's certification of:

- Facilities presented in this staff report,
- Facilities certified in the 2007-09 biennium and
- Wood chipper certifications sub-delegated to the Department.

The amount listed under each year is the maximum potential credit that taxpayers with certificates may use to reduce their Oregon taxes in any one year. This annual limitation is equal to the tax credit divided by the remaining useful life of the facility but no more than ten years. The remaining useful life is the useful life of the facility less the expired period between the date the applicant placed the facility into operation and the Commission approved certification.

Attachment E
Tax Expenditure Liability Report

App #	Tax Credit	Placed in Operation	UL	Remaining UL	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
7498	$ 21,159	2007	10	9		$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ -
7603	102,727	2006	10	8		12,841	12,841	12,841	12,841	12,841	12,841	12,841	12,840	0	0
7607	49,782	2007	15	10		4,978	4,978	4,978	4,978	4,978	4,978	4,978	4,978	4,978	4,980
7707	17,442	2007	10	9		1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	0
7739	373	2007	1	1		373	0	0	0	0	0	0	0	0	0
7753	12,242	2007	7	6		2,040	2,040	2,040	2,040	2,040	2,042	0	0	0	0
7770	153,129	2007	5	4		38,282	38,282	38,282	38,283	0	0	0	0	0	0
7786	312	2007	1	1		312	0	0	0	0	0	0	0	0	0
7797	7,428	2007	7	6		1,238	1,238	1,238	1,238	1,238	1,238	0	0	0	0
7801	63,790	2007	10	9		7,088	7,088	7,088	7,088	7,088	7,088	7,088	7,088	7,086	0
7802	315	2007	1	1		315	0	0	0	0	0	0	0	0	0
7803	339	2007	1	1		339	0	0	0	0	0	0	0	0	0
7804	312	2007	1	1		312	0	0	0	0	0	0	0	0	0
7805	789	2007	1	1		789	0	0	0	0	0	0	0	0	0
7806	420	2007	1	1		420	0	0	0	0	0	0	0	0	0
7810	572	2007	1	1		572	0	0	0	0	0	0	0	0	0
7814	1,068	2007	1	1		1,068	0	0	0	0	0	0	0	0	0
7815	588	2007	1	1		588	0	0	0	0	0	0	0	0	0
7817	12,979	2007	5	4		3,245	3,245	3,245	3,244	0	0	0	0	0	0
7818	9,842	2007	7	6		1,640	1,640	1,640	1,640	1,640	1,640	0	0	0	0
7821	98,700	2006	7	5		19,740	19,740	19,740	19,740	19,740	0	0	0	0	0
7823	644	2007	1	1		644	0	0	0	0	0	0	0	0	0
7824	258	2007	1	1		258	0	0	0	0	0	0	0	0	0
7825	577	2007	1	1		577	0	0	0	0	0	0	0	0	0
7826	595	2007	1	1		595	0	0	0	0	0	0	0	0	0
7827	6,449	2007	10	9		717	717	717	717	717	717	717	717	713	0
7828	6,449	2007	10	9		717	717	717	717	717	717	717	717	713	0
7829	3,033	2007	10	9		337	337	337	337	337	337	337	337	337	0
7831	387	2007	1	1		387	0	0	0	0	0	0	0	0	0
7883	3,826	2007	7	6		638	638	638	638	638	636	0	0	0	0

Attachment E
Tax Expenditure Liability Report

7884	5,124	2007	7	6		854	854	854	854	854	854	0	0	0	0
7885	1,315	2007	1	1		1,315	0	0	0	0	0	0	0	0	0
7886	1,454	2007	1	1		1,454	0	0	0	0	0	0	0	0	0
7887	976	2007	1	1		976	0	0	0	0	0	0	0	0	0
7888	827	2007	1	1		827	0	0	0	0	0	0	0	0	0
7889	447	2007	1	1		447	0	0	0	0	0	0	0	0	0
7890	374	2007	1	1		374	0	0	0	0	0	0	0	0	0
7892	1,524	2007	1	1		1,524	0	0	0	0	0	0	0	0	0
7893	442	2007	1	1		442	0	0	0	0	0	0	0	0	0
7894	326	2007	1	1		326	0	0	0	0	0	0	0	0	0
7895	249	2007	1	1		249	0	0	0	0	0	0	0	0	0
7896	839	2007	1	1		839	0	0	0	0	0	0	0	0	0
7903	7,428	2007	7	6		1,238	1,238	1,238	1,238	1,238	1,238	0	0	0	0
7904	320	2007	1	1		320	0	0	0	0	0	0	0	0	0
Aug '08	598,171				0	116,524	99,882	99,882	99,882	58,355	38,615	30,967	30,966	18,116	4,980
Apr '08	736,916				0	152,610	135,183	134,715	134,711	39,945	39,943	26,447	26,447	26,440	0
Dec '07	7,673,039				1,012,126	989,389	988,255	978,143	913,289	707,136	656,986	644,911	640,644	202,507	0
June '07	2,065,205				328,872	328,419	298,036	170,478	156,614	131,510	128,840	128,837	63,873	63,873	0
WC	636,480				152,861	206,431	141,155	85,188	27,792	22,312	370	371	0	0	0
	$11,709,811				**$1,493,859**	**$1,793,373**	**$1,662,511**	**$1,468,406**	**$1,332,288**	**$959,258**	**$864,754**	**$831,533**	**$761,930**	**$310,936**	**$4,980**

[shaded box] = Requests for Extensions of Time to File - inclusion depends on EQC Attachment C decisions

Attachment F
Certified Wood Chipper Report
January 1, 2008 through June 30, 2008

On October 4, 2002, the EQC adopted OAR 340-016-0009 to delegate its wood chipper certification authority to DEQ. The EQC requested that DEQ periodically provide a listing of wood chipper certifications.

DEQ presented the most recent Certified Wood Chipper Report to the EQC on April 21, 2008. Attachment F presents **40** wood chippers certified on May 13, 2008, for **$121,915** in tax credits.

Reference

OAR 340-016-0009[1]

For the purpose of subdelegating authority to approve and issue final certification of pollution control facilities under OAR 340-016-0080(2):

1) The Environmental Quality Commission authorizes the Director of the Department of Environmental Quality or the Director's delegate to certify wood chippers as provided in OAR 340-016-0060(4)(h)(C) if:
   a) The Department determines the facility is otherwise eligible under OAR 340-016-0060; and
   b) The claimed facility cost does not exceed $50,000 as set forth in OAR 340-016-0075(1).
2) The Department may elect to defer certification of any facility to the Environmental Quality Commission.

[1] Certification of wood chippers

3) If the Department determines the facility cost, the percentage of the facility cost allocable to pollution control, or the applicable percentage under ORS 468.173 is less than the applicant claimed on the application then the Department shall:
   a) Notify the applicant in writing; and
   b) Include a concise statement of the reasons for the proposed certification of a lesser amount or percentage; and
   c) Include a statement advising the applicant of their rights under section (4).
4) Applicants that receive a notification under section (3) may elect to defer certification to the Environmental Quality Commission by notifying the Department within 30 days of the notification date.
5) The Department shall defer certification to the Environmental Quality Commission according to sections (2) and (4).
6) The Director or the Director's delegate shall certify facilities that otherwise qualify under this rule and have not been deferred according to sections (2) or (4).

Adopted 10-4-02; effective 11-01-02

Attachment F

Certified Wood Chipper Report

January 1, 2008, through June 30, 2008

Action Date	App #	Applicant	Claimed	Certified	Difference	% Allocable	Maximum Percent	Tax Credit
13-May-08	7729	Alsea Bay Power Products	$ 11,859	$ 11,859		100%	35%	$ 4,151
13-May-08	7730	Benjamin L Jackson	$ 1,838	$ 1,838		100%	35%	$ 643
13-May-08	7731	Brien K Blankenship	$ 1,795	$ 1,795		100%	35%	$ 628
13-May-08	7734	Stephen R Holmes	$ 24,659	$ 24,659		100%	35%	$ 8,631
13-May-08	7737	Michael C Slater	$ 2,999	$ 2,999		100%	35%	$ 1,050
13-May-08	7738	Zorza Incorporated	$ 35,415	$ 35,415		100%	35%	$ 12,395
13-May-08	7740	Gary Hubler	$ 1,664	$ 1,664		100%	35%	$ 582
13-May-08	7742	Curtis Friedl	$ 956	$ 956		100%	35%	$ 335
13-May-08	7744	J Peter Foster	$ 1,756	$ 1,756		100%	35%	$ 615
13-May-08	7746	Alfred K Hillman Jr	$ 1,943	$ 1,943		100%	35%	$ 680
13-May-08	7748	James Hawley	$ 700	$ 700		100%	35%	$ 245
13-May-08	7749	Caroline Brooks	$ 600	$ 600		100%	35%	$ 210
13-May-08	7752	Veraison Vineyards LLC	$ 3,595	$ 3,595		100%	35%	$ 1,258
13-May-08	7755	Arthur FS Steele	$ 3,450	$ 3,450		100%	35%	$ 1,208
13-May-08	7757	Harrity Tree Specialist Inc	$ 35,350	$ 35,350		100%	35%	$ 12,373
13-May-08	7759	Nathan Kropf	$ 8,700	$ 8,700		100%	35%	$ 3,045
13-May-08	7765	Dennis Halm	$ 2,548	$ 2,548		100%	35%	$ 892
13-May-08	7767	Ken Schiff	$ 3,799	$ 3,799		100%	35%	$ 1,330
13-May-08	7774	Walter Kilroy	$ 599	$ 599		100%	35%	$ 210
13-May-08	7775	Brian Allen Baune	$ 1,795	$ 1,795		100%	35%	$ 628
13-May-08	7776	Amy Halloran-Steiner	$ 1,795	$ 1,795		100%	35%	$ 628
13-May-08	7777	Brad & Vickie Belknap	$ 6,650	$ 6,650		100%	35%	$ 2,328
13-May-08	7778	Donald Rowe	$ 2,506	$ 2,506		100%	35%	$ 877
13-May-08	7779	James P Gillespie	$ 1,850	$ 1,850		100%	35%	$ 648
13-May-08	7789	Todd M Hueckman	$ 28,695	$ 28,695		100%	35%	$ 10,043
13-May-08	7790	Tree-ific Arbor Care Inc	$ 25,682	$ 25,682		100%	35%	$ 8,989
13-May-08	7791	John Uno	$ 4,126	$ 3,823	-$303	100%	35%	$ 1,338
13-May-08	7792	Michael F Dunn	$ 3,900	$ 3,900		100%	35%	$ 1,365
13-May-08	7794	Charles H Almond	$ 3,700	$ 3,700		100%	35%	$ 1,295

Attachment F

Certified Wood Chipper Report

January 1, 2008, through June 30, 2008

Action Date	App #	Applicant	Claimed	Certified	% Allocable	% Allocable	Maximum Percent	Tax Credit
13-May-08	7795	Paul Raether	$ 1,760	$ 1,760		100%	35%	$ 616
13-May-08	7796	Arbor Care Inc	$ 38,214	$ 38,214		100%	35%	$ 13,375
13-May-08	7799	Nathan J Poage	$ 889	$ 889		100%	35%	$ 311
13-May-08	7807	Winegar Excavating Inc	$ 11,800	$ 11,800		100%	35%	$ 4,130
13-May-08	7811	Bottom Line LLC	$ 8,400	$ 8,400		100%	35%	$ 2,940
13-May-08	7812	Steven R Papendieck	$ 41,000	$ 41,000		100%	35%	$ 14,350
13-May-08	7813	Matthew Splonskowski	$ 1,439	$ 1,449	$10	100%	35%	$ 507
13-May-08	7816	Michael Brian	$ 3,500	$ 3,500		100%	35%	$ 1,225
13-May-08	7819	Kenneth W Perrott	$ 2,700	$ 2,700		100%	35%	$ 945
13-May-08	7822	Rick Johnson Farms LLC	$ 4,000	$ 4,000		100%	35%	$ 1,400
13-May-08	7832	Denfeld Orchards Inc	$ 9,995	$ 9,995		100%	35%	$ 3,498
40 Applications		Sum	$348,621	$348,328				$121,915

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 20, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Addendum to Agenda Item K
Action Item: Pollution Control Tax Credit Considerations
August 21-22, 2008 EQC Meeting

Purpose of this Addendum This addendum corrects applications for the Commission's Pollution Control Tax Credit consideration.

Recommendation Approve final certification of the facilities summarized in the Addendum to Attachment A and detailed in the Addendum to Attachment B.

Updated Attachments
A. Summary of Recommendations
B. Background and References for Final Certification
E. Tax Expenditure Liability Report

Approved:

Section: Maggie Vandehey

Division: Gregory K. Aldrich

Report Prepared By: Maggie Vandehey
Phone: (503) 229-6878

Attachment A

Summary of Recommendations

From Attachment B: Recommended for Approval

Tab	App #	Applicant	Claimed	Certified	Difference*	% Allocable	Max Percent	Tax Credit	EQC Action
Water	7498	Evraz Inc. NA	60,455	60,455	0	100%	35%	21,159	
Water	7603	Hampton Lumber Mills, Inc.	340,757	293,507	-47,250	100%	35%	102,727	
Air	7607	Evraz Inc. NA	142,233	159,631	0	100%	35%	55,871	Added eligible costs
Mat Rec	7707	5C, LLC	49,833	49,833	0	100%	35%	17,442	
Water	7739	Drs. Howerton & Hopkins, LLC	1,065	1,065	0	100%	35%	373	
Mat Rec	7753	McKenzie Recycling, Inc.	34,977	34,977	0	100%	35%	12,242	
Mat Rec	7770	Umpqua Bank Leasing	486,124	486,124	0	90%	35%	153,129	
Water	7786	Stephanie R White, DMD, LLC	892	892	0	100%	35%	312	
NPS	7797	Bruce J Ruddenklau	22,340	22,340	0	95%	35%	7,428	
Water	7801	Truax Corporation	182,083	182,257	174	100%	35%	63,790	
Water	7802	Lisa M Gitelson DMD PC	900	900	0	100%	35%	315	
Water	7803	Barichello Family Dentistry PC	968	968	0	100%	35%	339	
Water	7804	Thomas R Housel	891	891	0	100%	35%	312	
Water	7805	Raelyn N Sutton DMD PC	2,255	2,255	0	100%	35%	789	
HW	7806	Chris Davis	1,200	1,200	0	100%	35%	420	
Water	7810	Ronald Packham	1,635	1,635	0	100%	35%	572	
Water	7814	William C Underwood and Douglas C	3,052	3,052	0	100%	35%	1,068	
Mat Rec	7817	Safeway Inc.	37,084	37,084	0	100%	35%	12,979	
NPS	7818	TRICO Farms	28,120	28,120	0	100%	35%	9,842	
Water	7823	Derek James Bevans, DMD	1,841	1,841	0	100%	35%	644	
Water	7824	Darryl D. Farely, DMD, PC	736	736	0	100%	35%	258	
Water	7825	Gary R Underhill DMD PC	1,648	1,648	0	100%	35%	577	
Water	7826	L Emery Karst DDS PC	1,700	1,700	0	100%	35%	595	
Mat Rec	7827	Lanz Cabinet Shop, Inc.	18,425	18,425	0	100%	35%	6,449	
Mat Rec	7828	Lanz Cabinet Shop, Inc.	18,425	18,425	0	100%	35%	6,449	
Air	7829	Lanz Cabinet Shop, Inc.	8,666	8,666	0	100%	35%	3,033	
Water	7831	Michael Hazel	1,106	1,106	0	100%	35%	387	
Mat Rec	7883	Waste Connections of Oregon, Inc.	10,930	10,930	0	100%	35%	3,826	Corrected name
Mat Rec	7884	Waste Connections of Oregon, Inc	14,641	14,641	0	100%	35%	5,124	Corrected name
Mat Rec	7885	Waste Connections of Oregon, Inc	3,756	3,756	1	100%	35%	1,315	Corrected name
Mat Rec	7886	Waste Connections of Oregon, Inc	4,155	4,155	0	100%	35%	1,454	Corrected name

Attachment A

Summary of Recommendations

Tab	App #	Applicant	Claimed	Certified	Difference*	% Allocable	Max Percent	Tax Credit	EQC Action
Mat Rec	7887	Waste Connections of Oregon, Inc	2,789	2,789	0	100%	35%	976	Corrected name
Mat Rec	7888	Waste Connections of Oregon, Inc	2,364	2,364	0	100%	35%	827	Corrected name
Mat Rec	7889	Waste Connections of Oregon, Inc	1,277	1,277	0	100%	35%	447	Corrected name
Water	7890	Lillan G Harewood	1,068	1,068	0	100%	35%	374	
Mat Rec	7892	Waste Connections of Oregon Inc	4,355	4,355	0	100%	35%	1,524	Corrected name
Water	7893	Kenneth David Carneiro	1,470	1,264	-206	100%	35%	442	
Water	7894	Steven Abbott DMD	932	932	0	100%	35%	326	
Water	7895	Wesley F. Rampton DMD	712	712	0	100%	35%	249	
Water	7896	Kevin H Wu	2,396	2,396	0	100%	35%	839	
Mat Rec	7903	Miller Associated Enterprises Inc	21,224	21,224	0	100%	35%	7,428	
Water	7904	Peter C Snyder DDS	913	913	0	100%	35%	320	
42 Applications		Sum	$ 1,522,392	$ 1,492,509				$ 504,973	
		Average	$ 36,247	$ 35,536				$ 12,023	
		Minimum	$ 712	$ 712				$ 249	
		Maximum	$ 486,124	$ 486,124				$ 153,129	

= August 20, 2008 Addendum - corrections

From Attachment C: Request for Extension of Time to File

NPS	7815	Steve Spence	1,679	1,679	0	1	0	588	
NPS	7821	MC Ranch Inc	282,000	282,000	0	1	0	98,700	
2 Applications		Sum	$ 283,679	$ 283,679				$ 99,288	

From Attachment D: Certificate Administration

Action	Cert #	Transaction	From	To	
Reissue	4530	Operator Address Change	Fiber, Halsey Mill	Cascade Pacific Pulp, LLC	
Reissue	4551		1500 SW First Avenue, Suite 200	701 East Lake Street, Suite 300	
Reissue	4567		Portland, OR 97201	Wayzata, MN 55391	
3 Certificates					

* The difference is the facility cost on the application minus the facility cost DEQ recommends for certification. DEQ discussed the differences with the applicant and each applicant indicated agreement with the subtractions.

Attachment B
Background and References for Final Certifications

Recommendation

The Department of Environmental Quality (DEQ) recommends that the Environmental Quality Commission (EQC, Commission) approve **$504,973** in tax credits to **42** pollution control and material recovery facilities summarized in Attachment A and detailed in this attachment.

To make its recommendation, the Department relied on the application records, the Pollution Control Facilities Tax Credit regulations, pertinent legal advice, and previous EQC decisions and directions.

Organization of Application Reviews

The Department organized the application reviews in application ascending order behind the tabs for the following categories.

Tax Credit Type	Tab
1. Air Pollution Controls	*Air*
2. Hazardous Waste Pollution Controls	*HW*
3. Material Recovery	*Mat Rec*
4. Nonpoint Source Pollution Controls	*NPS*
5. Water Pollution Controls	*Water*

Each tab includes three sections:

1. Recommendation and Eligibility Criteria
2. Reviews
3. References

Reviews

7607

Evraz Inc. NA
C Corp 94-506370

Facility Cost		**$159,631**
Percentage Allocable	X	**100%**
Maximum Percentage	X	**35%**
Tax Credit		$55,871

Description

Two Camfil Farr Inc., model Farr Gold Series® GS8 baghouses, serial numbers 77585-A and 77585-B
One Camfil Farr Inc., model Farr Gold Series® GS16 baghouse, serial number 773393

Evraz, Inc. NA manufactures steel plate, steel coil, and American Petroleum Institute certified large diameter steel pipe used in oil/gas transmission pipelines. The new spiral weld mill has two pipe-forming lines, and a pipe-cutting table. All three areas produce smoke and metal oxide fumes.

The company claims three baghouse systems to capture very fine (10 micrograms) particulate matter (PM10) from the plasma cutting processes. Two are located inside the building on the east and west pipe-forming lines and the third is located outside the building at the pipe-cutting table. The pipe mill is not a permanent total enclosure; therefore, emissions would migrate with air movement through air vents and the large, north and south bay doors, which all remain open during the manufacturing process.

Two negatively pressured fume hoods capture particulate matter (PM10) emissions on the pipe-forming lines, and the 90 percent efficient GS8 baghouses reduce approximately 36 tons per year of PM10 emissions. The GS16 baghouse reduces approximately 18 tons per year of PM10 emissions. The applicant attaches flexible ducting on the end of pipes cut on the table, and the negative pressure from the baghouse draws the smoke and oxide fumes to the filter media. The applicant claims 90 percent PM capture efficiency.

The principal purpose of the three baghouses is to comply with the applicant's Title V Permit Number 261865 by reducing PM10 emission by approximately 54 tons per year.

7607 Evraz Inc. NA continued…

The State of Oregon has issued 11 Pollution Control Facilities Tax Credit Certificates under the applicant's previous name, Oregon Steel Mills. The of the certificates were for facilities at this location. The claimed facility does not replace a previously certified facility. The applicant and Department calculated the percentage of the facility cost allocable to pollution control according to the standard method in OAR 340-016-0075(3). The maximum tax credit is 35 percent because the applicant submitted the application prior to January 1, 2008, and the facility is located within north/northeast Portland, a designated enterprise zone at the time of certification.

Applicant Address
1000 SW Broadway, Suite 2200
Portland, OR 97205

Facility Address
14400 N Rivergate Boulevard
Portland, OR 97203

Attachment E
Tax Expenditure Liability Report

App #	Tax Credit	Placed in Operation	UL	Remaining UL	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
7498	$ 21,159	2007	10	9		$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ 2,351	$ -
7603	102,727	2006	10	8		12,841	12,841	12,841	12,841	12,841	12,841	12,841	12,840	0	0
7607	55,871	2007	15	10		5,588	5,587	5,587	5,587	5,587	5,587	5,587	5,587	5,587	5,587
7707	17,442	2007	10	9		1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	1,938	0
7739	373	2007	1	1		373	0	0	0	0	0	0	0	0	0
7753	12,242	2007	7	6		2,040	2,040	2,040	2,040	2,040	2,042	0	0	0	0
7770	153,129	2007	5	4		38,282	38,282	38,282	38,283	0	0	0	0	0	0
7786	312	2007	1	1		312	0	0	0	0	0	0	0	0	0
7797	7,428	2007	7	6		1,238	1,238	1,238	1,238	1,238	1,238	0	0	0	0
7801	63,790	2007	10	9		7,088	7,088	7,088	7,088	7,088	7,088	7,088	7,088	7,086	0
7802	315	2007	1	1		315	0	0	0	0	0	0	0	0	0
7803	339	2007	1	1		339	0	0	0	0	0	0	0	0	0
7804	312	2007	1	1		312	0	0	0	0	0	0	0	0	0
7805	789	2007	1	1		789	0	0	0	0	0	0	0	0	0
7806	420	2007	1	1		420	0	0	0	0	0	0	0	0	0
7810	572	2007	1	1		572	0	0	0	0	0	0	0	0	0
7814	1,068	2007	1	1		1,068	0	0	0	0	0	0	0	0	0
7815	588	2007	1	1		588	0	0	0	0	0	0	0	0	0
7817	12,979	2007	5	4		3,245	3,245	3,245	3,244	0	0	0	0	0	0
7818	9,842	2007	7	6		1,640	1,640	1,640	1,640	1,640	1,640	0	0	0	0
7821	98,700	2006	7	5		19,740	19,740	19,740	19,740	19,740	0	0	0	0	0
7823	644	2007	1	1		644	0	0	0	0	0	0	0	0	0
7824	258	2007	1	1		258	0	0	0	0	0	0	0	0	0
7825	577	2007	1	1		577	0	0	0	0	0	0	0	0	0
7826	595	2007	1	1		595	0	0	0	0	0	0	0	0	0
7827	6,449	2007	10	9		717	717	717	717	717	717	717	717	713	0
7828	6,449	2007	10	9		717	717	717	717	717	717	717	717	713	0
7829	3,033	2007	10	9		337	337	337	337	337	337	337	337	337	0
7831	387	2007	1	1		387	0	0	0	0	0	0	0	0	0
7883	3,826	2007	7	6		638	638	638	638	638	636	0	0	0	0

Attachment E

Tax Expenditure Liability Report

7884	5,124	2007	7	6		854	854	854	854	854	854	0	0	0	0
7885	1,315	2007	1	1		1,315	0	0	0	0	0	0	0	0	0
7886	1,454	2007	1	1		1,454	0	0	0	0	0	0	0	0	0
7887	976	2007	1	1		976	0	0	0	0	0	0	0	0	0
7888	827	2007	1	1		827	0	0	0	0	0	0	0	0	0
7889	447	2007	1	1		447	0	0	0	0	0	0	0	0	0
7890	374	2007	1	1		374	0	0	0	0	0	0	0	0	0
7892	1,524	2007	1	1		1,524	0	0	0	0	0	0	0	0	0
7893	442	2007	1	1		442	0	0	0	0	0	0	0	0	0
7894	326	2007	1	1		326	0	0	0	0	0	0	0	0	0
7895	249	2007	1	1		249	0	0	0	0	0	0	0	0	0
7896	839	2007	1	1		839	0	0	0	0	0	0	0	0	0
7903	7,428	2007	7	6		1,238	1,238	1,238	1,238	1,238	1,238	0	0	0	0
7904	320	2007	1	1		320	0	0	0	0	0	0	0	0	0
Aug '08	604,260				0	117,134	100,491	100,491	100,491	58,964	39,224	31,576	31,575	18,725	5,587
Apr '08	736,916				0	152,610	135,183	134,715	134,711	39,945	39,943	26,447	26,447	26,440	0
Dec '07	7,673,039				1,012,126	989,389	988,255	978,143	913,289	707,136	656,986	644,911	640,644	202,507	0
June '07	2,065,205				328,872	328,419	298,036	170,478	156,614	131,510	128,840	128,837	63,873	63,873	0
WC	636,480				152,861	206,431	141,155	85,188	27,792	22,312	370	371	0	0	0
	$11,715,900				**$1,493,859**	**$1,793,983**	**$1,663,120**	**$1,469,015**	**$1,332,897**	**$959,867**	**$865,363**	**$832,142**	**$762,539**	**$311,545**	**$5,587**

= Requests for Extensions of Time to File - inclusion depends on EQC Attachment C decisions

= August 20, 2008 Addendum - corrections

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 4, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director Dick Pedersen

Subject: Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting

Purpose of Item

The purpose of this agenda item is to seek approval from the Environmental Quality Commission for the chairperson to certify the Department of Environmental Quality's 2009-11 Agency Request Budget for submittal to the Department of Administrative Services by September 1, 2008. This presentation includes updates on draft legislative concepts, budget policy packages, and key issues for the base budget (non-policy package components) for 2009-11. A copy of the certification form is found in Attachment A.

Also included is an update on the reduction options that must be submitted as part of the Agency Request Budget.

Department Recommendation and Motion

DEQ recommends that the EQC authorize the chairperson to certify DEQ's 2009-11 Agency Request Budget for submittal to the Department of Administrative Services.

Background

DEQ staff presented the draft DEQ budget policy packages and legislative concepts for the 2009 legislative agenda at the June EQC meeting. The information included a listing of legislative concepts and budget policy packages, as well as a priority ranking of all budget policy packages. Staff provided an overview of key issues for the base budget. Since then, staff has refined the budget numbers and is developing the Agency Request Budget book that DEQ will submit to DAS by September 1, 2008. Attachment B is the current version of the Draft 2009 Legislative Agenda including all the policy packages and legislative concepts. There have been no significant changes since the June 2008 EQC meeting. Attachment C is an update of the draft budget overview presentation made at the June EQC meeting. These updated numbers reflect what will be included in the ARB submittal.

Ten Percent Reduction Options

Every two years the Governor is required to submit an alternative budget plan for state agencies at 90 percent of the continuing funding level for the upcoming biennium. This means that agencies must present him with reduction options equal to ten percent of their ongoing budgets for each fund type, showing where the funds would come from and explain what work would not be accomplished if the reduction(s) were taken. Historically, the main focus of this exercise has been on general fund reduction options, as general fund monies are readily transferable and can be used to fund a wide variety of work across the state.

In order to create a balanced Governor's Recommended Budget that addresses his priorities, the Governor can chose one or more reduction option and move the funding to another program within the same agency or to another agency. In addition, reductions can be used to rebalance the general fund budget when revenue forecasts indicate an impending deficit. Lottery funds are treated in a similar fashion, though state statutes place more restrictions on their use. Typically, usage restrictions on federal funds and program fees make it infeasible to move these funds from one program or agency to another.

DEQ has developed reduction options for inclusion in the ARB. Since the general fund and lottery fund reduction options are highly visible and can result in a shift in program work, this presentation will include an update on DEQ's proposed ten percent reductions and what it would mean if specific reduction options were to be taken. Attachment D lists DEQ's proposed reduction options in priority order, meaning that reduction option number one is being offered to be taken first, if any reductions need to be taken.

EQC Involvement

At each of the 2008 EQC meetings, DEQ plans to bring updates and seek the EQC's input on the development of the 2009 legislative concepts, budget policy packages and the base budget.

The August meeting will allow the EQC a last chance to review and comment on the budget request before DEQ formally submits it to DAS on September 1, 2008. The EQC chairperson must certify the ARB before DEQ submits it to DAS.

Attachments

A. DEQ 2009-11 Agency Request Budget Certification form
B. Draft 2009 Legislative Agenda
C. Updated 2009-11 Budget Overview
D. Ten Percent Reduction Options (ORS 291.216) – General Fund and Lottery Fund

Approved:

Section: Gregory K. Aldrich

Report Prepared By: Gregory K. Aldrich

Phone: (503) 229-6345

CERTIFICATION

I hereby certify that the accompanying summary and detailed statements are true and correct to the best of my knowledge and belief and that the arithmetic accuracy of all numerical information has been verified.

Department of Environmental Quality	811 SW 6th Avenue, Portland, OR 97204
AGENCY NAME	**AGENCY ADDRESS**
	Chair, Environmental Quality Commission
SIGNATURE	**TITLE**

Notice: Requests of those agencies headed by a board or commission must be approved by those bodies of official action and signed by the board or commission chairperson. The requests of other agencies must be approved and signed by the agency director or administrator.

X Agency Request ____ Governor's Recommended ____ Legislatively Adopted Budget Page ____

Draft 2009 Legislative Agenda
Policy Package Priority Rankings

PKG NO	Package Title	New Ranking	Limitation	FTE	GENERAL	OTHER	FEDERAL	Notes
110	Climate Change: Greenhouse Gas Reduction	1	2,349,229	10.50	919,561	1,429,668		
128	Clean Water Plan Implementation	2	1,153,039	5.00	1,153,039			
113	Maintain Streamlined Vehicle Inspection	3	3,505,420	17.63		3,505,420		
121	Ongoing Implementation of Senate Bill 737	4	494,496	2.00	316,179	178,317		
132	Producer Responsibility for Waste Products	5	281,264	1.83		281,264		
153	Toxic Chemical Reduction	6	484,588	2.50	484,588			
122	Water Quality Program Support	7	714,981	2.00	714,981			
140	Information Management Infrastructure	8	1,568,128	7.00		1,568,128		
152	Public Access to Environmental Information	9	1,327,471	6.00	1,327,471			
129	Pesticide Stewardship Partnerships	10	1,021,863	5.00	1,021,863			
150	Environmental Information Exchange Network	11	670,224	3.50	98,979		571,245	
111	Heat Smart for Clean Air	12	489,604	0.25	89,604	400,000		
161	Water Quality Program Enhancement	13	963,822	5.00	963,822			
157	Compliance & Enforcement Data Management	14	197,957	1.00	197,957			
117	Field Burning and Smoke Management	15	345,366	2.00	345,366			
133	Orphan Site Cleanup Operations & Maintenance	16	1,500,000		1,500,000			
154	Environmental Crimes Prosecution	17	169,000		169,000			
166	Restore Onsite Septic System Program	18	528,245	2.50		528,245		
127	Water Quality 401 Project Certification	19	515,131	2.90		515,131		
151	E-Commerce	20	207,587	1.00	207,587			
115	Air Quality Monitoring & Analysis	21	2,056,802	8.00	2,056,802			
131	Emergency Preparedness and Response	22	362,038	2.00	253,033	109,005		
119	Complete Title V Staffing Phase-in	23	179,464	1.00		179,464		
413	Monitoring for Climate Change	24	994,017	2.00	994,017			
114	Implement New Federal Air Toxics Requirements	25	883,293	6.00		883,293		
141	Human Resource Service Delivery	26	351,015	2.00		351,015		
181	Clean Water SRF - Loans & Bonds	27	30,060,000			30,060,000		Non-Limited Budget
191	Clean Water SRF - Debt Service	27	10,020,000			10,020,000		Non-Limited Budget
134	Electronics Recycling Law Implementation	28	8,220,000			8,220,000		
155	Environmental Enforcement Enhancement	29	210,156	1.00	210,156			
124	Clean Water State Revolving Fund Program	30	665,761	4.00		665,761		
123	Drinking Water Protection	31	1,097,165	5.50		1,097,165		
156	Environmental Crimes Investigation	32	230,000		230,000			
162	Water Quality Review for ASR Projects	33	196,471	1.00	196,471			
116	Clean-Air Transportation Collaboration	34	717,530	4.00		717,530		
126	Coastal Beach Bacteria Monitoring	35	218,297	1.25		218,297		
125	Marine Reserves	36	700,613	2.00	700,613			
163	Wave Energy	37	170,677		170,677			
118	Air Quality Assistance to Agriculture	38	172,683	1.00	172,683			
	TOTAL POLICY PACKAGES		75,993,397	118.36	14,494,449	60,927,703	571,245	

Item L Certification August 21-22, 2008 Attachment B Name	of 2009-11 Agency Request Budget EQC Meeting Problem Statement	**DRAFT 2009 LEGISLATIVE AGENDA** **Combined Policy Packages and Leg Concepts** Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
Climate Change Theme								
110 Climate Change: Greenhouse Gas Reduction (PP, LC 998)	HB 3543 established state Greenhouse Gas (GHG) reduction goals to address severe environmental, health and economic impacts of global warming. The Governor has joined the Western Climate Initiative - which is developing a cap and trade program to reduce GHG emissions - and has asked the Environmental Quality Commission (EQC) to adopt GHG reporting rules as a next step.	The DEQ LC will provide authority for EQC to adopt a cap and trade program, fill gaps in EQC's authority to require GHG emission reporting, add fees to fund the cap and trade and reporting work, and add authority to adopt other GHG emission reduction measures and incentives. While the package requests 10.5 FTE in total, the GF portion is 3.0 FTE. GF would support a manager for the Climate Change section, 1 FTE for GHG reduction planning (beyond cap and trade) and a policy analyst to work with EPA, regional, national and international organizations on policies to meet GHG reduction goals. The GF request would also include funding for dues to the Western Climate Initiative (WCI) and The Climate Registry (TCR) $50-$100K, contract dollars for database development $250K, DOJ resources $50K and $115 K to support similar activities for LRAPA.		10.5 (inc WQ & LQ FTE)	7.5 OF, 3.0 GF	GF - $920K, OF - $1,430K	GF/ OF	HQ: .5 NRS2, 3 NRS3, 1 NRS4, 1 OS2, 2 NRS2, 1 ISS4, 1 OPA4, 1 PEME
162- Water Quality Review for ASR Projects	Intensive water use in the Umatilla Basin, primarily for high value agriculture, has led to serious depletion of the deep basalt aquifers and declines in water quality in the shallow alluvial aquifers. This area has been declared a Critical Groundwater Area by WRD and is a Groundwater Management Area (established by DEQ). Proposals for Aquifer Storage and Recovery projects are being developed. More resources are needed to fully engage in the proactive regional planning of these projects.	The purpose of this package is to allow DEQ to work with WRD, agricultural and other stakeholders to ensure that future ASR and AR projects don't result in further degradation of shallow groundwater quality, but rather restore water quantity in depleted deep aquifers while simultaneously improving shallow aquifer quality.		1	1	GF - $196K	GF	ER: NRS3
LC 1001 Bottle Bill Changes (LC Only)	The task force is currently meeting to discuss further changes to the bottle bill law. Those issues include whether the statute should be expanded for additional items, the amount of the redemption, whether recycling should occur at retail locations or some other place, etc. Given the visibility of this law, DEQ should have a legislative "placeholder" for the 2009 session.	Placeholder for possible 2009 legislation.					TBD	

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
Toxics Theme								
121- Ongoing Implementation of Senate Bill 737 (PP)	SB 737, among other elements, requires Oregon's 52 large municipal wastewater treatment plants to develop plans by 2011 to reduce persistent pollutants through pollution prevention and toxics reduction. Through the fiscal impact statement of SB 737, DEQ told the 2007 Legislature and stakeholders that we would need to ask for additional resources during the 2009 Legislative session to support the ongoing work and associated Department of Justice costs for this program. In addition, this package will also include restoration funds to cover the work in year two (July 2009-June 2010) of the project to develop a report to the Legislature on Oregon's priority persistent pollutants that the fees will not cover due to increase in costs.	The purpose of this package is to be able to fully implement SB 737 and cover the cost of project Attorney General costs. DEQ will need a permanent position to conduct the following ongoing work: • Rulemaking • Responding to public inquiries and requests for documents and information about permits and persistent pollutants. • Assisting permit writers in reviewing plans submitted by permittees during the permit renewal or issuance process and incorporating the plans into permits. • Adopting a schedule, developing persistent pollutant report updates, and updating the priority list of persistent pollutants. This will include regular informational updates to the EQC and reporting to the legislature on a schedule to be developed by DEQ. This position will have to consult with interested parties and may lead advisory committees. □ $30,000 of projected Attorney Generals costs. • A General Fund "restoration" that covers the increased costs of the LD positions that the surcharge will be short by. Note: The 2 LP positions are not funded by GF but by the surcharge.		1 PF + 2 LD/Part Time	2	GF - $316K; OF - $178K	GF (LD positions are from OF & GF)	HQ: 1 NRS4, 2 LP NRS4
132 - Producer Responsibility for Waste Products (PP, LC 888)	Some products have unique waste management challenges. They contain toxics or multiple materials, making them costly and difficult to recycle or safely dispose of in the traditional waste management system. As a result, the public lacks convenient and safe recycling or disposal options. This increases the risk of mismanagement and human health / environment impacts. Finally, where these products are handled through the current system, local governments and ratepayers bear the fiscal burden.	The legislative concept requires that manufacturers rather than local governments manage specified products so as to enhance the opportunities for recycling or safe disposal. Under this proposal, the Legislature would define the statutory criteria and stakeholder process for DEQ to use to identify the appropriate products or product categories. The EQC would make the final determination on any staff recommendations based on the statutory criteria. Specified products could not be sold unless DEQ approved the manufacturer's plan for the collection, recycling or safe disposal of these products. Initially, existing funding would used to set up the program and support 2 FTEs (i.e., one program lead and one supporting position). Later, manufacturer fees could provide the necessary funding. This proposal could be coupled with pharmaceutical "take-back" legislation currently under discussion.		1.83	1.83	OF - $281K	OF (existing fees)	HQ - 1 NRS3, 1 PA1

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
153 - Toxic Chemical Reduction (PP)	Current programs do not address all aspects of toxics control, including the lack of information, the fact that toxics are not "point source" pollutants and thus spread in a diffuse manner, and the significant volume of chemicals entering the marketplace. While all of DEQ's major programs address toxics, there is no agency-wide approach as DEQ lacks the resources to integrate toxics reduction actions across all environmental media (air, water, land). Finally, there are no resources to implement an "upstream" strategy to fill the gaps in the existing regulatory system.	This package proposes to develop and implement an integrated, cross-media toxics reduction strategy with an emphasis on "upstream" measures. One FTE would work to integrate, enhance and prioritize existing toxics reduction efforts (e.g., SB 737, Portland Air Toxics Reduction Plan, etc.). This position would also coordinate DEQ activities with other state agencies and stakeholders. A second FTE would develop and implement an "upstream" strategy to fill the gaps in the current regulatory approaches to toxics. This strategy would likely encompass the following measures to reduce the toxicity of chemicals, fuels, and products used in Oregon: toxic chemical information and data disclosure; evaluation and prioritization of toxics; research and promotion of alternatives; and development of regulatory controls. Upon completion of the "upstream" strategy, the 0.5 FTE would assist in implementation.		2.5	2.5	GF - $485K	GF	HQ - 1 NRS4, 2 NRS2s
129- Pesticide Stewardship Partnerships (PP)	In 2000, DEQ and other organizations initiated a Pesticide Stewardship Partnership project, designed to use surface water monitoring data to focus the implementation of voluntary best management practices. This collaborative approach resulted in decreases in average pesticide concentrations over time. Due to the success of the Hood River project, PSPs were launched in five other watersheds in the state. There is growing interest in expanding the PSPs to include more watersheds, pesticides and land uses. However, all of the current projects are funded by small, competitive grants, and a more stable source funding is needed to maintain and expand the projects.	This proposed package would support DEQ's efforts by providing stable resources to implement the following activities: • Collect surface water samples in the 5 watersheds where PSPs are now operating and add 3 new watersheds: 1 focus on surface water, 1 focus groundwater, and the other to target an area that will likely have both surface and groundwater concerns. • Conduct laboratory analyses for an expanded list of pesticides that includes a range of herbicides, insecticides, and fungicides that are commonly used in the selected watersheds. • Interpret and evaluate pesticide data, and develop reports, presentations and outreach materials that facilitate the effective communication of the data results to local stakeholders. • Evaluate and propose best management practices for pesticide users in specific watersheds that are designed to reduce pesticide drift, runoff or toxicity.		5	5	GF - $1,022K	GF	Lab: 1 NRS4, 1 NRS2; 1 Chem1; and 1 Chem3 HQ: 1 NRS3
129 - Continued		• Coordinate and implement outreach and technical assistance activities for pesticide users that lead to the reduction of pesticide concentrations. • Provide appropriate level of Quality Assurance for all surface and groundwater samples taken • Fund 4 Pesticide Collection Events ($80,000). Note: OSU Extension has a related a policy package that is a companion to this package.						

Item L Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment B

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
111 Heat Smart for Clean Air Program(PP, LC 382)	Residential heating with old, uncertified woodstoves releases fine particles and air toxics such as benzene that contribute to a myriad of human health effects. Heat Smart is a critical component of plans to meet and maintain the federal fine particulate standard and meet state air toxics benchmarks.	The LC will establish a grant and loan program to remove old, uncertified woodstoves and replace them with new, cleaner alternatives, require the removal of uncertified woodstoves upon home sale and provide authority for the EQC to update Oregon woodstove standards. Policy package/bill fiscal requests GF for .5 FTE phased-in to implement grant program and $50K to get the grant fund started. The balance of the grant funding, approx $400K would come from open burning and asbestos penalties.		0.25	.25 GF	GF- $90K, OF - $400K	GF & OF	HQ: .5 (phase-in) PA 2
117 Field Burning & Smoke Management (PP, LC 1000)	Reducing burning is a key strategy to improve air quality in Oregon.	The LC will phase down field burning in the Willamette Valley over several years as new alternatives to burning (such as use of grass straw for fuel or power) are developed. The LC will include a process for EQC to allow more acres to be burned than otherwise permitted in a given year upon a demonstration that viable alternatives are not yet available. The LC would also direct DEQ to provide support and coordination for open burning and smoke management programs. Bill fiscal/policy package adds 2 FTE for the coordination function.		2.0	2.0	GF - $345K	GF	HQ: 2 NRS2
131 - Emergency Preparedness and Response (PP)	Currently, DEQ lacks a local presence in each region to engage local governments and other stakeholders in the necessary planning and coordination for effective emergency preparedness. Additionally, the existing DEQ staff available for emergency response has limited capacity for regional outreach.	This policy package improves DEQ's emergency preparedness by adding 2 FTEs to DEQ's regional offices, allowing them to develop relationships with local governments and key stakeholders. Such outreach, training and coordination is essential to effective catastrophic planning and maintaining a high degree of readiness. This package also improves DEQ's emergency response to oil and hazardous substance spills by adding back-up State-on-Scene Coordinators in each region. Funding for these positions would be allocated 2/3 from GF and 1/3 from Hazardous Substance Remedial Action Fund (HSRAF) monies. HSRAF, however, may be legally used for only a portion of these costs.		2	2	GF- $253K; OF - $109K	GF / OF (existing fees)	NWR, WR - 1 NRS3 each
118 Air Quality Assistance to Agriculture (PP)	SB 235 established a Dairy Task Force, which may make recommendations for legislation or funding related to dairies.	DEQ's policy package would add an agricultural emissions and control technology expert to support DEQ work.		1.0	1.0	GF - $173K	GF	ER: 1 NRS2
LC 999 Diesel emission reductions (LC only)	Diesel engine exhaust is one of the most prevalent toxic air pollutants in Oregon, and contributes significantly to fine particulate pollution, regional haze, smog and global warming.	LC will add authorities to prevent dumping of high-emitting engines from other states into Oregon (high emitting trucks and equipment that can not be used in California). Rules would be developed in 2009-2011 by existing staff, and implementation would be delayed at least two years as required by the CAA. Implementation would not occur until 2013-2015.						

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
Water Theme								
128- Clean Water Plan Implementation (PP)	Nonpoint source pollution is a major water quality problem in OR. DEQ does not have the resources needed to have a collaborative and comprehensive program that works with stakeholders and other agencies needed to effectively and efficiently reduce nonpoint source pollution. In addition, the federal 106 grant appropriation for Oregon is expected to remain flat while our costs have increased.	The purpose of this proposal is to: • Restore the existing TMDL position that is unaffordable in 2009-2011. • Increase staff resources for TMDL implementation and nonpoint source pollution control in Eastern Region for surface and ground water (quality and quantity). • Increase staff resources to evaluate the effectiveness restoration and protection strategies to help stakeholders identify what does and does not work at the project and programmatic levels for restoring and protecting water quality. • Increase staff resources for statewide nonpoint source program coordination and consistency. • Assess success of nonpoint source work and opportunities for additional water quality improvement from all land uses, forestry, urban and agricultural. • Provide stable funding to maintain and operate two mercury wet deposition monitoring stations which will provide data for the Willamette Mercury TMDL ($96,000).	2	3	5	GF- $1,153K	GF	ER: 2 NRS3, NWR: 1 NRS3 HQ: 1 NRS3 Lab: 1 NRS3
122- Water Quality Program Support (PP)	The WQ program is currently involved in at least 17 separate legal cases and needs help managing all of it and coordinating all of the rulemakings the program is involved in. The WQ program also needs a full-time Deputy to ensure that internal and external needs are met.	The purpose of this package is to ensure that all of the WQ program's internal and external needs are met, that our rulemaking process is done as efficiently and accurately as possible, and that all of our legal issues are managed and coordinated appropriately. The WQ Administrator needs more time working strategically within DEQ, with other state, local and federal agencies, the regulated community and special interest groups; and promoting awareness of environmental issues and division programs to the public and the regulated community. The deputy will provide oversight for division operations, including internal systems and infrastructure, which will facilitate program integration and communication between policy (headquarters), implementation (regions) and monitoring (laboratory); and will facilitate progress on major WQ projects and initiatives. This package will also include an additional $250,000 for Attorney General costs.		2	2	GF - $715K	GF	HQ: 1 OPA4, 1 OPA3

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
161- Water Quality Program Enhancement (PP)	The goal of High Priority Outcome 5 is to adopt a Water Quality Strategic Plan for Infrastructure to guide investments to support well-developed and maintained data systems to provide easier, faster access to information.	This proposal will provide the technology resources necessary to improve work methods and make current, accurate information easily accessible to DEQ staff as well as the public. The result will be to: • Necessary upgrades to the UIC, Onsite and SIS Databases (other priorities will follow when these projects are complete). • Initial implementation of the e-Discharge Monitoring Report project (will be a pilot). • Provide necessary resources to fully support WQ's projects in BSD. • Provide dedicated resources for the Water Quality program to develop and maintain tools to conduct water quality assessments for the 303 (d) list, 305 (b) list and use in the TMDL, nonpoint source and permit programs.		5	5	GF - $964K	GF	HQ: 2 ISS4, 1 NRS3, 1 ISS7, Lab: 1 ISS4
133 - Orphan Site Cleanup Operations & Maintenance (PP)	O&M costs impose a significant and recurring commitment upon limited orphan site cleanup funds. Typically, O&M costs are paid by bond financing, thereby reducing the dollars actually available for cleanup.	This policy package requests General Funds to pay O&M costs associated with orphan site cleanup projects. In 2007, the Legislature authorized a $4.5M bond sale -- an amount insufficient to pay O&M expenses and to continue already-in-progress site work and cleanup in 2009-11. This package would request a $1.5M appropriation to cover the expected O&M expenses for 2009-11.			N/A	$1,500K	GF	N/A
166- Restore Onsite Septic System Program	Fee revenue for this program has declined because: Douglas County took over the onsite program, reducing revenue by the equivalent of >2.0 FTE; and the slow economy is projected to have an adverse effect on fee revenue.	The purpose of this package is to restore the existing positions that we cannot afford for the 2009-11 Biennium. The WQ Program expects to have 4-5 FTE that will be unaffordable next biennium.	2.5		2.5	OF- $528K	OF/ Fees	WR: 1 NRS3, 1 EE2 ER: 1 NRS3
127- Water Quality 401 Project Certification (PP, LC 1002)	The 401 Water Quality Certification program is a statewide program that is funded partially by general fund (1FTE) and partially by fees (.75 FTE.) Currently, some applicants (approximately 52%) under the program are exempt from fees. DEQ is working with an advisory committee on a new fee structure that would assess fees for all projects that require a 401 Certification for removal/fill projects. To change the fee structure, we will have to modify/eliminate the existing statutory exemptions.	This proposal includes fully funding existing positions and adding an additional 1.5 FTE for a total of 3.5 FTE plus manager time and funds for needed Information Technology work. Approval of the fee increase will allow us to better protect water quality in the state and provide increased assistance to guide applicants through the 401 certification process through: • Timely review of all project proposals. • Increased participation in pre-application meetings. • Development of guidance documents. • Participation in the state streamlining efforts. • Coordination and integration of other DEQ program requirements when appropriate. • Increase customer service and efficiency.	1.9	1	2.9	OF- $515K	OF/ Fees	WR : 1 NRS2 NWR: 1 NRS2, 1 NRS4, 1 AS1

Item L Certification of 2009-11 Agency Request Budget August 21-22, 2008 EQC Meeting Attachment B Name	Problem Statement	**DRAFT 2009 LEGISLATIVE AGENDA** **Combined Policy Packages and Leg Concepts** Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
123- Drinking Water Protection (PP)	Safe drinking water is important for citizens in Oregon. There are over 3600 public water systems in Oregon that serve 3 million people. Protecting sources of drinking water – rivers, lakes and underground sources – protects people's health and minimizes the treatment costs. DEQ has worked in partnership with the Oregon Department of Human Services (DHS) since 1997 to help communities protect their drinking water sources.	This package continues federally-funded limited duration positions to help carry out the requirements of the 1996 Federal Safe Drinking Water Act Amendments (SDWA) and assist communities with protecting their public water sources.		5.5 LD	5.5 LD	FF (as OF) - $1,097K	FF (as OF)	HQ: 2 NRS4, 1 NRS3, 1 ISS6 WR: 1 NRS3 Lab: 0.50 Chem 2
163- Wave Energy (PP)	DEQ is involved in settlement discussions for wave energy projects that are unfunded.	This package will provide the resources to cover the work and Attorney General costs associated with the various proposed wave energy projects in Oregon.		0	0	GF - $171K	GF	N/A

Item L Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment B

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
Agency Infrastructure Theme								
140 Information Management Infrastructure (PP)	DEQ's growing demands for modern electronic systems, information asset security, and quick access to information require strategic, integrated planning & agile systems. Management capacity, current systems and related software are inadequate to support e-commerce and public access to data, LAN administrator positions are incomplete, administrative policies are out of date.	Request Chief Information Officer, Information Services Manager, restore GIS services; improve servers, expand system bandwidth & information storage capacity; LAN administrator positions; position for policy coordination & operational work.		7	7	$1,568K	Indirect	HQ / regions: 1 PEM F, 1 PEM D, 3 ISS4, 1 FOS 2, 1 OPA 3
152 Public Access to Environmental Information (PP)	DEQ is facing and will continue to face increasing demand to provide more and better environmental information to the public via the internet. DEQ's effort to date has been funded by squeezing existing resources but we lack the capacity to make the considerable changes being demanded. Among these is to convert raw environmental data and scientific reports into easy-to-understand formats, improve upon system limitations to provide reliable, easy access via the internet, and provide permits on line.	The purpose of this package is to provide additional staff and funds to develop the infrastructure and architecture to make significant improvements to DEQ's external web site and the quality of information provided, including easy-to understand explanations of scientific information and interactive maps and graphics depicting air and water quality permitted and monitoring and results. These improvements will require extracting data, producing reports, editing scientific reports into layperson terms, Graphics/GIS specialists to visually represent data, web improvements to support easy public access. The package includes contract money & one supporting analyst to enhance the DEQ Facility Profiler (long overdue), extending the breadth of information provided, as demanded by the public, including facility-associated permits, compliance, and enforcement information. Also adds 1 FTE per program (3 total) as dedicated full-time web technicians.		6	6	GF - $1,327K	GF	HQ, Lab, Divisions: 1 ISS5, 1 scientific editor, I graphic artist, 3 web tech
150 Environmental Information Exchange Network (PP)	EPA grants continue to fund the work to develop the infrastructure to meet EPA's new reporting requirements, and the network requires permanent operations and maintenance support.	Begin next round of EPA funded grant work on Environmental Information Exchange Network (add electronic Discharge Monitoring Reports, Global Climate Change Registry) and fund operations and maintenance of Exchange Network services.		1.5	3.5	GF - $99K, FF - $571K	3 FTE FF 0.5 FTE GF	HQ: 0.5 ISS5
151 E-Commerce (PP)	Presently the extent of our online permitting options includes the ability to download forms that must be filled out and mailed in.	In 0911 we can begin to develop online permitting/licensing applications that would allow an applicant to submit or complete an application online, pay fees, and receive timely verification of receipt & approval. Start with simpler licenses and permits and work toward more complex permits in following biennia. Also complete development work of consolidated on-line invoicing.		1	1	GF - $208K	GF	HQ: ISS 6

Item L Certification August 21-22, 2008 Attachment B Name	of 2009-11 Agency Request Budget EQC Meeting Problem Statement	**DRAFT 2009 LEGISLATIVE AGENDA** **Combined Policy Packages and Leg Concepts** Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
141 Human Resources Service Delivery (PP)	HR needs of regional offices are not adequately served, current HR capacity does not allow for focus on regional labor relations; NRS series class review will result in significant class & comp work .	Add 1 HR professional staff to better serve the regional offices on labor relations & an LD to handle class & comp work that will result from DAS class study.		2	2	$351K	Indirect	HQ: 1 HRA3, 1 HRA2 (LD)
124- Clean Water State Revolving Fund Program (PP)	The Environmental Protection Agency requires the Clean Water State Revolving Fund (CWSRF) program to complete a State Environmental Review process for all projects that receive a CWSRF loan. The new process of conducting reviews for all projects in a consistent manor is additional work for the SRF Program. In addition, there are many small communities in Oregon that need assistance with planning for necessary water and wastewater infrastructure projects.	The purpose of this package is to ensure there are adequate resources to complete the required Environmental Review for all new SRF projects. Additionally, this package will include technical positions to assist municipalities regarding water and wastewater infrastructure and opportunities for reducing their carbon footprints, work associated with the required EPA Clean Watershed Needs Survey, and additional "marketing" of the SRF program that EPA has suggested.		4	4	OF - $666K	OF/ SRF Administrative Account	HQ: 1 OPA1, 2 EE2, 1 PA2

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
Monitoring and Assessment Theme								
115 Air Quality Monitoring and Analysis (PP)	Current air quality monitoring resources are inadequate to meet the needs created by new federal standards and increasing concern about health risks from toxic air pollution. These needs include: determining compliance with standards, assessing health risks, developing and implementing strategies to reduce health risks, and providing information to the public.	Policy package requests new resources that would add air toxics sites, provide for additional data analysis, add fine particulate sites and ozone sites. Resources would support the following work in priority order: an air toxics site - yr 1 St. Helens, yr 2 The Dalles; a position for data analysis, interpretation and presentation; 2 portable PM 2.5 monitors with Ontario, Prineville, St. Helens and Newberg as most likely initial locations; 1 mobile ozone monitor; mobile CAFO fence-line monitor; an air toxics site - yr 1 K. Falls, yr 2 Toledo; fixed ozone site, a second mobile CAFO fence-line monitor; add a real-time VOC monitor to a toxics site; an air toxics site - yr 1 Newberg, yr 2 Springfield or Hermiston; 2 PM 2.5 speciation sites with Burns, Lakeview or Hillsboro as possible locations; ozone site with Hermiston, Ontario or southern Willamette Valley as possible locations. Capital needs total $355K.		8.0	8.0	GF $2,057K	GF	Lab: 4 NRS1, 2 NRS3, 2 Chem3
413- Monitoring for Climate Change (PP)	DEQ has maintained an ambient monitoring network for conventional pollutants for over 40 years. DEQ, ODF and ODA receive many questions regarding the quality of waters in various land use types. These questions cannot be answered with the information from the current ambient network. Additionally, effectiveness monitoring for the Forest Practice Act Riparian Rules, Senate Bill 1010 and TMDL implementation plans has not occurred, though these programs have been in place for years. To do this efficiently, effectively and consistently, Oregon needs a collaborative interagency effort to monitoring high level indicators across the state. In addition, during the 07-09 bienium, DEQ has not been able to fulfill the cooperative work agreement with the Oregon Department of Fish and Wildlife to implement monitoring activities in compliance with the Coastal Coho Conservation Plan.	The purpose of this proposal is to enhance the existing Oregon Plan monitoring program to additional watersheds in the state and to provide resources for DEQ to meet the agreement with ODFW for the monitoring and analysis work in the Coastal Coho areas. In addition, DEQ will be able to increase the number of ambient monitoring sites primarily in agricultural areas by 21 and primarily in private forested areas by 21. This information will help us further understand the quality of rivers and streams in these land use types. Additionally, the data will include reference sites to allow DEQ to track climate change impacts to Oregon's waterways.This package includes a $94,000 contract for analysis of samples and $20,000 of equipment.		2 PF +12 Seasonal temps	2 PF +12 Seasonal Temps	GF- $994K	GF	Lab: 2 NRS1, 2 NRS1 temps, 3 Chem 1 temps

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
126- Coastal Beach Bacteria Monitoring (PP)	The Beach Act authorized EPA grants to states and tribes to help develop and implement beach monitoring programs. If states or tribes don't implement a beach monitoring program, the EPA must take over.	This package continues the work we do to monitor beaches in Oregon. This package will increase by .2 FTE from the 2007-09 budget to help out during the busy monitoring times.		1.25 LD	1.25 LD	FF (as OF) - $218K	FF (as OF)	Lab: 1 NRS2, 1 NRS1 (0.2 FTE)
125- Marine Reserves (PP)	The Governor has committed to establishing a limited system of less than ten marine reserves off the Oregon Coast and to ensuring adequate resources be allocated for the scientific assessment of Marine Reserves. To do the requested work, DEQ needs additional resources to conduct monitoring and assessment of the new Marine reserves, to do necessary rule revisions, and provide technical information regarding proposed marine reserves.	The purpose of this proposal is to ensure DEQ has adequate resources dedicated to participate in the selection of the size, scope, and location of the proposed marine reserves and the implementation of those. DEQ will use these resources to monitor water quality, toxics in fish tissue and benthic in-fauna as a biological community condition indicator in the nominated and adopted Marine Reserves, to establish baseline trends over time and identify environmental stressors to the marine organisms within the reserves. In addition, DEQ needs resources to work on agency rule revisions and policy anticipated to be necessary during the selection process and as a result of the creation of marine reserves. This package includes a $42,000 contract for analysis of samples and $150,000 for necessary equipment.		2 (1 PF, 1 PP, 1 PF phase-in) + 2 temps	2 + 2 temps	GF- $701K	GF	Lab: 1.0 NRS3, 0.5 Chem3, 2 NRS1 temps HQ: 0.5 NRS3

DRAFT 2009 LEGISLATIVE AGENDA

Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
Miscellaneous Packages								
113 Maintain Streamlined Vehicle Inspection (PP)	Vehicle Inspection Program (VIP) fees were last increased in 1997. Through ongoing streamlining and efficiencies, DEQ was able to reduce emission testing staff, control costs and avoid a fee increase for twice as long as originally anticipated. Further efficiencies are no longer available, and by the 2009-2011 biennium, VIP revenue will be insufficient to support the program. Without additional revenue, DEQ will be forced to cut staffing at our stations and have longer customer wait times.	DEQ will request a VIP fee increase to adequately fund the program. As part of the fee increase, DEQ will address the difference in the Portland fee ($21/certificate) and Medford fee ($10/certificate), and the number of free retests. DEQ will also ensure that interagency transfers from DMV for DMV services fully cover the cost of those services.	17.63		17.63	$3,505K	OF	VIP restore 17.63 FTE
157 Compliance & Enforcement Data Management (PP)	DEQ has a strategic objective to ensure that its enforcement actions are timely, consistent and predictable. As part of its overall enforcement goals, DEQ must improve existing compliance and enforcement databases to reduce the time staff spend entering dulicative data and to ensure that the agency has reliable data to use in assessing the effectiveness of current enforcement strategies and developing future strategies, and to answer questions posed by legislators, by reporters, and by the public.	The purpose of this proposal is to enhance DEQ's compliance and enforcement program by developing necessary data-collection mechanisms and databases and to increase OCE web presence.		1	1	GF - $198K	GF	BSD: ISS 5
154 Environmental crimes prosecution (PP)	DEQ and OSP invest significant resources investigating violations of environmental law. Some violations are done with criminal intent and these egregious cases should be prosecuted throught the criminal system because administrative penalties are not adequate. Our research shows that criminal prosecutions are stronger motivators than civil penalties in creating deterrence. While county district attorneys generally agree with our recommendations that certain violations should be prosecuted criminally, county resource limitations often make prosecution untimely or impossible. This wastes DEQ and OSP investigation resources, creates an ironic result in which the most signifcant violators are not penalized, and prevents us from creating deterrence which benefits the environment.	Assistant Attorney Generals in the District Attorney Assistance Section of DOJ would supplement the county district attorneys in prosecuting state environmental crimes committed in the DEQ-administered programs. The extent of the AAG involvement would range from advising the county district attorney to handling the case development, supplemental investigation (through the DOJ investigators), and prosecution of the cases. Costs not payable by the District Attorney Assistance fund would be charged to DEQ.		0	0	GF - $198K	GF	NA

DRAFT 2009 LEGISLATIVE AGENDA
Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
119 Complete Title V Staffing Phase-in (PP, LC 409)	SB 107, adopted in 2007, increased Title V fees and changed the frequency of the rulemaking to adjust the fee for inflation, but failed to make corresponding changes in the calculation of inflation. The net effect is that program revenue will always be behind by one year on inflation adjustments.	The LC will correct the 2007 legislation and provide for inflation increases as intended. Policy Package adds a regional position in 2009-2011 as agreed to in the 2007 fee increase negotiations.		1.0	1.0	OF - $179K	OF	Regional: 1 EE2
114 Implement New Federal Air Toxic Requirements (PP, LC 407)	EPA is in the process of adopting emission standards for 70 different categories of toxic air pollutants. Most are small businesses (area sources) and include businesses like auto body repair shops, paint strippers and parts coaters. Under current law, these sources must obtain air quality permits.	The LC will authorize EQC to adopt a registration fee for certain source categories. This will enable DEQ to offer registration in liu of permitting for sources that meet green business certification standards. Since the registration fee would fund program implementation, DEQ would be able to exempt many small businesses from permitting while still ensuring compliance with federal emission standards.		3.0 (Perm FT); 3.0 (phase-in)	6.0	OF-$883K	OF	Regions: 3 NRS2, 2.25 NRS1, Tanks .50 NRS3 HQ: .25 ELS

DRAFT 2009 LEGISLATIVE AGENDA

Combined Policy Packages and Leg Concepts

Name	Problem Statement	Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
134 - Electronics Recycling Law Implementation (PP)	Due to a lack of information, DEQ could not provide a complete cost estimate for the 2007 e-waste recycling legislation. As a result, the E-waste program will request that the Legislature's Emergency Board approve contract limitation (probably at the September '08 meeting) to cover the 2007-09 costs of the state contractor portion of the program (recycling fees from manufacturers will cover the estimated costs). When that request goes before the Emergency Board, it will be too late for the Legislatively Approved Budget, which defines the 2009-11 budget. As a result, the 2009-11 request for contract limitation must be in the form of a policy package.	The E-waste program will need a policy package to request contract limitation from the Legislature to cover the 2009-11 costs of the state contractor e-waste recycling program. Again, those costs will be covered by recycling fees from those manufactures choosing to participate in the state contractor program.				OF - $8,220K	Manufacturer fees	N/A
155 Environmental enforcement (PP)	(1) Currently, there is no person responsible for gathering and tracking changes to DEQ's internal management directive for enforcement (aka Enforcement Guidance), but such person will be necessary as OCE implements results of its Kaizen process-improvement initiative, develops guidance and processes for expedited enforcement offers, and coordinates with DEQ media program managers about program priorities. (2) "General deterrence" to non-compliance relys on the public perception that there is a high probablity that violations will recieve penalty and that the penalty will be applied soon after the violation. The additional ELS resource will prosecute DEQ administrative enforcement actions and assist in improving timeliness of enforcement actions.	The purpose of this proposal is to add additional staff resource to DEQ's compliance and enforcement program by developing and implementing new enforcement processes resulting from the Kaizen process-improvement initiative and adoption of expedited enforcement offer rules, to assist programs in rule and permit development, to advise inspectors in developing enforcement referrals, and to prosecute enforcement cases.		1	1	GF - $210K	GF	OCE: 1 ELS
156 Environmental crimes investigation (PP)	Currently there is only one Oregon State Police trooper assigned to investigate envionmental crimes in cooperation with DEQ. For lack of resource, some environmental crimes leads are not followed up with investigation and some inefficiencies exist with the one trooper having to travel the whole state and handling interviews alone.	Add one additional OSP trooper to investigate environmental crimes in the DEQ-administered programs so that fewer leads of potential environmental crimes are not investigated. The trooper likely would be positioned in an area of the state distant to Portland to cut down on travel time to investigation sites but would be available as necessary to assist in investigations throughout the state.		0	0	GF - $230K	GF	Medford

Item L Certification August 21-22, 2008 Attachment B Name	of 2009-11 Agency Request Budget EQC Meeting Problem Statement	**DRAFT 2009 LEGISLATIVE AGENDA** **Combined Policy Packages and Leg Concepts** Brief Description of Proposal	Restore Existing FTE	New FTE	Total FTE	Cost	Fund Type	Position Location
116 Clean Air Transportation Collaboration (PP)	Transportation system decisions can have significant air quality impacts, including violations of air quality standards, exposure to toxic air pollutants and increases in greenhouse gas emissions. DEQ does not have resources to help transportation planning agencies address these issues during the planning stages, which can lead to delays in road construction projects and downstream costs to address air quality impacts.	Policy package requests new resources for DEQ and Lane Regional Air Protection Agency (LRAPA) to assist local, regional and state transportation agencies in planning, constructing and operating transportation infrastructure to avoid or minimize air quality impacts. This includes participation in metropolitan planning organizations, technical analyses of system impacts and alternatives, developing air quality performance standards for transportation projects, and addressing public concerns about air quality during project review. Funding would be provided from new transportation funding proposals through an interagency agreement with ODOT.		4 + 110K for LRAPA	4.0	OF- $718K	OF	Region: 3 NRS2 HQ: 1 NRS3, LRAPA
LC 1003 Penalty maximum enhancement (LC Only)	(1) The $10,000 per day statutory maximum penalty applicable to most DEQ penalties, and the $20,000 per day maximum penalty applicable to negligent spills of oil into waters of the state, were set in 1973. Because of inflation, these penalties in today's dollars are only worth 20% to 25% of their original potency. Certain other less-often used penalties are also low. (2) Economic benefit is part of the minimum requirements for federal delegation, but some believe the penalty authority in ORS 468.130 is not clear that the EQC has authority to assess it. (3) The criminal code inadvertently sets misdemeanor and felony penalties for corporate perpetrators of environmental crime at less than the penalties that a natural person, trust, partnership, or other entity would be liable for when committing the same crime.	(1) Increase the statutory maximum penalties. (2) Add economic benefit to the list of factors the EQC must consider when assessing a civil penalty. (3) Eliminate the inadvertent protection for corporate criminals.		0	0	$0	likely addn'l rev. for GF, UST, spills	
Grand Totals			24.03	94.33	118.36	75,993,397		
Definitions								
N=No	TBD=Unknown at this time							
X=Yes	PP=Policy Package							
P=Possible	LC=Legislative Concept							
	*Restoration means existing FTE that is no longer affordable.							

DEQ DRAFT 2009 LEGISLATIVE CONCEPTS

Agency Number	Name	Problem Statement	Brief Description of Proposal	PP	Fund Type	Relates to Toxics(T), Water(W), Climate Chg(C), Infrast(I)
LC 998	**110 - Climate Change: Greenhouse Gas Reduction**	HB 3543 established Greenhouse Gas (GHG) reduction goals for the state, and the Governor asked the EQC to adopt mandatory GHG reporting rules. The next step is to develop market based programs to reduce GHG emissions.	The DEQ LC will fill gaps in GHG reporting authority, add authority for a cap and trade program, add fees for reporting and cap and trade and add authority to adopt other GHG emission reduction measures and incentives.	Y	GF/OF	C
LC 382	**111 - Heat Smart for Clean Air**	Residential heating with old, uncertified woodstoves releases fine particles and air toxics such as benzene that contribute to a myriad of human health effects. Heat Smart is a critical component of plans to meet and maintain the federal fine particulate standard and meet state air toxics benchmarks.	The LC will establish a grant and loan program to remove old, uncertified woodstoves and replace them with new, cleaner alternatives, require the removal of uncertified woodstoves upon home sale and provide authority for the EQC to update OR woodstove standards.	Y	GF and Penalties	T
LC 999	**Clean Emission Standards for Nonroad Vehicles (LC only)**	Diesel engine exhaust is one of the most prevalent toxic air pollutants in Oregon, and contributes significantly to fine particulate pollution, regional haze, smog and global warming.	The LC will address a gap (non-road engines) in the Environmental Quality Commission's (EQC) authority to establish emission standards for diesel engines that could lead to "dumping" of older, dirtier, vehicles from California into Oregon.	N		T
LC 407	**114 - Implement New Federal Air Toxics Requirements**	EPA is about to adopt national air toxics standards (National Emissions Standards for Hazardous Air Pollutants -NESHAP) for 70 different source categories. Most are small businesses (area sources) and include businesses like auto body repair shops, paint strippers and parts coaters. They would like compliance options other than a permit.	The LC will authorize a registration fee (lower than a permit fee) for source categories that choose compliance options beyond compliance required by a permit.	Y	OF	T
LC 409	**119 - Complete Title V Staffing Phase-in**	SB 107, adopted in 2007, increased Title V fees and changed the frequency of the Consumer Price Index (CPI) rulemaking but failed to make corresponding changes in the CPI calculation. The net effect is a loss of one CPI increase each biennia.	The LC will correct the 2007 legislation and provide for CPI increases as intended.	Y	OF	
LC 1000	**117 - Field Burning and Smoke Management**	Reducing burning is a key strategy to improve air quality in Oregon.	The LC will phase down field burning in the Willammette Valley over several years as new alternatives to burning are developed and include a process for EQC to allow more acres to be burned than otherwise permitted in a given year upon a demonstration that viable alternatives are not yet available. The LC would also direct DEQ to provide support and coordination for open burning and smoke management programs.	Y	GF and Penalties	T
LC 1001	**Bottle Bill Changes (LC only)**	The task force is currently meeting to discuss further changes to the bottle bill law. Those issues include whether the statute should be expanded for additional items, the amount of the redemption, whether recycling should occur at retail locations or some other place, etc. Given the visibility of this law, DEQ should have a legislative "placeholder" for the 2009 session.	Placeholder for possible 2009 legislation.	N	TBD/OF	C
LC 888	**132 - Producer Responsibility for Waste Products**	Some products have unique waste management challenges. They contain toxics or multiple materials, making them costly and difficult to recycle or safely dispose of in the traditional waste management system. As a result, the public lacks convenient and safe recycling or disposal options. This increases the risk of mismanagement and human health / environment impacts. Finally, where these products are handled through the current system, local governments and ratepayers bear the fiscal burden.	The LC requires manufacturers rather than local governments to manage specified products so as to enhance their recycling or safe disposal. Through this LC, the Legislature would define the process/criteria for DEQ to identify the appropriate products or categories. The EQC would make the final determination under the statute. Specified products could not be sold unless DEQ approved the manufacturer's plan for the collection, recycling or safe disposal of these products.	Y	OF	C, T

DEQ DRAFT 2009 LEGISLATIVE CONCEPTS

Agency Number	Name	Problem Statement	Brief Description of Proposal	PP	Fund Type	Relates to Toxics(T), Water(W), Climate Chg(C), Infrast(I)
LC 1002	**127 - Water Quality 401 Project Certification**	The 401 Water Quality Certification (fill and removal projects) program's fee structure exempts approximately 52% of applicants from fees. Many of these dredge and fill projects in rivers, lakes, streams, and wetlands are complex and take a great deal of time.	The purpose of this proposal is to remove/modify the exemptions and have a equitable fee structure that will provide sustainable funding for the program.	Y	OF/fees	W
LC 1003	**Penalty Maximum Enhancement (LC only)**	The $10,000 per day statutory maximum penalty applicable to most DEQ penalties, and the $20,000 per day maximum penalty applicable to negligent spills of oil into waters of the state, were set in 1973. Because of inflation, today's penalties are only worth 20% to 25% of their original potency.	Increase the statutory maximum penalties.	N		T, W
	Definitions					
	N=No					
	X=Yes					
	P=Possible					
	TBD=Unknown at this time					
	PP=Policy Package					
	LC=Legislative Concept					

Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment C

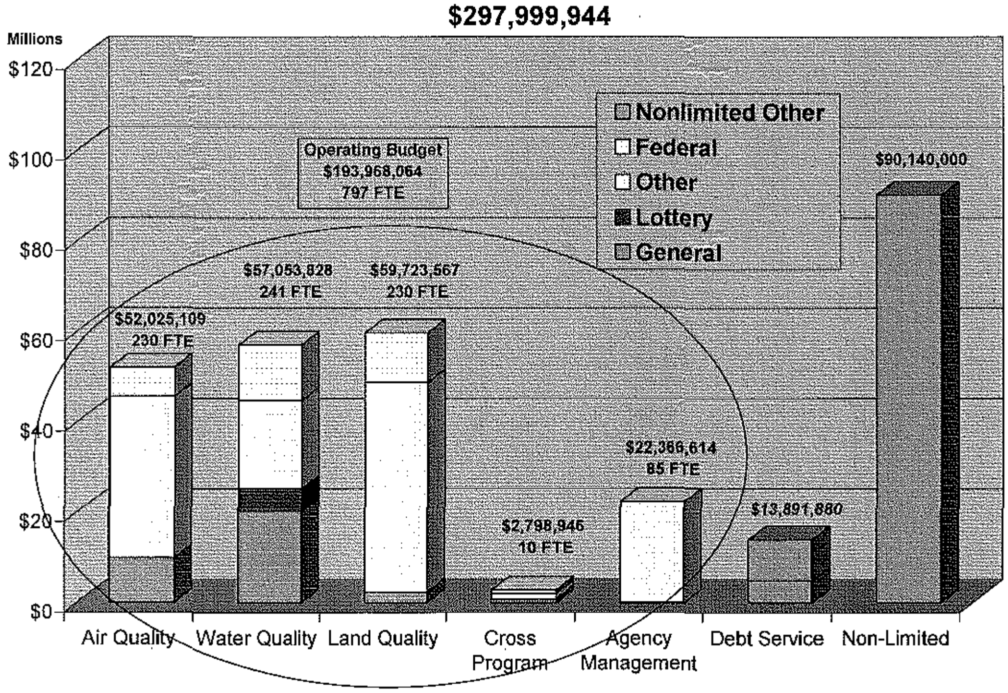
Updated 2009-11 Budget Overview

Budget Overview – Jim Roys

DEQ staff presented a budget summary to the EQC on June 20, 2008. Since that time, a few minor changes to policy packages have been incorporated, the electronic recycling law package has been defined at $8.2 million, and the Agency has passed its Agency Request Budget audit, locking the 2009-11 Agency Request budget dollars in place. The following presentation is substantially the same as the June 20, 2008 presentation but with the updated and audited budget figures included throughout.

Beginning with where DEQ is today, the 2007-09 Legislative Adopted Budget, shown in Figure 1. DEQ experienced a very successful 2007 legislative budget session, restoring many position that were lost over the 3 prior biennium.

Figure 1
2007-2009 Legislative Adopted Budget Budget, By Program
$297,999,944

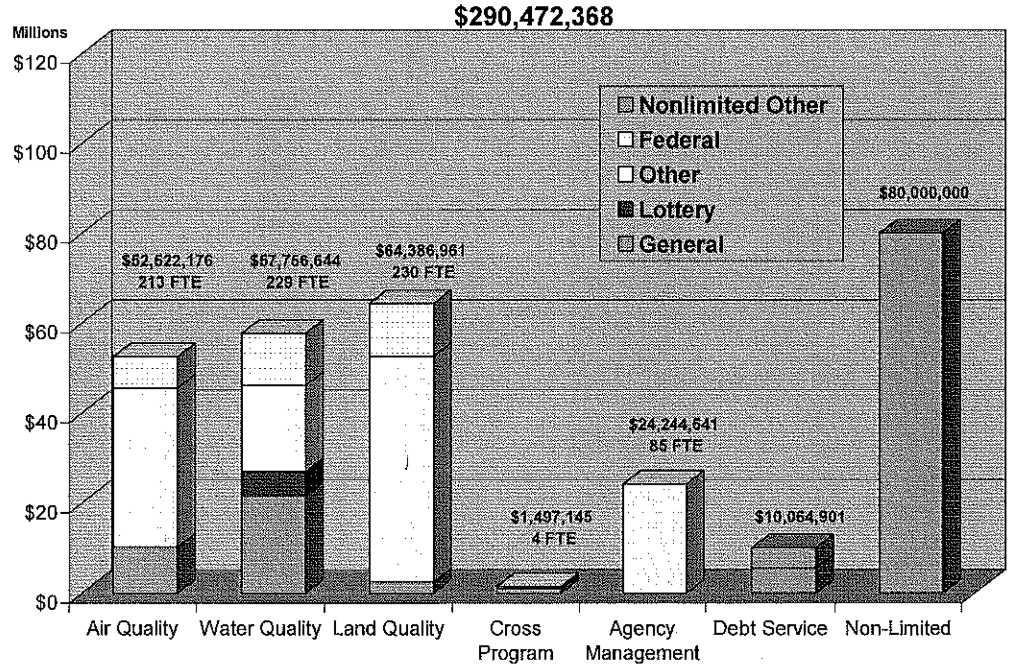


- Note 5 program areas make up the "Operating Budget"
- Program areas comprised of subprograms with limits on fungibility
- Non-limited (Clean Water SRF loans) not subject to legislative limitation
- Debt Service for bonds issued for Orphans, Clean Water SRF

Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment C

Moving into the upcoming budget period (2009-11), DEQ implemented negotiated salary adjustments, COLAs, inflation on other costs. DEQ must then balance a budget, called the Modified Essential Budget Level (MEBL) prior to legislative actions. The result is shown in Figure 2, the 2009-11 "Affordable Budget".

Figure 2
2009-2011 Affordable Budget, By Program
$290,472,368

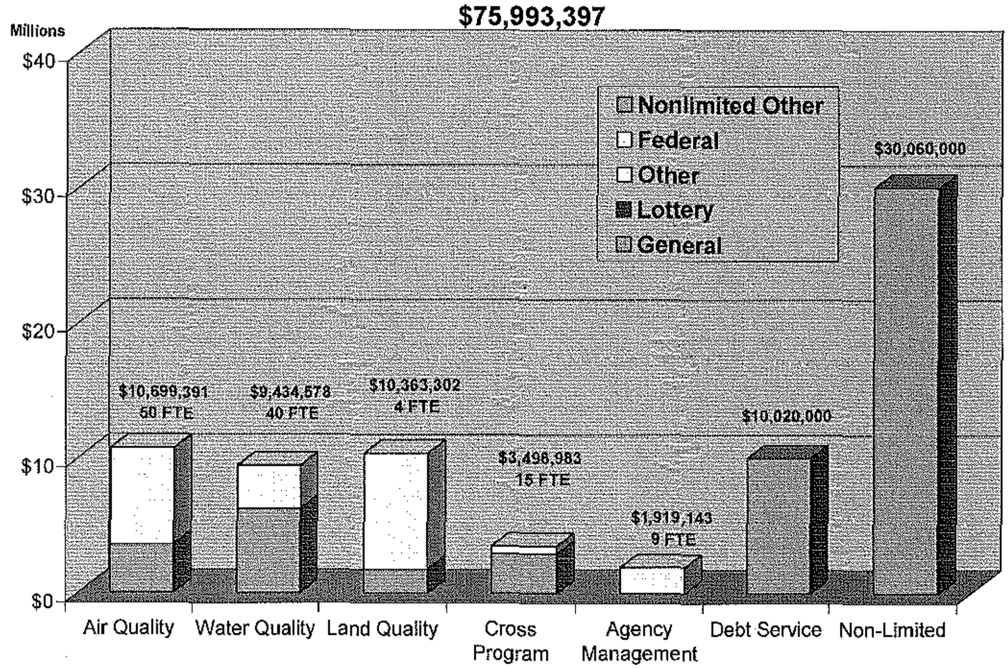


- AQ lower due to 17.6 FTE reduction in Vehicle Inspection
- WQ lower due to
  - Positions authorized only for 2007-09:
    - 4.5 FTE, Drinking Water Protection
    - 1.0 FTE, SB 737 Toxics position
    - 1.0 FTE, Beach Monitoring
  - Position not affordable in 2009-11:
    - 4.5 FTE, On-Site Septic Systems
    - 1.5 FTE, 401 Dredge and Fill
    - 2.0 FTE, TMDL
- Cross Program lower due to
  - Information Network Exchange
  - Tax Credits
  - Liquified Natural Gas (LNG)
  - Bio-Terrorism

- Policy Packages request to restore or continue many on these.

In addition to the restoration or continuation of current work into the 2009-11 biennium, DEQ has proposed an aggressive expansion of its environmental protection efforts in the Policy Packages previously discussed. Figure 3 provides a summary of the Policy Package Budget and FTE totals.

Figure 3
2009-2011 Policy Package Budget, By Program
$75,993,397

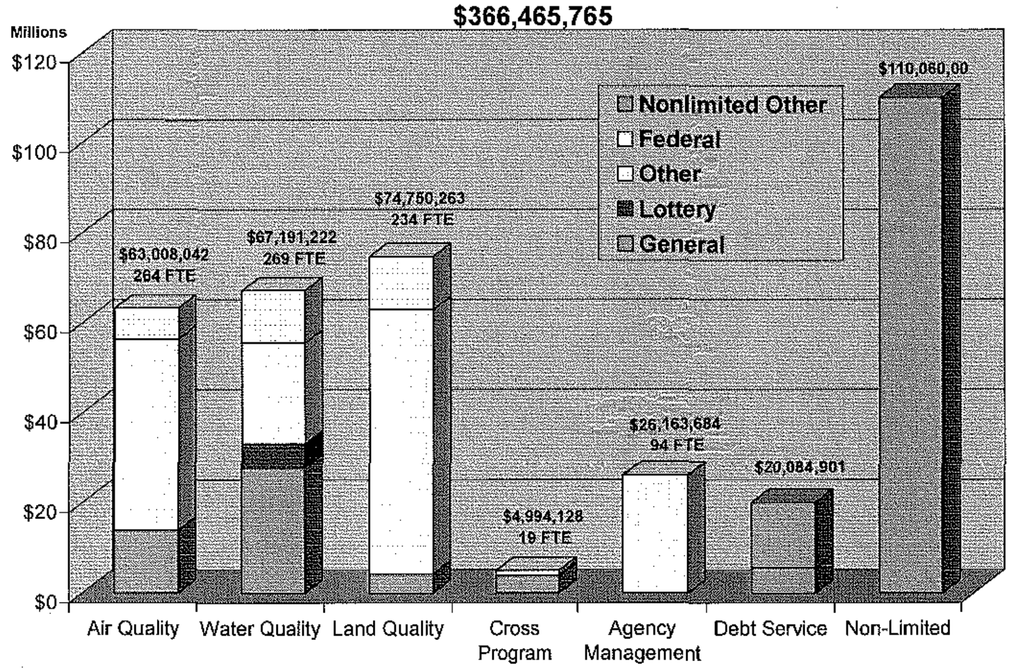


- 39 Policy Packages, $76 Million, 118 FTE
  - $14.5M General Fund
  - $20.8M Other Fund
  - $ 0.6M Federal Fund
  - $40.1M Non-limited, expands Clean Water SRF loans

Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment C

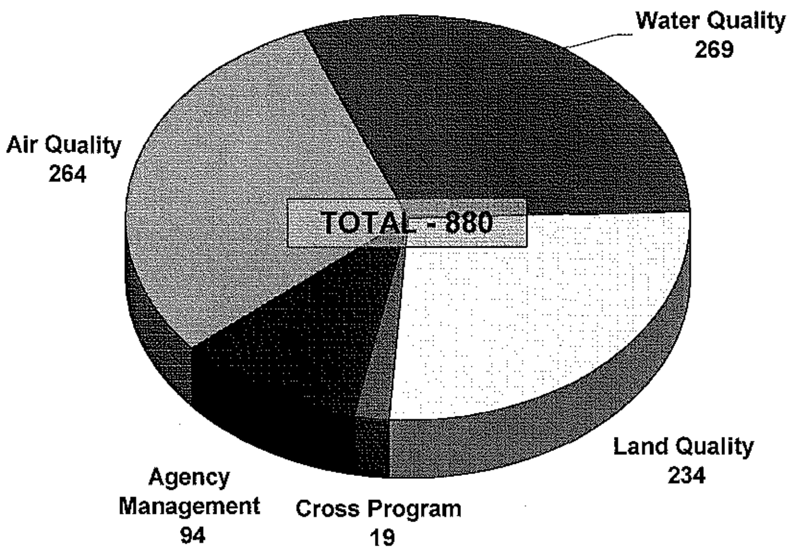
The DEQ 2009-11 Agency Request Budget (ARB) is comprised of the "Affordable" budget plus the Policy Packages, effectively adding Figure 3 to Figure 2 to create Figure 4

Figure 4
2009-2011 Agency Request Budget, By Program
$366,465,765



- Total AR Budget is $366M, 880 FTE.
- Operating Budget comprises roughly 2/3 ($236M) of total budget
  - $ 49.7M General Fund
  - $ 5.4M Lottery Fund
  - $149.8M Other Fund
  - $ 31.5M Federal Fund
- Figure 5 provides the summary of FTE, by Program area

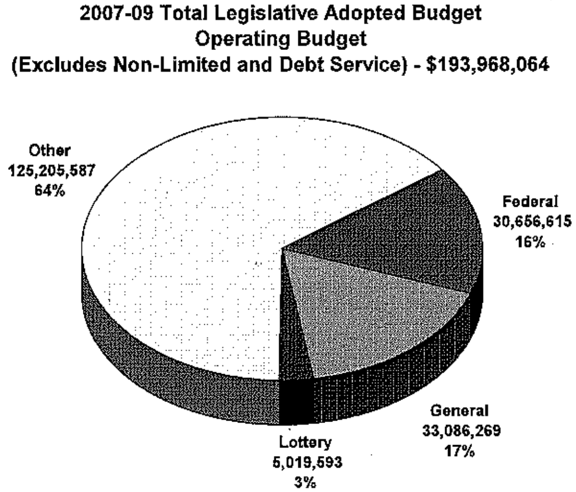
Figure 5
2009-2011 Agency Request Budget
Department of Environmental Quality
FTE By Program

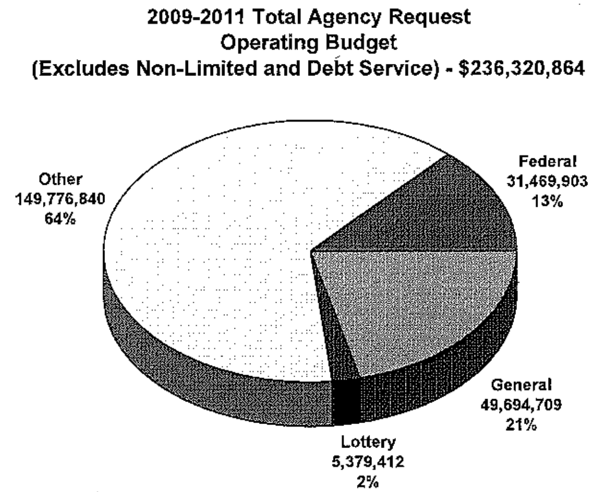


Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment C

The proposed expansion of environmental services is funded mainly on General Fund, resulting in a net increase in the percentage of General and Lottery Funds for the Operating Portion of DEQ's budget, as shown in Figure 6.

Figure 6 – Comparison of Funding Sources 2007-09 to 2009-11

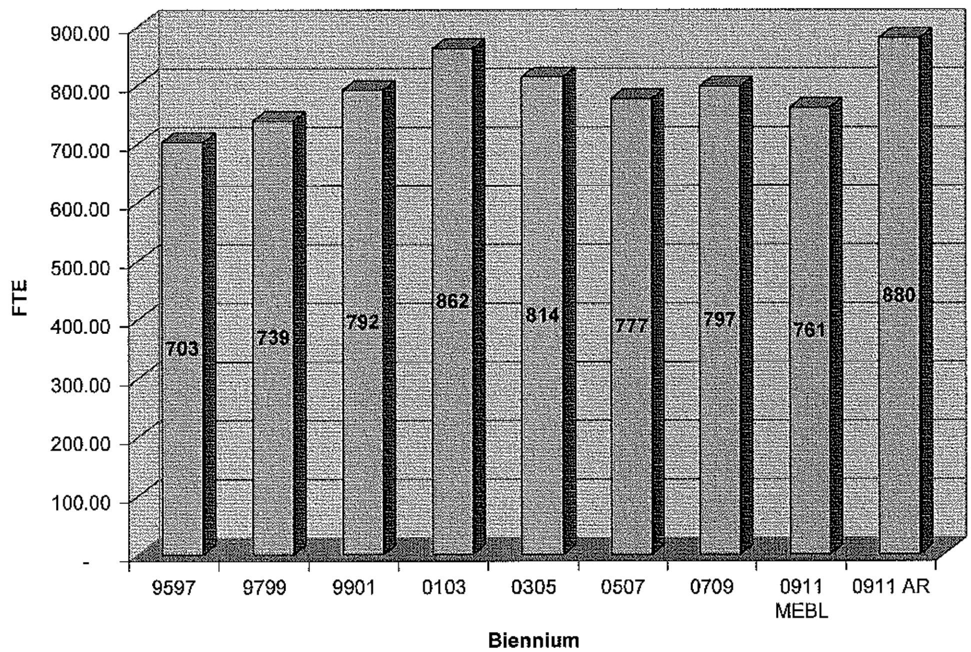




Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment C

The DEQ Agency Request Budget continues the restoration and growth of environmental services, as shown in Figure 7.

Figure 7
DEQ STAFFING OVER TIME



- Recovery started with the 2007-09 budget.
- 2009-11 MEBL (Affordable Budget) is lower than 2007-09
- Biennium 2001-03 through 2005-07 FTE include Limited Duration Vehicle Inspectors for enhanced testing, now discontinued.

ATTACHMENT D - 10% REDUCTION OPTIONS

GENERAL FUND REDUCTION OPTIONS

ACTIVITY OR PROGRAM	DESCRIBE REDUCTION	AMOUNT/FUND TYPE	RANK AND JUSTIFICATION
Air Quality - Reduce a proportional share of funding for Lane Regional Air Protection Agency (LRAPA)	• Reduce sampling frequency of LRAPA's only air toxics monitor. Data may not be considered statistically reliable for prioritization or trend analysis. • Reduce compliance work and complaint response related to open burning and residential wood heating. Could result in PM2.5 levels in the Eugene-Springfield area to worsen and violate the federal fine particulate health standards. The Eugene-Springfield's PM2.5 concentrations were marginally in compliance (97% of the federal standard) during 2005-2007.	GF - $90,000	**GR01** – Local air agency shares equally in General Fund cuts with DEQ program.
Air Quality - Reduce grant funding for diesel engine retrofits and repowers.	Diesel particulate matter ranks in the top three air toxics of concern in Oregon. Cutting grant funding by 30% will reduce the number of diesel engine retrofits and repowers that dramatically reduce diesel particulate emissions and public health risks.	GF - $308,000	**GR02** – Diesel emissions reduction provides an important health benefit for Oregonians but it is not a federal Clean Air Act requirement.
Air Quality - Reduce funding for local government outreach (6 communities) by 20%.	Funding supports daily air quality advisories, voluntary woodstove curtailment programs and wood smoke public education to reduce emissions. May result in higher fine particulate emissions or in some communities, violation of the federal standard. DEQ support for these former non-attainment areas is a State Implementation Plan (SIP) requirement.	GF - $51,000	**GR03** –Emission reduction work in former non-attainment areas is required in Oregon's Air Quality SIP but a specific amount is not required.

ATTACHMENT D - 10% REDUCTION OPTIONS

GENERAL FUND REDUCTION OPTIONS

ACTIVITY OR PROGRAM	DESCRIBE REDUCTION	AMOUNT/FUND TYPE	RANK AND JUSTIFICATION
Air Quality - Reduce Small Business Assistance	Reduce most of the technical assistance to small, non-permitted businesses that are not required to comply with the federal Clean Air Act. With only .25 FTE state-wide remaining after this cut, it would lead to more pollution in the environment and a higher health risk to the public. Reduce 0.5 FTE	GF - $132,000	**GR04** – Business assistance to small businesses is good for the businesses and the health of Oregonians, but it is not a federal Clean Air Act requirement.
Water Quality- Eliminate the Oregon Plan Biomonitoring program.	DEQ would no longer be able to meet monitoring commitments to the Oregon Plan as part of the Coastal Coho Recovery Plan. This work includes: • Coordination with and training ODFW crews on the collection of temperature data at 21 locations and macroinvertrbrate samples at 160 locations along the coast. • Processing, analyzing and reporting on the information associated with the data collection in the 21 coastal coho population units. • Support the collection, analysis and reporting of additional ambient sites on the Oregon coast. • Provide technical assistance to other agencies on related programs that collect water quality and biological data to determine the effectiveness of management activities. • Facilitate macroinvertebrate data processing and analysis from watershed councils. • Participate in the Oregon Plan Core team or Monitoring team meetings. This reduction would eliminate 4 positions and 4.00 FTE in 2009-11 and 2011-13.	GF - $860,888	**GR05** - Combination of factors: Least harm to environmental protection; Maintain strategic priorties; Least harm to service delivery.

ATTACHMENT D - 10% REDUCTION OPTIONS

GENERAL FUND REDUCTION OPTIONS

ACTIVITY OR PROGRAM	DESCRIBE REDUCTION	AMOUNT/FUND TYPE	RANK AND JUSTIFICATION
Land Quality - Hazardous Waste Compliance	Reduce HW inspection staff by 1 FTE, approximately 10%. This would result in approximately 26 fewer inspections of regulated generators per year (8 Large Quantity and 18 Small Quantity) and a reduced ability to respond to complaints (about 10 – 20 fewer complaint inspections).	GF - $267,000	**GR06** – While the loss of inspection staff will reduce the level of environmental protection, the program will be able to provide the minimum environmental protection necessary.
Air Quality - Reduce Ozone and Fine Particulate Monitoring. Eliminate new ozone and fine particulate monitoring provided in the 2007-2009 Budget.	• Eliminate ozone monitoring in Bend and Hermiston. Leaves the eastern side of the state again with no ozone monitoring at a time when EPA has tightened the health standard. • Eliminate fine particulate monitoring in Madras, Redmond, McMinnville, and a background site near Klamath Falls. All of these sites (except the background site) are at risk of exceeding the fine particulate standard, and are certainly likely to be above the DEQ health level of concern. The loss of the background site for Klamath Falls will make development of an implementation strategy for this non-attainment area more difficult. Reduce 1.5 FTE.	GF - $308,000	**GR07** – While DEQ's air monitoring network would not be adequate to support DEQ's air quality improvement work, it would still meet minimum federal air monitoring requirements.

ATTACHMENT D - 10% REDUCTION OPTIONS

GENERAL FUND REDUCTION OPTIONS

ACTIVITY OR PROGRAM	DESCRIBE REDUCTION	AMOUNT/FUND TYPE	RANK AND JUSTIFICATION
Air Quality – Reduce Fine Particulate Planning	Eliminate an Air Quality Planner developing and coordinating fine particulate and ozone reduction strategies and carrying out mandatory CAA requirements for new federal standards. Delays work to develop an air quality plan for returning Klamath Fall's air to healthy levels. Extended violation of the fine particulate standard negatively impacts public health and economic development in the area. Postpones pollution prevention outreach and strategy development in Oregon communities at risk of violating federal standards and slows the implementation of CAA requirements mandated by new standards. Reduce 1.0 FTE.	GF - $182,000	**GR08** –While DEQ could not complete the federally-required attainment plan in the required timelines, DEQ could implement some measures (e.g. woodstove and diesel projects) to reduce public health impacts until the plan can be developed.
Water Quality– Eliminate Groundwater Protection Program	DEQ would no longer do any work associated with any of the Groundwater Management Areas (GWMAs) that are located in the Lower Umatilla Basin, Northern Malheur County, and in the Southern Willamette Valley. The work associated with the GWMAs includes: • Implementation of Groundwater Management Areas where the water quality has been degraded, beneficial uses are seriously impaired, and public health may be at risk in part from nonpoint source groundwater pollution • Technical assistance to communities and watershed councils engaged in groundwater pollution prevention efforts. The reduction would eliminate 5 positions and 5.00 FTE in 2009-11 and 2011-13.	GF - $1,227,888	**GR09** - Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to service delivery.

ATTACHMENT D - 10% REDUCTION OPTIONS

GENERAL FUND REDUCTION OPTIONS

ACTIVITY OR PROGRAM	DESCRIBE REDUCTION	AMOUNT/FUND TYPE	RANK AND JUSTIFICATION
Air Quality – Reduce Clean Diesel Outreach	Reduce clean diesel outreach work aimed at recruiting fleet owners to clean up their diesel engines. Work includes marketing the state's tax credit program, coordinating entities to take advantage of state and federal grant programs, promoting idle reduction strategies and participating in the development of a regulatory program. Reduce 2.0 FTE.	GF - $458,000	**GR10 -** Diesel emissions reduction provides an important health benefit for Oregonians but this work is not a federal Clean Air Act requirement.
Air Quality – Eliminate an air toxic site	Eliminate one of three state-funded air toxics monitoring sites. Sites include Salem, Medford, and a background site for Medford. The most likely cut would be the background site for Medford. Loss of this site will make interpretation of air toxics data from the population orientated site in Medford more difficult. Long term, DEQ plans to move this site to other communities with air toxic levels modeled to be above the health benchmarks. Reduce 1.0 FTE.	GF - $218,000	**GR11 –** Air toxics monitors provide very important information for Oregonians but are not a federal Clean Air Act requirement.

ATTACHMENT D – 10% REDUCTION OPTIONS

LOTTERY FUND REDUCTION OPTIONS

ACTIVITY OR PROGRAM	DESCRIBE REDUCTION	AMOUNT/FUND TYPE	RANK AND JUSTIFICATION
Water Quality- Eliminate TMDL Development/Revisions positions	DEQ would no longer be able work on the development of the Willamette Basin and Umpqua Basin TMDLs that are scheduled to be reviewed in 2011. This means that preliminary monitoring and background work would not begin in 2010. The work associated with the Willamette TMDL review includes: • Modeling & TMDL Development • Stakeholder Coordination & Outreach • Recalculation of natural thermal potential upstream of dams. • Recalculation of waste load applications for permits. This reduction would eliminate 2 positions and 2.00 FTE in 2009-11 and 2011-13.	Lottery- $537,941	**LR01** – Combination of factors: Least harm to environmental protection; Maintain strategic priorities; Least harm to service delivery.

Item L Handout

DEQ's 2009-11 Legislative Agenda/Budget Request
August 21, 2008 EQC Talking Points - Greg Aldrich and Jim Roys

Brief Presentation Outline
- Purpose:
  - Final update on the agency budget request prior to submittal
  - Certification of budget by EQC Chair (Attachment A)
- Legislative agenda timeline update
- Review of policy packages
- Legislative concepts update
- Stakeholder involvement
- 10% Reduction Options
- Budget overview
- Next steps

<u>Legislative Agenda Timeline Update:</u>
- Review timeline -

  September 2008
  - 1 – Agency Request Budget due to DAS and Governor

  Fall 2008
  - DEQ works with Legislative Counsel on draft bills (legislative concepts)
  - DAS and Governor review DEQ budget request
  - Governor's Recommended Budget (GRB) is drafted
  - Governor pre-session files approved bills (by 12/16/08)
  - GRB is submitted to the Legislature

  January 2009
  - 12 – 2009 Legislative Session begins

<u>Policy Packages:</u> (Attachment B)

<u>Policy Package Context</u>
- Recap of major budget drivers:
  - 2007 was very positive; however, we have not been fully restored from previous loss of General Fund (GF) from 2002-2005 regular and Special Sessions
  - Declining or flat federal funding (FF)
    - No inflationary increases for FF
  - Experiencing the first decline in lottery revenues (LF)

- Policy packages have been built around the 5 main themes along with several miscellaneous packages.
        - Many packages support core work
        - Some allow DEQ to take on new high priority work
    - Climate change – directive from the Governor
    - Toxics – emerging work and further supports some core work
    - Water – essentially to support core work
    - Agency infrastructure – focus on rebuilding or restoring agency support efforts that are needed to build capacity and improve service delivery both within and outside of DEQ
    - Monitoring and assessment – supporting core work and expanding into assessing the effectiveness of some nonpoint source programs
    - Miscellaneous – a large restoration for the core work of the Vehicle Inspection Program; efforts to better support enforcement efforts

<u>Policy Package Updates</u> (Attachment B)

- Review of significant changes/actions that have occurred since June
- DEQ passed the DAS budget audit in July
- No changes to size or number of packages
    - #116 – Clean Air Transportation Collaboration (page 20)

<u>Legislative Concepts (LC):</u> (Attachment B)

- DAS has approved all DEQ leg concepts for drafting
- List of LCs – no significant changes since June (pages 21-22)
- Non-DEQ legislative concepts of great interest
    - ODA agricultural emissions LC

<u>Stakeholder Outreach:</u>

- Ongoing outreach through summer, fall and into 2009 Session
- Group and individual meetings
    - Some meetings focused on overview of entire budget
    - Some meetings focused on specific packages and fee increases
- Overall theme of comments – generally supportive, but concerned with affordability
- Focused legislator meetings will occur in the fall and as part of prep for 2009

<u>10 Percent Reduction Options:</u> (Attachment D)

- Governor is required to submit two budgets to the Legislature
    - Standard, balanced budget
    - Balanced budget at 90% funding levels
- 10% Reduction Options represent "budgetary reductions" offered by each agency.

- Reduction Options must be developed for all fund types – GF, LF, FF, OF
- Focus is on the GF reduction options, as these funds are readily transferable to other programs and agencies.
- LF are also transferable, but have more limitations on how funds can be spent
- FF and OF tend to be restricted to specific programs or activities, thus are not typically transferable
- Focus today is on GF and LF, as these Reduction Options are at greatest risk

- <u>DEQ Process to Develop 10% Reduction Options:</u>
    - Each program offers up candidate reductions
        - Size and number of reduction options are determined by the amount of money in each program's budget by fund type
        - Candidate reduction options represent the "lesser" value work
    - Proposed reduction options were reviewed by the Executive Management Team
    - Dick ranked all the proposed reduction options by fund type
    - Dick's recommendations were reviewed and agreed to by the Executive Management Team
    - These recommendations are shown for GF and LF in Attachment D (**<u>Walk through attachment</u>**; note that first Reduction Option is being offered as the first to be taken)
      GF – pg. 30-34
      LF – pg. 35

- <u>Likely Outcomes</u>
    - There is no new GF – revenue forecast next Thursday should reconfirm
    - High likelihood that that several Reduction Options will be taken
    - Example – turn back to page 5 – Priority listing of policy packages
        - If Governor wanted to provide GF to his priority areas of:
            - #110 Climate Change (GF - $900K)
            - #125 Marine Reserves (GF – 700K)
            - #163 Wave Energy (GF - $170K)

          he could take Reduction Options totaling $1.8M to cover these new expenses

- Now – do you have thoughts or concerns?
    - Do you concur?
    - Do you propose to make modifications?

<u>Budget Overview:</u> – Jim
Turn to Attachment C in your binder

Next Steps:

Next EQC meetings – October 23-24 and December 11-12

- Update on Governor's Budget Request (GRB) – likely in December
- Update on stakeholder and legislator feedback
- Update on legislative concepts

Moving Forward/EQC Action

Department Recommendation and Motion	DEQ recommends that the EQC authorize the chairperson to certify DEQ's 2009-11 Agency Request Budget for submittal to the Department of Administrative Services. (Attachment A)

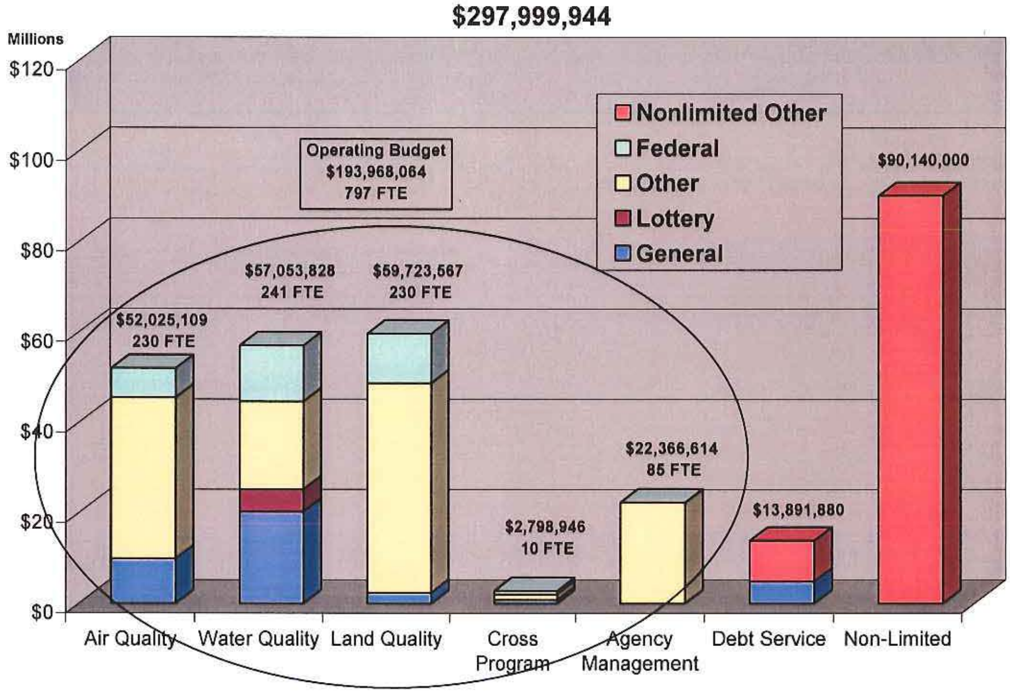
Updated 2009-11 Budget Overview

Budget Overview – Jim Roys

DEQ staff presented a budget summary to the EQC on June 20, 2008. Since that time, a few minor changes to policy packages have been incorporated, the electronic recycling law package has been defined at $8.2 million, and the Agency has passed its Agency Request Budget audit, locking the 2009-11 Agency Request budget dollars in place. The following presentation is substantially the same as the June 20, 2008 presentation but with the updated and audited budget figures included throughout.

Beginning with where DEQ is today, the 2007-09 Legislative Adopted Budget, shown in Figure 1. DEQ experienced a very successful 2007 legislative budget session, restoring many position that were lost over the 3 prior biennium.

Figure 1
2007-2009 Legislative Adopted Budget Budget, By Program
$297,999,944

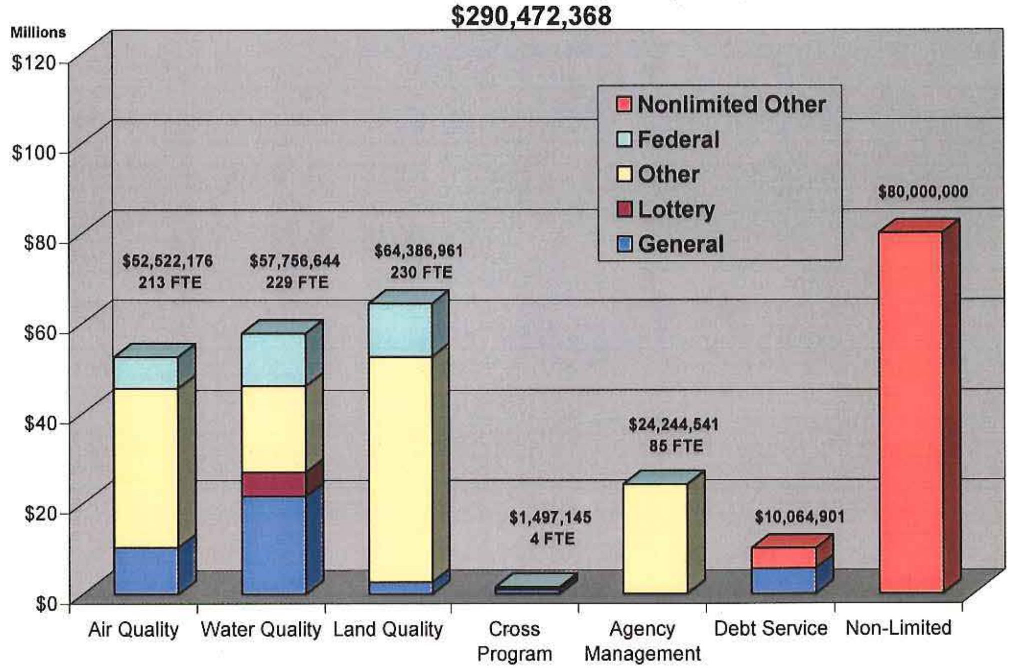


- Note 5 program areas make up the "Operating Budget"
- Program areas comprised of subprograms with limits on fungibility
- Non-limited (Clean Water SRF loans) not subject to legislative limitation
- Debt Service for bonds issued for Orphans, Clean Water SRF

Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment C

Moving into the upcoming budget period (2009-11), DEQ implemented negotiated salary adjustments, COLAs, inflation on other costs. DEQ must then balance a budget, called the Modified Essential Budget Level (MEBL) prior to legislative actions. The result is shown in Figure 2, the 2009-11 "Affordable Budget".

Figure 2
2009-2011 Affordable Budget, By Program
$290,472,368

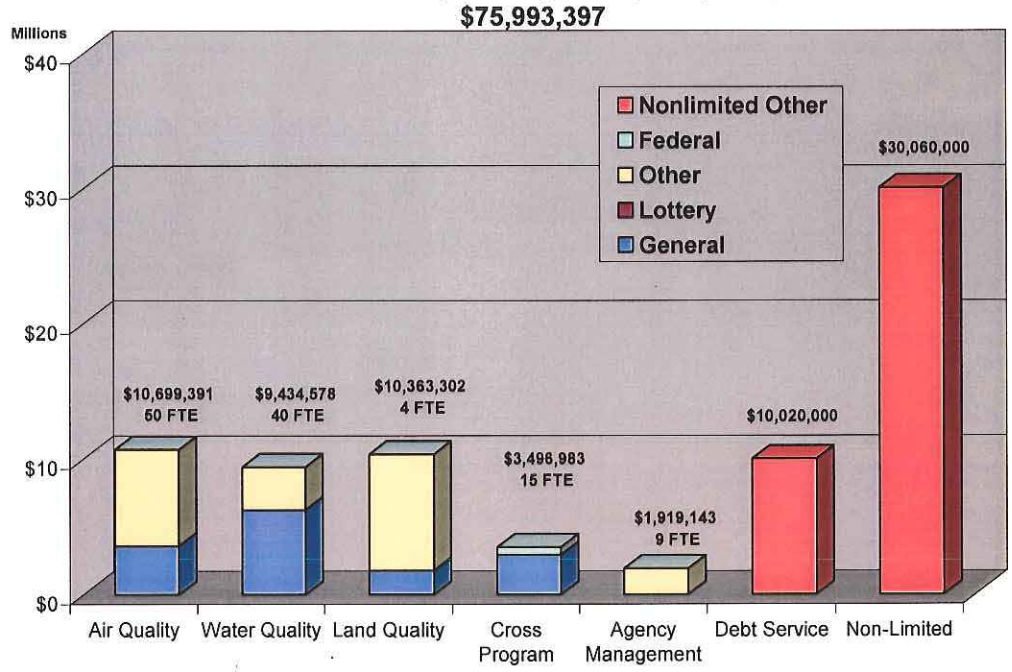


- AQ lower due to 17.6 FTE reduction in Vehicle Inspection
- WQ lower due to
  - Positions authorized only for 2007-09:
    - 4.5 FTE, Drinking Water Protection
    - 1.0 FTE, SB 737 Toxics position
    - 1.0 FTE, Beach Monitoring
  - Position not affordable in 2009-11:
    - 4.5 FTE, On-Site Septic Systems
    - 1.5 FTE, 401 Dredge and Fill
    - 2.0 FTE, TMDL
- Cross Program lower due to
  - Information Network Exchange
  - Tax Credits
  - Liquified Natural Gas (LNG)
  - Bio-Terrorism

- Policy Packages request to restore or continue many on these.

In addition to the restoration or continuation of current work into the 2009-11 biennium, DEQ has proposed an aggressive expansion of its environmental protection efforts in the Policy Packages previously discussed. Figure 3 provides a summary of the Policy Package Budget and FTE totals.

Figure 3
2009-2011 Policy Package Budget, By Program
$75,993,397

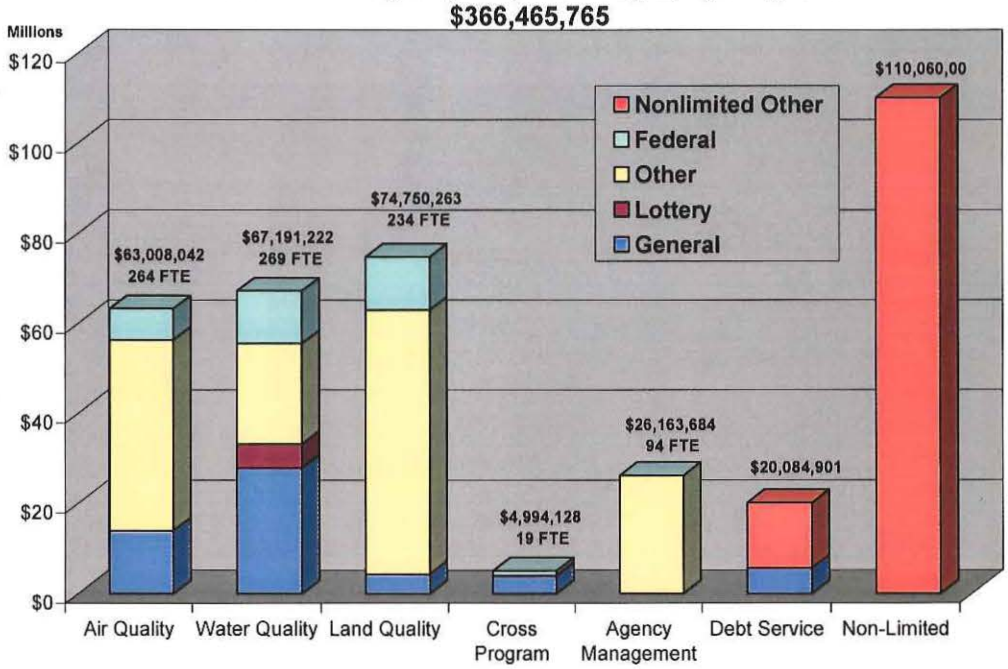


- 39 Policy Packages, $76 Million, 118 FTE
  - $14.5M General Fund
  - $20.8M Other Fund
  - $ 0.6M Federal Fund
  - $40.1M Non-limited, expands Clean Water SRF loans

Agenda Item L, Action Item: Certification of 2009-11 Agency Request Budget
August 21-22, 2008 EQC Meeting
Attachment C

The DEQ 2009-11 Agency Request Budget (ARB) is comprised of the "Affordable" budget plus the Policy Packages, effectively adding Figure 3 to Figure 2 to create Figure 4

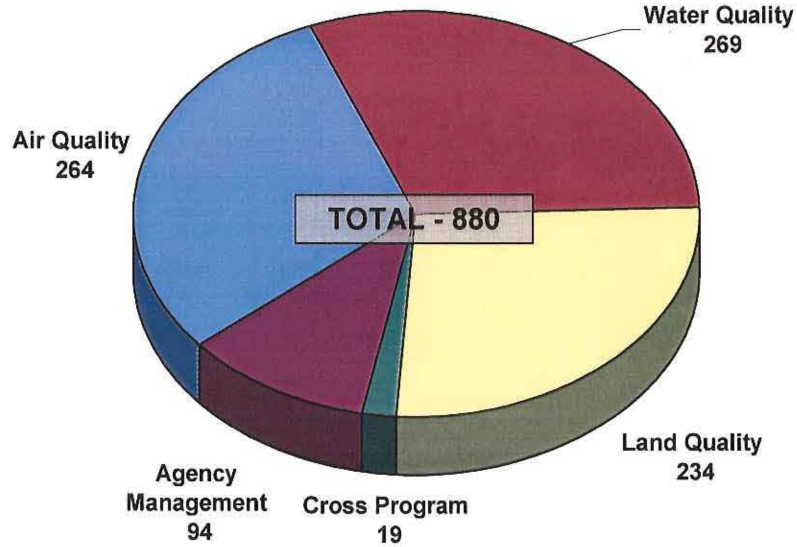
Figure 4
2009-2011 Agency Request Budget, By Program
$366,465,765



- Total AR Budget is $366M, 880 FTE.
- Operating Budget comprises roughly 2/3 ($236M) of total budget
    - $ 49.7M General Fund
    - $ 5.4M Lottery Fund
    - $149.8M Other Fund
    - $ 31.5M Federal Fund

- Figure 5 provides the summary of FTE, by Program area

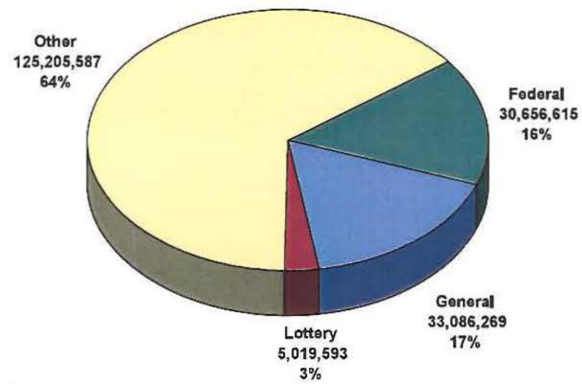
Figure 5
2009-2011 Agency Request Budget
Department of Environmental Quality
FTE By Program



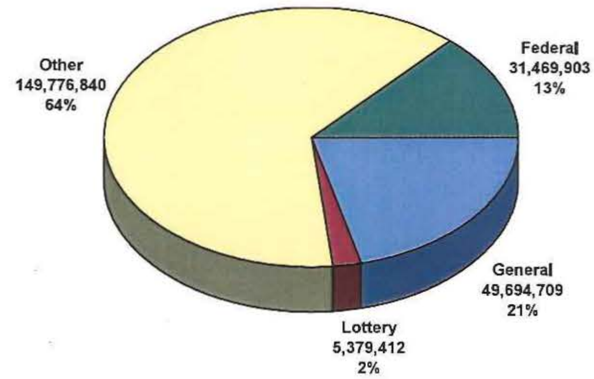
The proposed expansion of environmental services is funded mainly on General Fund, resulting in a net increase in the percentage of General and Lottery Funds for the Operating Portion of DEQ's budget, as shown in Figure 6.

Figure 6 – Comparison of Funding Sources 2007-09 to 2009-11

2007-09 Total Legislative Adopted Budget
Operating Budget
(Excludes Non-Limited and Debt Service) - $193,968,064

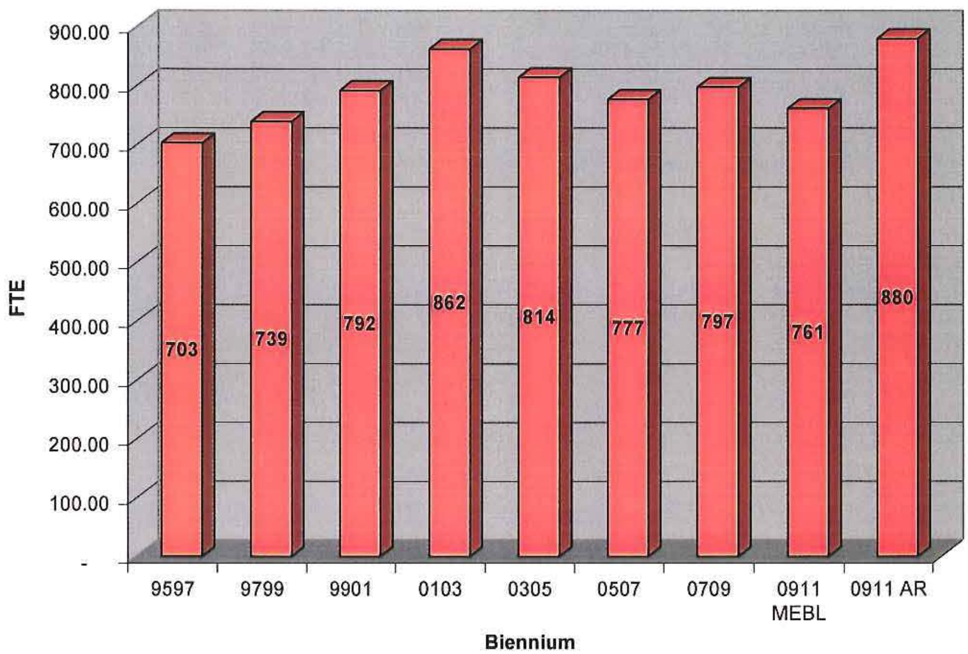


2009-2011 Total Agency Request
Operating Budget
(Excludes Non-Limited and Debt Service) - $236,320,864



The DEQ Agency Request Budget continues the restoration and growth of environmental services, as shown in Figure 7.

Figure 7
DEQ STAFFING OVER TIME



- Recovery started with the 2007-09 budget.
- 2009-11 MEBL (Affordable Budget) is lower than 2007-09
- Biennium 2001-03 through 2005-07 FTE include Limited Duration Vehicle Inspectors for enhanced testing, now discontinued.

State of Oregon
Department of Environmental Quality — Memorandum

Date: August 4, 2008

To: Environmental Quality Commission

From: Dick Pedersen, Director

Subject: Agenda Item M, Discussion Item: Environmental Quality Commission Self-Evaluation
August 21-22, 2008 EQC Meeting

Why This is Important

The first annual report on the Environmental Quality Commission's evaluation of its own performance is due to the legislature in September 2008.

Background

The 2005 legislature directed the Department of Administrative Services and the Legislative Fiscal Office to develop a measure for boards and commissions having governance oversight to use in evaluating their own performance. Because the EQC is included in the Department of Environmental Quality's budget and because it hires DEQ's executive director, DAS and LFO deemed the EQC to have governance oversight and identified it as one of the boards and commissions that should have a performance measure.

On December 14, 2006, the EQC adopted the "percent of total best practices met by the commission" as the performance standard. The measure is an annual self-assessment against 15 best practices for boards and commissions, as laid out by DAS and customized to the EQC.

At the February 2008 meeting, the EQC reviewed its progress on performance measures thus far. Prior to the August meeting, EQC members will individually complete self-evaluations and mail them back to DEQ for compilation. At the August meeting, the EQC will hold a group discussion about how it is doing, factors affecting its performance, and what it needs to do to improve future performance.

Next Steps

Following the August 2008 EQC meeting, DEQ staff will compile the results of the EQC members' individual self-evaluations and convey the results to the legislature by September 1, 2008. DEQ staff will follow up with EQC members on any actions identified that could improve the EQC's future performance.

Attachments
A. Best Practices Self-Assessment
B. Progress on Performance Measures for Fiscal Year 2007

Approved:

Division: ______________________

Report Prepared By: Wendy Simons
Phone: 503-229-5301

Agenda Item M, Informational Item: EQC's Own Performance Measures
August 21-22, 2008 Meeting
Attachment A

Best Practices Self-Assessment

Annually, board members are to self-evaluate their adherence to a set of best practices and report the percent of total best practices met by the board (percent of yes responses in the table below) in the *Annual Performance Progress Report* as specified in the agency Budget Instructions published by the Department of Administrative Services.

Recommended Assessment Process

1. The EQC coordinator will facilitate the self-evaluation.
2. Individual EQC members will complete the score card shown below using Attachment A for definition of the EQC's performance criteria. EQC members are requested to mail their responses to DEQ in an envelope provided with their meeting materials.
3. The EQC coordinator will tabulate the results for all EQC members in advance of the August regular EQC meeting.
4. The EQC will discuss the results, particularly the results for those areas where there are disparate responses or where the group agrees that they are not adhering to a best practice.
5. The EQC coordinator will record the group's joint response to each best practice on a new score card. If consensus is not achieved, the response will be recorded as "no."

Best Practices Assessment Score Card

Best Practices Criteria	**Yes**	**No**
1. Executive Director's performance expectations are current.		
2. Executive Director's receives annual performance feedback.		
3. The agency's mission and high-level goals are current and applicable.		
4. The board reviews the *Annual Performance Progress Report.*		
5. The board is appropriately involved in review of agency's key communications.		
6. The board is appropriately involved in policy-making activities.		
7. The agency's policy option packages are aligned with their mission and goals.		
8. The board reviews all proposed budgets.		
9. The board periodically reviews key financial information and audit findings.		
10. The board is appropriately accounting for resources.		
11. The agency adheres to accounting rules and other relevant financial controls.		
12. Board members act in accordance with their roles as public representatives.		
13. The board coordinates with others where responsibilities and interests overlap.		
14. The board members identify and attend appropriate training sessions.		
15. The board reviews its management practices to ensure best practices are utilized.		
16. Others *[The board may add additional best practices at their discretion.]*		
Total Number		
Percentage of Total		

Analyzing Assessment Results and Defining Next Steps

Once the above table has been completed, the board will want to prepare responses to the following questions. Answers will be integrated into the report DEQ will send to the legislature.

- How are we doing?
- How do we compare to others and/or to our target? (Once this data is available.)
- What factors are affecting our results?
- What needs to be done to improve future performance?

Progress on Performance Measures for Fiscal Year 2007

Best Practices Criteria	System for Achieving Success	Progress on meeting criteria for Fiscal Year 2007
1. Executive director's performance expectations are current.	Director's current performance evaluation and the agency's performance measures.	July 2009: Performance evaluation of new DEQ director (after the new director has been on the job for a year) December 2007 EQC meeting: Commission received semi-annual report on DEQ performance measures
2. Executive director's performance has been evaluated in the last year.	Full-blown formal evaluation biennially. In off years, the EQC will informally give feedback to the director when it receives one of the regular semi-annual reports on performance measures results.	July 2009: Performance evaluation of new DEQ director (after the new director has been on the job for a year; last formal evaluation of DEQ executive director's performance was December 15, 2006)
3. The agency's mission and high-level goals are current and applicable.	EQC actively participates in development of the 5-year strategic plan and the biennial review of the plan.	October 2007 EQC meeting: Strategic Planning Discussion
4. The Commission reviews the *Annual Performance Progress Report* as submitted to the legislature.	The EQC reviews the annual report and also an annual report of other agency measures not included in the legislative report.	October 2008 EQC meeting: Review DEQ submittals for fiscal years 2006 and 2007
5. The Commission is appropriately involved in review of agency's key communications.	EQC is involved in DEQ's public process and key media communications. The director coordinates regularly with the Governor and reports to the	Daily: DEQ sends "DEQ in the News" to EQC members by email, detailing media coverage of DEQ and all press releases issued by DEQ

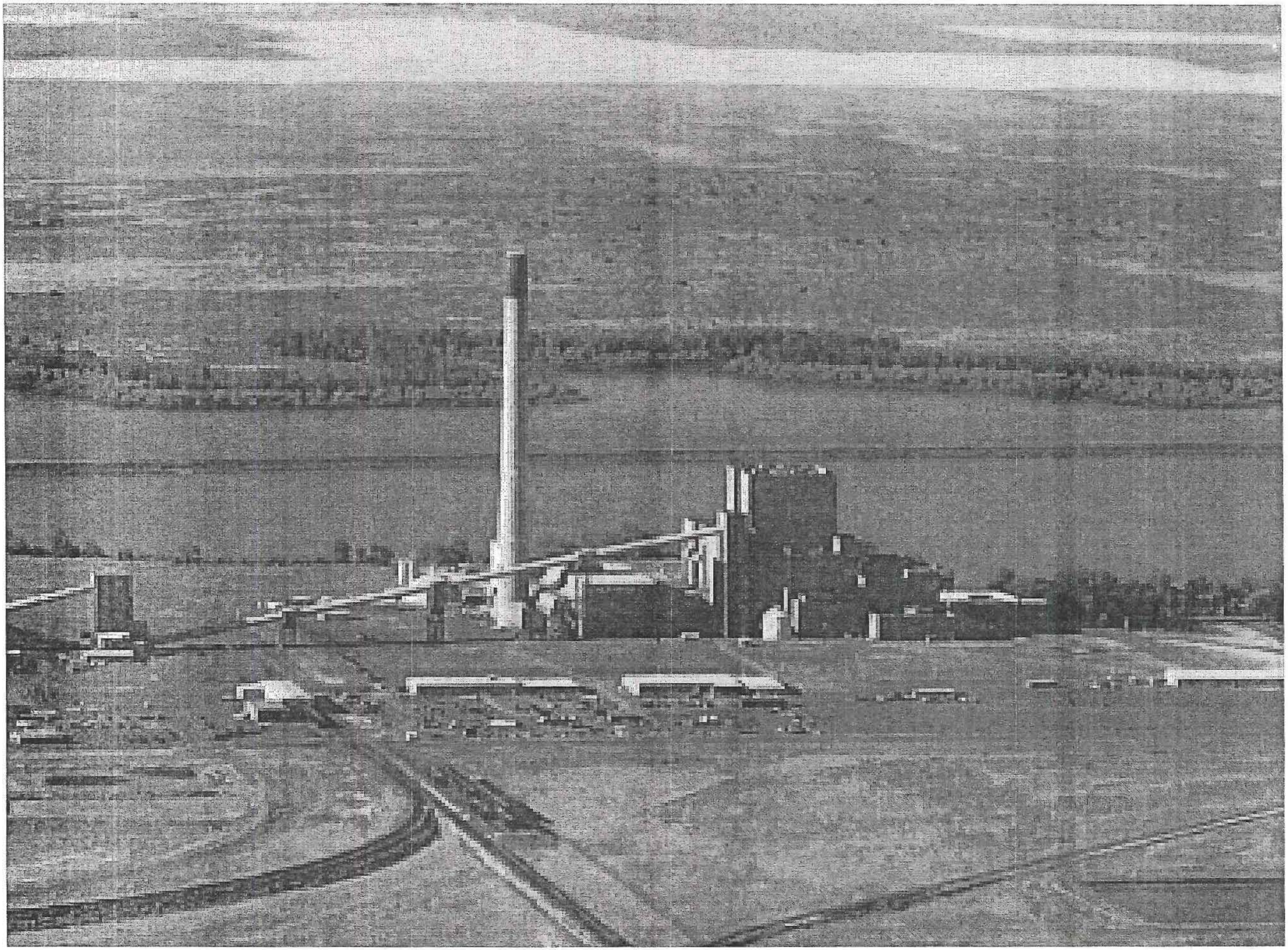
Best Practices Criteria	System for Achieving Success	Progress on meeting criteria for Fiscal Year 2007
	EQC on key communications with the Governor's Office in the director's dialogue during regular EQC meetings.	Every EQC meeting: Update on director's communications in director's dialogue Periodically as needed: DEQ notifies EQC of high profile rulemaking activities, including public hearings
6. The Commission is appropriately involved in policy-making activities.	EQC reviews the agency's annual rulemaking agenda and participates in key rulemaking hearings. Commissioners are also involved in the rulemaking process for contentious or critical policies.	December 2007 EQC meeting: EQC reviewed DEQ rulemaking agenda April 2008: Public hearing on greenhouse gas reporting rule
7. The agency's policy option packages are aligned with their mission and goals (biennially).	The EQC guides and collaborates with DEQ in budget and legislative agenda development.	December 2007 and February, April, and June 2008 EQC meetings
8. The board reviews all proposed budgets.	The agency budget is reviewed periodically during development, and the budget request is certified by the EQC Chairperson.	February, April, and June 2008 EQC meetings: DEQ provided updates on budget development August 2008: EQC chairperson will certify DEQ's budget request
9. The board periodically reviews key financial information and audit findings.	DEQ will provide an Annual Financial Report to the EQC reviewing audit reports and financial performance.	June 2008 EQC meeting: DEQ provided overview of financial status of agency for current biennium October or December 2008 EQC meeting: DEQ will propose content for new Annual Financial Report to the EQC; DEQ and EQC will discuss what financial

Best Practices Criteria	System for Achieving Success	Progress on meeting criteria for Fiscal Year 2007
		reports and information would be most helpful to the EQC in meeting its governance oversight responsibilities
10. The board is appropriately accounting for resources.	Include in the Annual Financial Report to the EQC.	October or December 2008 EQC meeting: DEQ will propose content for new Annual Financial Report to the EQC; DEQ and EQC will discuss what financial reports and information would be most helpful to the EQC in meeting its governance oversight responsibilities
11. The agency adheres to accounting rules and other relevant financial controls.	Include in the Annual Financial Report to the EQC. In addition, the Commission reviews the director's expenditures annually.	February 2008 EQC meeting: EQC reviewed and approved director's expenditures for 2007 October or December 2008 EQC meeting: DEQ will propose content for new Annual Financial Report to the EQC; DEQ and EQC will discuss what financial reports and information would be most helpful to the EQC in meeting its governance oversight responsibilities
12. Commission members act in accordance with their roles as public representatives.	Use the Board and Commission Training Manual.	No specific date
13. The Commission coordinates with others where responsibilities and interests overlap.	Example: joint meetings with other agencies; maintaining a designee on the Oregon Watershed	April 2008 EQC meeting: Joint evening meeting with Oregon Environmental Council

Best Practices Criteria	System for Achieving Success	Progress on meeting criteria for Fiscal Year 2007
	Enhancement Board (OWEB).	Commissioner Ken Williamson is the EQC's designee on OWEB Examples of joint work with state-level agencies, boards, and associations: • Oregon Department of Agriculture on field burning and CAFOs • Board of Forestry on smoke management • Public Health Division on rulemakings related to drinking water safety and toxics reduction • Association of Clean Water Agencies on pharmaceutical take back programs and toxics reduction Coordination with Tribal Nations on chemical weapons destruction and the fish consumption rate project
14. The Commission members identify and attend appropriate training sessions.	Examples: New board member training and agency orientation for new Commission members. Periodic informational presentations and workshops to inform Commissioners about upcoming EQC decisions.	Orientation and training meetings for new Commission member Jane O'Keeffe with DEQ staff and EQC counsel July 28 and August 18-19, 2008 Examples of informational presentations: • October 2007 and August 2008 - updates on fish consumption rate project • June 2008 - update on electronics recycling act implementation

Best Practices Criteria	System for Achieving Success	Progress on meeting criteria for Fiscal Year 2007
15. The Commission reviews its management practices to ensure best practices are utilized.	Annual review of these 15 best practices; annual review of the EQC Involvement Process.	August 2008 EQC meeting

Boardman Plant Facts



Boardman Plant Facts

Plant Facts:

- Dry bottom wall fired boiler
- 617 Megawatts (gross)
- 5,793 million Btu/hr heat input
- sub-bituminous pulverized coal
- 350 tons of coal per hour
- coal is burned to make superheated high pressure steam that drives a turbine connected to a generator

Permit History:

- Commenced construction in 1975 (binding contract)
- EPA determined that facility was not subject to prevention of significant deterioration rules
- Oregon FSEC predecessor issued Cite Certificate in 1975
- DEQ issued temporary Air Contaminant Discharge Permit in 1977
- DEQ issued final ACDP in December of 1979
- Plant commenced operation in 1980
- Current Oregon Title V Operating Permit issued in 2001
- Permit renewal is in process

Performance Standards:

Pollutant	Emission limit	Controls	Regulation	Monitoring
Visible emissions	20% opacity	Electrostatic precipitator (ESP)	Federal new source performance standards (NSPS)	Continuous opacity monitoring system (COMS)
Particulate matter (PM)	0.04 lb/mmBtu heat input	ESP	State limit	COMS
Sulfur dioxide (SO_2)	1.2 lb/mmBtu (3-hr average)	Low sulfur coal	Federal NSPS	Continuous emission monitoring system (CEMS)
Nitrogen oxides (NO_x)	0.7 lb/mmBtu (3-hr average)	Low NO_x burners	Federal NSPS	CEMS
	0.46 lb/mmBtu (annual average)	Low NO_x burners	Federal NSPS	CEMS
Mercury (Hg)	90% capture or 0.060 lb/mmBtu (annual average)	Carbon absorption	State	CEMS

Boardman Plant Facts

Plant Site Emission Limits:

Pollutant	Limit (tons/year)	2007 actual emissions (tons/year)
PM	1,056	853
SO_2	30,450	14,037
NO_x	12,687	10,656
CO	767	645
VOC	92	77
Hg	---	0.155
CO_2	---	4,813,294

Comparison to Centralia Plant:

Summary for last 12 years:

	Centralia Unit BW21	Centralia Unit BW22	Boardman
Average heat input (million Btu/hr)	6,781	6,726	5,721
Average load (MW-hr)	584	619	547
Operating time (hours)	89%	88%	77%
Total SO_2 (tons)	224,516	194,992	143,210
Average SO_2 rate (lbs/million Btu)	0.73	0.66	0.65
Total NO_x (tons)	96,550	96,693	93,091
Average NO_x rate (lbs/million Btu)	0.32	0.32	0.41

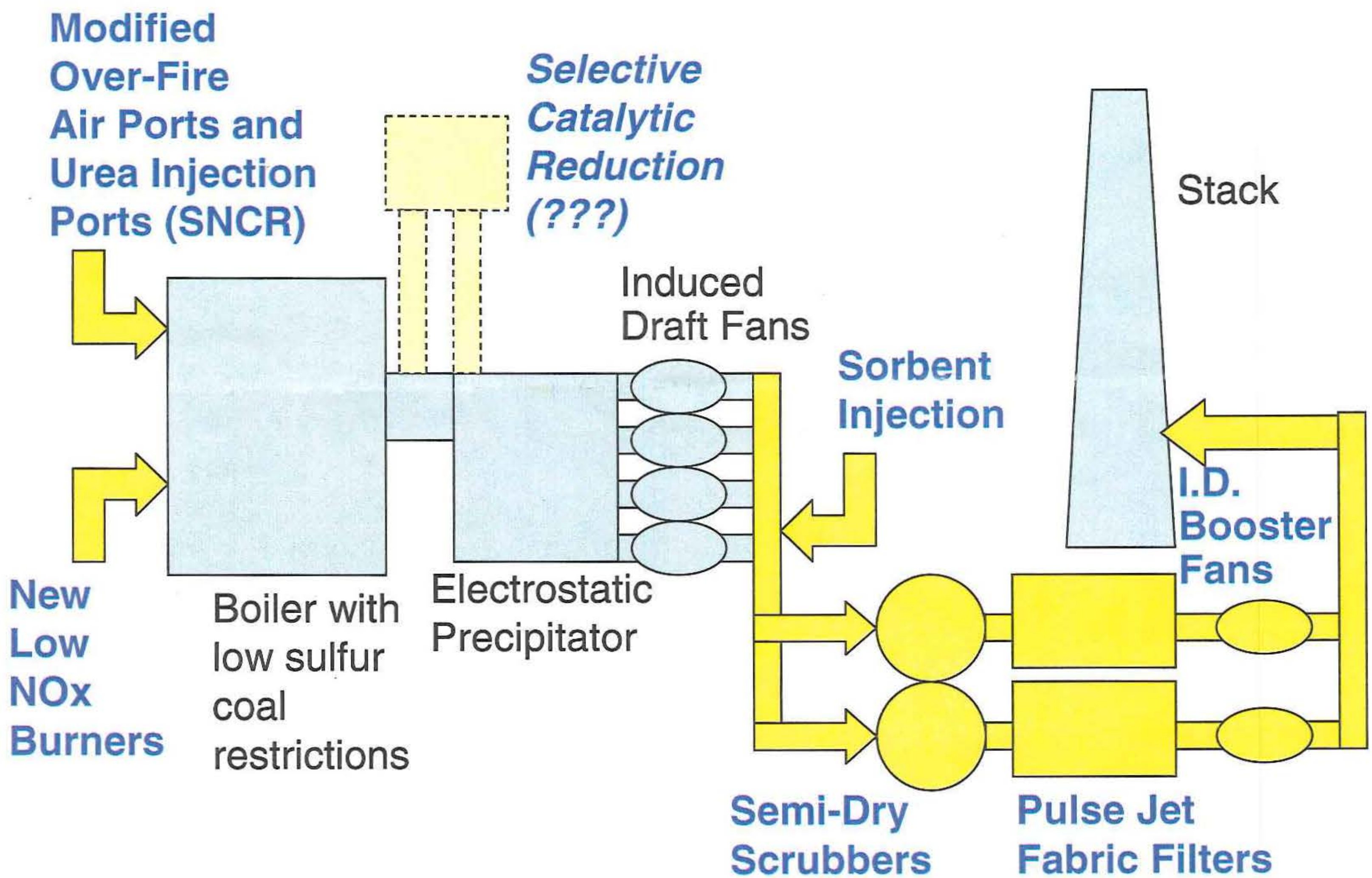
2007 emissions:

	Centralia Unit BW21	Centralia Unit BW22	Boardman
Average heat input (million Btu/hr)	6,443	6,333	6,034
Average load (MW-hr)	576	579	594
Operating time (%)	7,885	7,746	7,775
Total SO_2 (tons)	934	1,193	14,037
Average SO_2 rate (lbs/million Btu)	0.04	0.05	0.60
Total NO_x (tons)	6822	5,337	10,657
Average NO_x rate (lbs/million Btu)	0.27	0.22	0.45

Other Information:

- 415 coal fired power plants in the nation
- 1,041 coal fired units at the plants
- All electric generating units are subject to federal Acid Rain program
    - Cap and trade program to reduce sulfur dioxide emissions
    - The Boardman plant is a phase II unit with approximately 13,000 allocations per year (tons/year)
- Existing coal fired plants in the Eastern United States are/were subject to the following programs to reduce ozone:
    - NO_x State Implementation Plan call (emission reductions within state)
    - Clean Air Interstate Rule (cap and trade for regional control of NO_x)
- New coal fired plants are subject to Prevention of Significant Deterioration Rules
    - Best available control technology
    - Air quality impact analysis
        - Ambient air quality standards
        - PSD increments
        - Class I wilderness areas
            - Standards and increments
            - Visibility and deposition

Block Diagram (After New NOx, SO2, PM & Hg Controls)



Handout from PGE Boardman Tour

Handout from PGE
Boardman tour

PGE

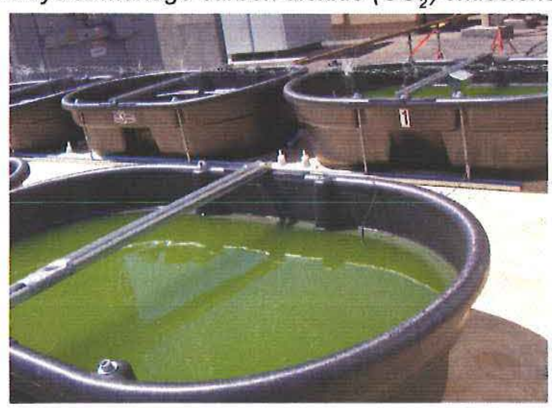
Algae Carbon-Capture Pilot

Portland General Electric is committed to meeting Oregon's growing energy needs in a reliable, cost-effective and increasingly sustainable way.

As part of that focus, PGE is developing an aggressive action plan to cut permitted haze-causing emissions and mercury emissions from the Boardman Plant in northeastern Oregon. The effort is part of our shared, regional and statewide commitment to improve visibility in wilderness areas and national parks.

Improvements of this kind are important at Boardman as the 600-MW plant is the workhorse of PGE's generating resources, dependably and cost effectively providing about 15 percent of PGE's total generating capacity. It also assures our customers a diverse power generation mix and enables PGE to avoid dependence on any one type of fuel.

As the company moves forward with these efforts to reduce haze and mercury, we are also actively investigating ways to manage carbon dioxide (CO_2) emissions. Doing so is a key step in addressing greenhouse gases that contribute to global climate change.



Toward that end, PGE, in collaboration with corporate and academic partners, has undertaken an experimental, small-scale pilot project to explore using algae as a means to capture and consume CO_2 emissions from power plants such as Boardman. Special attention will be given to how the algae might then be harvested and sold for production of biofuel and livestock feed.

PGE is among the first utilities to undertake a dedicated investigation of using algae to address CO_2 emissions. The study, still in its early, exploratory phase, will investigate the effectiveness and commercial viability of a large-scale algae carbon-capture project.

How does algae carbon capture work?

The algae carbon-capture process involves diverting the flue gases produced during power generation, including CO_2, to an outgoing pipe in the side of the exhaust stack. After first traveling through a cooling bath, the pipe delivers the gas to the pools where it is absorbed by the algae. Each day, the algae are skimmed from the water for harvesting.

Amy Behbehani-Divers
Loren Mayor, Dan Rodgers
Reuben Plantico,
Jaisen Mody

Transporting the CO_2 from plant to pools

To capture the CO_2, the gas is routed from the exhaust stack, cooled to avoid damaging or killing the algae and then introduced directly into the pools. This can be done through underground or above-ground piping.

Capturing the CO_2 in the algae

Algae require CO_2, along with sun, water and nutrients, to grow. Housed in tanks, ponds or pools, the algae are "fed" the emitted CO_2 from the power plant. Research suggests that under proper conditions algae actually grow faster when fed CO_2 emissions from fossil-fuel combustion. Algae also consume other emission constituents, including nitrous and sulphur oxides.

Harvesting the algae

Because of its rapid growth rate, algae can be harvested daily. The oils, or lipids, with which it is laden can then be extracted and sold for production into clean-burning biofuel. The remaining by-products include water, oxygen and an algal cake that can be commercialized as fertilizer or high-value livestock feed.

Why algae?

Not only does algae permit daily harvesting, it also delivers a yield of biofuel per acre unmatched by other biofuel alternatives — 1,000 times greater in some cases. One productivity model estimates that 48 gallons of biodiesel can be produced from an acre of soybeans, whereas algae could produce 819 gallons, and perhaps as many as 5,000 gallons, from a single acre.

And because algae can flourish in fresh water, saltwater, even wastewater, as well as in areas that cannot support agriculture, it avoids the fuel-versus-food issue.

What will the study prove?

This initial exploratory phase will establish which of the available naturally occurring algae strains are best suited to the CO_2 capture process. To do so, PGE and its partners will study how each algae strain lives and reproduces, how fast it grows, how resistant it is to temperature and how much CO_2 it consumes, among other details. The results will determine if further analysis in a larger second phase is warranted.

Why is PGE helping lead the way with algae carbon capture?

Pursuing promising technologies and strategies is one way PGE seeks to meet growing demand, while protecting the environment and keeping prices reasonable for our customers.

Investigation of post-combustion algae carbon capture fits with those goals and boasts a number of possible benefits for PGE, the environment and the wider community. In addition to cutting CO_2 emissions at the Boardman Plant, PGE could commercialize the algae for production as a cleaner-burning biofuel and high value livestock feed.

Is algae carbon capture new?

Algae carbon capture has been studied extensively at national laboratories and in academic institutions such as Ohio State University and the Massachusetts Institute of Technology. In 2006, Arizona Public Service was one of the first to grow algae on site via a direct connection to a commercial power plant and then offer the algae for conversions to transportation-grade biofuel. NRG Energy field-tested similar technology at one of its coal-fired plants in Louisiana in 2007.

Spoke to EQC 8/21/08, Item F

(1)

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(2)

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(6)

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Spoke to EQC 8/21/08 Item F

(7)

Oregon Environmental Quality Commission

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600 MW plant

Agenda Item ____ or
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(4)

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Public Forum
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Agenda Item F or
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(5)

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Public Forum
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(3)

Oregon Environmental Quality Commission

Public Forum
Request to Present Information

Agenda Item ____ or
Topic of Presentation Response to Citizen Questions about Experimental Test on Mercury Behavior by Detonation System "DAVINCH"

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Spoke to EQC 8/21/08 during Item F

(8)

Oregon Environmental Quality Commission

Public Forum
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9

Oregon Environmental Quality Commission

Public Forum
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Agenda Item O or
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