OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS 05/16/1996

State of Oregon
Department of Environmental Quality

AGENDA

ENVIRONMENTAL QUALITY COMMISSION MEETING
May 16-17, 1996

Notes:

Because of the uncertain length of time needed for each agenda item, the Commission may deal with any item at any time in 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 agreeable with participants. Anyone wishing to listen to the discussion on any item should arrive at the beginning of the meeting to avoid missing the item of interest.

Public Forum: The Commission will break the meeting at approximately **11:30 a.m.** for the Public Forum if there are people signed up to speak. The Public Forum is an opportunity for citizens to speak to the Commission on environmental issues and concerns not a part of the agenda for this meeting. The public comment period has already closed for the Rule Adoption items and, in accordance with ORS 183.335(13), no comments can be presented to the Commission on those agenda items. Individual presentations will be limited to 5 minutes. The Commission may discontinue this forum after a reasonable time if an exceptionally large number of speakers wish to appear.

May 16, 1996
World Trade Center Auditorium
25 SW Salmon, Bridge Level
Portland, Oregon
Thursday, May 16, 1996: 10:00 am to 4:00 pm

1. **Work Session**: Umatilla Army Depot Chemical Demilitarization: Technical Issues and Alternatives to Incineration

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May 17, 1996
DEQ Conference Room 3A
811 S. W. Sixth Avenue
Portland, Oregon
Friday, May 17, 1996: Regular Meeting beginning at 8:30 am

A. Approval of Minutes

B. Approval of Tax Credits

C. †**Rule Adoption**: Amendments, Solid Waste and Recycling Administrative Rules

D. **Informational Item**: Emergency Response Planning for the Umatilla Army Depot

E. **Informational Item**: Invited Panel Presentation: Community Concerns about Umatilla Army Depot

F. †**Rule Adoption**: Oregon Title V Operating Permit Fee Increase

G. **Action Item**: Variance Application of Mr. & Mrs. William Bones

H. **Action Item**: Calvin and Annette Van Der Veen dba C&A Dairy, Case No. WQAW-NWR-93-126--Appeal of Hearing Order Regarding Violation and assessment of Civil Penalty

I. Commissioners' Reports (Oral)

J. Director's Report (Oral)

Hearings have already been held on the Rule Adoption items and the public comment period has closed. In accordance with ORS 183.335(13), no comments can be presented by any party to either the Commission or the Department on these items at any time during this meeting.

The Commission will travel to the Tooele, Utah, Chemical Agent Disposal Facility on May 10, 1996, for an informational tour.

The Commission has set aside July 11-12, 1996, for their next meeting. The location has not been established.

Copies of staff reports for individual agenda items are available by contacting the Director's Office of the Department of Environmental Quality, 811 S. W. Sixth Avenue, Portland, Oregon 97204, telephone 229-5395, or toll-free 1-800-452-4011. Please specify the agenda item letter when requesting.

If special physical, language or other accommodations are needed for this meeting, please advise the Director's Office, (503)229-5395 (voice)/(503)229-6993 (TTY) as soon as possible but at least 48 hours in advance of the meeting.

May 7, 1996

Agenda

UMATILLA ARMY DEPOT
Proposed Chemical Weapons Incineration Facility

Thursday, May 16, 1996
10:00 AM to 4:00 PM
World Trade Center Auditorium
25 SW Salmon St., Bridge Level
Portland, Oregon

Type of meeting: ENVIRONMENTAL QUALITY COMMISSION (EQC) WORKSESSION

Agenda topics

10:00-10:30 AM	Review of Air Permit	Peter Brewer, Permit Writer, DEQ*
10:30-11:30 AM	Review of Risk Assessment	Regina Skarzinskas, DEQ* Toxicologist; Ecology & Environment contractors
11:30-12:00 PM	Review of Findings EQC must make	Larry Edelman, Oregon Dept. of Justice
12:00- 1:00 PM	Lunch Break	
1:00- 4:00 PM	Panel on alternatives to incineration (15 min. per panelist, followed by Question & Answer from the EQC)	Dr. Richard Magee, Chairman of the National Academy of Sciences Review and Evaluation of the Army's Chemical Stockpile Disposal Program, Washington DC Bob Boylston, AEA Technology, Washington DC Charles Fry, M4, Oakridge, Tenn. Dr. Wayland Swain, Eco Logic, Ontario, Canada Pat Costner, Senior Research Scientist, Greenpeace Dr. J. Richard Ward, Chief Scientist, Alternative Technology Program, US Army Aberdeen Proving Ground, MD Colonel James Coverstone, Deputy Program Manager for Chemical Demilitarization, US Army Aberdeen Proving Ground, MD

*DEQ = Department of Environmental Quality

STATEMENT BY

Richard S. Magee, Sc.D., P.E., DEE

Chairman of the Committee on Review and Evaluation
of the Army Chemical Stockpile Disposal Program
National Research Council/National Academy of Sciences
and
Professor and Executive Director
Center for Environmental Engineering and Science
New Jersey Institute of Technology

before the

Environmental Quality Commission
of the
State of Oregon

May 16, 1996

Good afternoon, ladies and gentlemen. I would like to thank you for the opportunity to speak with you on behalf of the National Research Council (NRC) Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program, or Stockpile Committee, on the use of incineration and alternative technologies for the destruction of chemical agent and munitions. As its title indicates, the committee concentrates on providing the Army with technical advice and counsel on specific aspects of its Chemical Stockpile Disposal Program.

First, by way of background, I am Dr. Richard S. Magee, Professor and Executive Director of the Center for Environmental Engineering and Science at New Jersey Institute of Technology. Today, I am speaking in my capacity as the chairman of the Stockpile Committee, and I would like to point out that I am empowered to speak on these matters on behalf of the NRC only inasmuch as I reflect views, findings, conclusions, and recommendations that have been objectively prepared, independently peer reviewed, and formally reported in writing. The National Research Council is the operating arm of the National Academy of Sciences and National Academy of Engineering, and as such, contracts with government and other agencies to organize and perform independent studies. Most study committees, working on a single major topic, complete their work in 12-24 months, and then disband. Some committees, like the standing Stockpile Committee, which has been in existence since 1987, have a continuing mandate that may extend for years. The membership of such a committee is sufficiently broad to provide expertise over a range of engineering, scientific, and technical issues. In the case of the Stockpile Committee, it has always rotated and transformed its membership as old issues pass on and new issues arise. At the moment, the committee has 15 members, with approximately 52 years of combined experience on the committee, and the average age of the membership is about 54 years. In sum, I would like to emphasize that the Stockpile Committee is an organization that

has a commitment to excellence, the capability to reflect on issues wisely, and the experience to make sound judgments.

Following extensive evaluation of the U.S. Army's Chemical Stockpile Disposal Program's (CSDP) baseline incineration system between the years 1990 to 1994, and numerous alternative technologies to incineration proposed to the committee between 1992 and 1994, the Stockpile Committee, in February 1994, issued a comprehensive report, *Recommendations for the Disposal of Chemical Agents and Munitions*. In this report, the committee selected as its primary criterion in formulating its recommendations "the minimization of the cumulative adverse consequences from all relevant risks over the full duration of the disposal program," otherwise denoted as cumulative total risk. Upon considering the storage and disposal operations components of this total risk, the committee determined that the risk of continued storage outweighed the risk of any disposal operations. Specifically, it became clear that delays in the disposal program would increase cumulative total risk. Consequently, the committee found that the disposal program should proceed expeditiously, at a pace in keeping with reasonable and safe facility construction and operating schedules. This prompted the committee's primary recommendation for expeditious disposal.

Also in the *Recommendations* report, the Stockpile Committee found that the baseline incineration system had been demonstrated (at the Johnston Atoll Chemical Agent Disposal Facility, or JACADS) as a safe and effective disposal process for the chemical stockpile. The committee also found that the then current status of alternative technologies in 1994 ranged from those in commercial use (for applications other than agent destruction), to those based only on preliminary laboratory experiments. The most promising alternative technologies for agent

disposal involved neutralization followed by secondary treatment options. As a result, the committee recommended that the CSDP continue on schedule with the baseline system until such time as alternatives might be developed and proven safer, less costly, or more rapidly implementable. The committee also recommended that neutralization research be accelerated and expanded, and that the Army continue to monitor research developments in alternative technologies.

I will return to the subject of alternative technologies in a moment. But first, I would like to discuss the overall Chemical Stockpile Disposal Program and the baseline incineration system in some detail. In January 1993, the Stockpile Committee issued a letter report to the Assistant Secretary of the Army (Installations, Logistics and Environment), recommending specific actions to enhance the CSDP risk management process. The report included recommendations for site-specific risk assessments for facilities in the continental United States. The Program Manager for Chemical Demilitarization embarked on this effort by initiating a site-specific quantitative risk assessment (QRA) for the Tooele Chemical Agent Disposal Facility (TOCDF) at Tooele Army Depot in Utah, where approximately 45 percent of the total chemical stockpile is located. The TOCDF is the first full-scale chemical disposal facility to be built in the continental United States. The risk assessment was an extensive and expensive, but necessary undertaking by the Army. The Stockpile Committee has followed the effort very closely, right up to this present time.

In April 1994, the Stockpile Committee issued its report, *Review of Monitoring Activities within the Army Chemical Stockpile Disposal Program*, which basically found that "the monitoring system currently in use at JACADS [Johnston Atoll Chemical Agent Disposal System]

should be improved prior to employment at sites in the continental United States." The report made 15 recommendations to the Army, five general and ten specific. The specific recommendations addressed six issues involving plant-wide agent monitoring, and exhaust stack agent and agent destruction by-product monitoring, and four issues affecting the operation of the analytical laboratories supporting both agent and nonagent monitoring activities. The Army's reaction to the recommendations in the *Monitoring* report were extensive and comprehensive. This work has also been closely followed by the committee for more than four years.

In July 1993, the Stockpile Committee issued a brief letter report, *Evaluation of the Johnston Atoll Chemical Agent Disposal System Operational Verification Testing: Part I*, in which the committee recommended the initiation of systemization (operational testing) of the TOCDF as the first disposal facility scheduled to come on line in the continental United States, and recommended use of systemization to implement recommended improvements relating to safety, environmental performance, and plant efficiency. In its *Part II* report by the same name, the committee focused extensively on the issues of safety, performance, and efficiency, and on the changes and improvements that could and should be made prior to initiating destruction of agent and munitions at the TOCDF.

On safety, the committee noted some areas at JACADS where there were opportunities for improved safety performance. The committee believed that these could be investigated and evaluated during systemization at the TOCDF. As for environmental performance, there was never a detected emission of agent during normal operations at JACADS. However, there were several incidents of agent emission during shutdowns. Nonagent emissions were maintained within RCRA-permitted limits. Compliance testing on the pollution abatement system of the brine

reduction area and the dunnage furnace was not performed during operational verification testing (OVT) at JACADS, and there were some problems in hazardous waste management at that facility. Both the good and the not-so-good aspects of operations at JACADS were all carefully noted by the Stockpile Committee and, obviously, those on the negative side were noted as areas that should be dealt with during the systemization at the TOCDF. Regarding process performance, the committee believed that the baseline system had been adequately tested at the JACADS prototype facility, and that the process worked capably and safely, although it did not achieve all throughput goals. The throughput shortfall was not perceived by the committee as seriously impacting program life cycle costs or the disposal schedule.

The *OVT Part II* report thus contained significant recommendations regarding safety; needed testing and improvement activities; effective permitting activities; compliance with environmental regulations; and the management of safety. The Army's responses to these were numerous and significant. The full committee has visited the TOCDF four times, and many subgroups visited as well to assess the status of the Army's efforts.

In 1995, the Army requested that the Stockpile Committee review and assess the systemization of the TOCDF. This has been accomplished, and resulted in the production of the committee's March 1996 report, *Review of Systemization of the Tooele Chemical Agent Disposal Facility*. The report emphasizes issues raised in the five previous committee reports that I have just described, and states that the committee is generally satisfied with the progress made by the Army in preparing the TOCDF for the start of agent operations.

As I indicated earlier, with its *Recommendations* report in 1994, the Stockpile Committee concluded that the baseline system was adequate for disposal of the stockpile, that the storage risk

would persist until disposal was complete, and that the disposal program be carried out expeditiously. Though already conducting its own alternative technology research program into neutralization and neutralization followed by biodegradation, in mid-1995 the Army concluded that research developments had created an enhanced data base on the performance of other alternative technologies. This new information concerning these alternatives might be sufficient to warrant reexamination of specific alternatives for certain sites. Consequently, the Assistant Secretary of the Army for Research, Development and Acquisition informally explored with the NRC Stockpile Committee the examination of other alternative chemical disposal technologies. Both agreed that a new NRC study would be initiated to reexamine the status of a limited number of maturing alternative chemical disposal technologies (including the two neutralization-based processes on which the Army was then conducting research) for possible employment in the Chemical Stockpile Disposal Program.

In August 1995, the Army issued a call for alternative disposal technologies in the Commerce Business Daily (CBD) to determine if there were any technologies, other than the two already being evaluated by the Army in its Alternative Technology Program, that might be capable, within the CSDP schedule, of meeting chemical demilitarization requirements for the two sites where agent was stored only in ton containers (Aberdeen and Newport). The CBD announcement requested information from industry on any technology that was sufficiently developed to meet the needs of the CSDP. Following a preliminary 30-day screening, the Army in November 1995 selected three technologies for review and evaluation by the NRC—gas phase reduction, molten metal catalytic extraction, and electrochemical oxidation—in addition to the two neutralization processes already under study.

In parallel with the Army selection process, the NRC formed the Panel on Review and Evaluation of Alternative Chemical Disposal Technologies (AltTech Panel), and I was appointed chairman. From November 1995 to June of this year, the panel will be conducting an in-depth review and evaluation of the five selected technologies. To complete its report, the entire panel will meet 6 times; panel subcommittees will have conducted 14 technology site visits; and panel members will have met with regulators, Citizen Advisory Commissions and local citizens in Maryland and Indiana. These activities were designed to enable the panel to:

- establish criteria to assess and evaluate the selected alternative technologies
- assess first-hand the developmental status, engineering robustness and maturity, and operational complexity of the technologies under review
- gather alternative-technology permitting requirements
- solicit views and concerns of the Citizen Advisory Commissions and the general public on the five technologies
- assess technical aspects, strengths and weaknesses, and advantages and disadvantages of each technology
- make recommendations regarding which, if any, of these technologies merit full evaluation and presentation to the Defense Acquisition Board as candidates for pilot-plant demonstrations by the Army.

Public Law 102-484 identified safety as a critical factor in the selection of any technology for the Army's Alternative Technology Program. The Army's decision will be based, in part, on a comparison of the process safety risk for the baseline system and each alternative technology.

Consequently, the Army requested preliminary risk assessments of the proposed alternative technologies by an independent contractor (MITRE Corporation).

To sum up, the Stockpile Committee endorsed the baseline incineration system as a technology to accomplish the overall Chemical Stockpile Disposal Program effectively and expeditiously. However, the committee, by its recommendations regarding alternative technologies, left open the door for the possible employment of a technology other than incineration at selected sites depending on comparative factors of safety, performance, and implementation schedule. The forthcoming report of the AltTech Panel will make recommendations on whether the alternatives have reached a level of engineering maturity and efficiency to be considered for pilot demonstration by the Department of Defense at the Aberdeen and Newport sites. This report is scheduled to be published in late August.

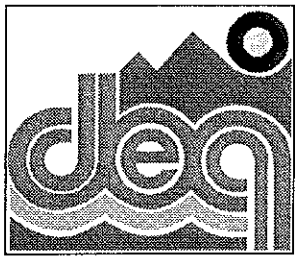
E.Q.C. Worksession
May 16, 1996

Umatilla Chemical Agent Disposal Facility

ecology and environment, inc.
International Specialists in the Environment

ACRONYMS

DFS	Deactivation Furnace System
JACADS	Johnston Atoll Chemical Agent Disposal System
MPF	Metal Parts Furnace
LIC	Liquid Incinerator
DUN	Dunnage Incinerator
BRA	Brine Reduction Area
HW	Hazardous Waste
CFR	Code of Federal Regulations
UMDA	Umatilla Depot Activity
UMCDF	Umatilla Chemical Agent Disposal Facility
DEQ	Oregon Department of Environmental Quality
USEPA	United States Environmental Protection Agency
ACDP	Air Contaminant Discharge Permit
PM	Particulate Matter
PM_{10}	Particulate Matter measuring 10 micrometers or less in diameter
CO	Carbon Monoxide
NO_x	Nitrogen Oxides
O_2	Oxygen
SO_2	Sulfur Dioxide
VOC	Volatile Organic Compound
COPC	Constituent of Potential Concern
IRIS	Integrated Risk Information System
HEAST	Health Effects Assessment Summary Table
ORNL	Oak Ridge National Laboratory
GB/VX	Nerve Agents
HD	Blister Agent (Mustard)
SRA	Screening Risk Assessment



GLOSSARY

Deactivation Furnace System—Incinerator designed to burn explosives and propellants from munitions.

Johnston Atoll Chemical Agent Disposal System—United States Army facility for the destruction of nerve agent munitions.

Metal Parts Furnace—Incinerator designed to decontaminate projectiles and bulk munitions parts.

Liquid Incinerator—Incinerator designed to burn and destroy liquid nerve agents.

Dunnage Incinerator—Incinerator designed to burn trash and packing materials from the storage and destruction of nerve agent munitions.

Brine Reduction Area—Processing area for concentrating and packing the wastes from the incinerator pollution control systems.

Hazardous Waste—A waste that may pose a threat to human health and the environment when improperly handled, stored, or managed (Federal law [40 CFR 261] identifies specific wastes that are deemed to be hazardous).

Code of Federal Regulations—United States laws.

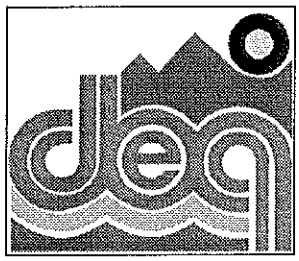
Umatilla Depot Activity—United States Army facility near Hermiston, Oregon where nerve agents are stored.

Umatilla Chemical Disposal Facility—A proposed incinerator for the destruction of chemical warfare munitions.

United States Environmental Protection Agency—Regulatory agency responsible for developing the combustion strategy and implementation guidance for incinerator risk assessments.

Particulate Matter—Very small particles of ash or unburned materials that are emitted from incinerators, but not trapped by emissions controls devices. PM_{10} is an important type of particulate matter of regulatory concern that is less than 10 micrometers in diameter.

Carbon Monoxide—A pollutant containing one carbon atom and one oxygen atom that is commonly produced during incineration.



Nitrogen Oxides—A family of pollutants containing nitrogen and oxygen that are commonly produced during incineration

Sulfur Dioxide—A pollutant containing one sulfur atom and two oxygen atoms that is commonly produced during incineration.

Volatile Organic Compound—A chemical that will evaporate (volatilize) rapidly at normal temperature and barometric pressure.

Constituent of Potential Concern—A chemical that was chosen to be included in the risk assessment.

Integrated Risk Information System—Computerized database of toxicity information.

Health Effects Assessment Summary Tables—Toxicity information that has been gathered and presented by the USEPA.

Oak Ridge National Laboratory—United States Department of Energy Facility in Tennessee where useful risk assessment guidance and information was developed.

Nerve Agents—Chemical Warfare Munitions that are rapidly absorbed by the body and may cause serious nervous system disfunction.

Mustard—A type of nerve agent, commonly referred to as HD or HT.

Screening Risk Assessment—A preliminary, generic, and health-protective risk assessment.

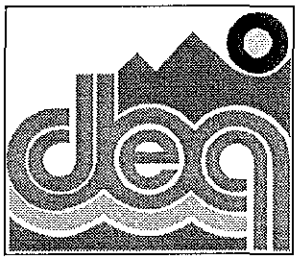
Detailed Risk Assessment—A risk assessment that incorporates more site specific information into the exposure and toxicity assessments. Generally, more realistic and less health protective than a screening risk assessment.

Toxicological Criteria or Benchmarks—Levels of risk, above which some regulatory action may be required.

Habitat—Structure of the ecological community that supports wildlife species.

Receptor—Humans or ecological species that are potentially exposed to stack emissions.

Risk Driver—Constituent of Potential Concern that presents a significant portion of the total risk to human health or the environment, based upon the results of the risk assessment.



Campaign—Period during which a certain type or class of munition is destroyed within the Umatilla Chemical Demilitarization Facility.

Agent—Liquid nerve and blister chemicals stored at the Umatilla Depot Activity.

Constituent—A chemical emitted from the Umatilla Chemical Demilitarization Facility.

Direct Pathway—An exposure route that involves exposure to a constituent of potential concern in the air (e.g. inhalation of particles or vapors emitted from the stack).

Indirect Pathway—An exposure route that involves transfer of a chemical from the air to a secondary exposure medium (such as soil, beef, milk, or plants), then to the receptor.

Dispersion—The process of pollutants being transported by meteorological conditions.

Emission Rate—The amount of emissions released from a source during a specified time period (e.g. grams/second).

Risk Assessment—A technical assessment of the nature and magnitude of adverse impacts to human health and the environment.

Air Quality Permit Overview

The Air Quality Permit is an Air Contaminant Discharge Permit (ACDP Program)

- **Modification to the existing Depot ACDP**
- **Title V air quality permit application after initial operation of the facility**
- **Pollutants regulated**
  - *Criteria pollutants (PM, CO, NO_x, SO_2, VOC)*
  - *Agent*
  - *Others (see hazardous waste permit)*

Air Quality Permit

Requirements of ACDP Program

- Permit Organization
- The facility must be built to the approved plans
- Establishes performance standards for:
  - *Incinerators (air quality and hazardous)*

    Hazardous waste permit requirements are referenced
  - *Boilers*

    Fuel use, emission standards, and limitations

Air Quality Permit

Establishes Plant Site Emission Limits

Campaign Description and Maximum Munition Feed Rates

No.	Campaign Description	No. of Munitions	LIC max/hr	DFS max/hr	MPF max/hr	Tons Agent
1	GB M55 Rocket	91,442	193	38.8	N/A	489
2	VX M55 Rocket	14,519	136	38.8	N/A	72.6
3	GB M121A1 Projectile	47,406	317	160	181	154
4	VX M121A1 Projectile	32,313	227	160	157	96.9
5	GB M426 Projectile	14,246	142	57.1	97	103
6	VX M426 Projectile	3,752	93.8	57.1	81	27.2
7	GB MC-1 Bomb	2,418	9.36	N/A	7.3	266
8	GB MK-94 Bomb	27	19.17	N/A	7.3	1.5
9	VX TMU-28 Spray Tank	156	1	N/A	1	106
10	HD Ton Container	2,635	1.54	N/A	1.72	2,340
11	VX M23 Land Mine	11,685	130	70	N/A	61.3

Air Quality Permit

Plant Site Emission Limits for Criteria Pollutants

Source	Particulate Matter (PM)		Particulate Matter (PM10)		CO		NOx		SO2		VOC	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
UMDA Boilers	1.3	0.9	1	0.7	1	1	7.8	5.1	37	24	0.2	0.1
UMCDF Boilers	0.2	0.8	0.2	0.8	4.5	19	2.2	9.5	0.3	0.8	0.2	0.9
Common Stack (LIC,DFS,MPF)	2	2.1	2	2.1	8.9	13	98	103	26	25	0.2	0.3
Dunnage Incinerator	0.3	0.9	0.3	0.9	1.6	4.6	9.2	28	0.3	0.9	—	—
Brine Reduction Area	2.5	7.6	2.5	7.6	0.6	1.8	0.3	0.9	0.1	0.1	—	—
Credits		87		87								
Totals	6.3	99	6	99	17	39	118	147	64	51	0.6	1.3

Air Quality Permit

Plant Site Emission Limits for Agent

Allowable Stack Gas Concentration

Agent	mg/m^3
VX	0.0003
GB	0.0003
HD	0.03

Emissions of dioxins, furans, metals, etc. (regulated by hazardous waste permit)

Air Quality Permit

Emission Testing Requirements

- Trial burn testing (hazardous waste permit)
- Testing for NO_x and SO_2
- Purpose of testing is to demonstrate compliance with permit conditions

Air Quality Permit

Emission and Operations Monitoring

- Continuous emission monitoring (CO, O_2, agent, temperature)
- Meteorological conditions monitoring
- General process monitoring (fuel use, munitions processed, process, and standby time)

Air Quality Permit

- Reporting Requirements
- Administrative and Procedural Requirements

Air Quality Permit

Conclusion of Permit Process

- Air quality permit issued by the DEQ
- Process parallel to hazardous waste permit without the EQC findings
- Continue to work with hazardous waste group

Regulatory Framework

- Pre-May 1993 - Many hazardous waste incinerator permit reviews included risk assessments, although it was not a regulation or national policy; usually a case-by-case decision.
- May 1993 - USEPA announces the Draft Combustion Strategy, which requires by policy a risk assessment for hazardous waste incinerator permit decisions.
- DEQ concurred with the USEPA Combustion Strategy and began conducting the risk assessment.

Regulatory Framework (continued)

- DEQ formed a team of hazardous waste, air quality, and toxicology staff, along with DEQ contractors to conduct the risk assessment.
- DEQ decided to use the USEPA screening guidance that was developed as part of the Combustion Strategy to aid permit writers, toxicologists, air modelers, and facilities to conduct risk assessments.
- Risk Assessment determined whether emission rates were protective of human health and the environment.
- Permit requires Post-Trial Burn Risk Assessment.

Hazardous Waste Permit

Hazardous Waste Omnibus Authority

"Each permit issued under section 3005 of this act shall contain terms and conditions as the Administrator or State Director determines necessary to protect human health and the environment."

- 40 CFR 270.32(b)(2), as an Oregon rule adopted by Oregon Administrative Rule 340-100-002.

Hazardous Waste Permit

Draft Hazardous Waste Permit Condition VI.B.1.iv.

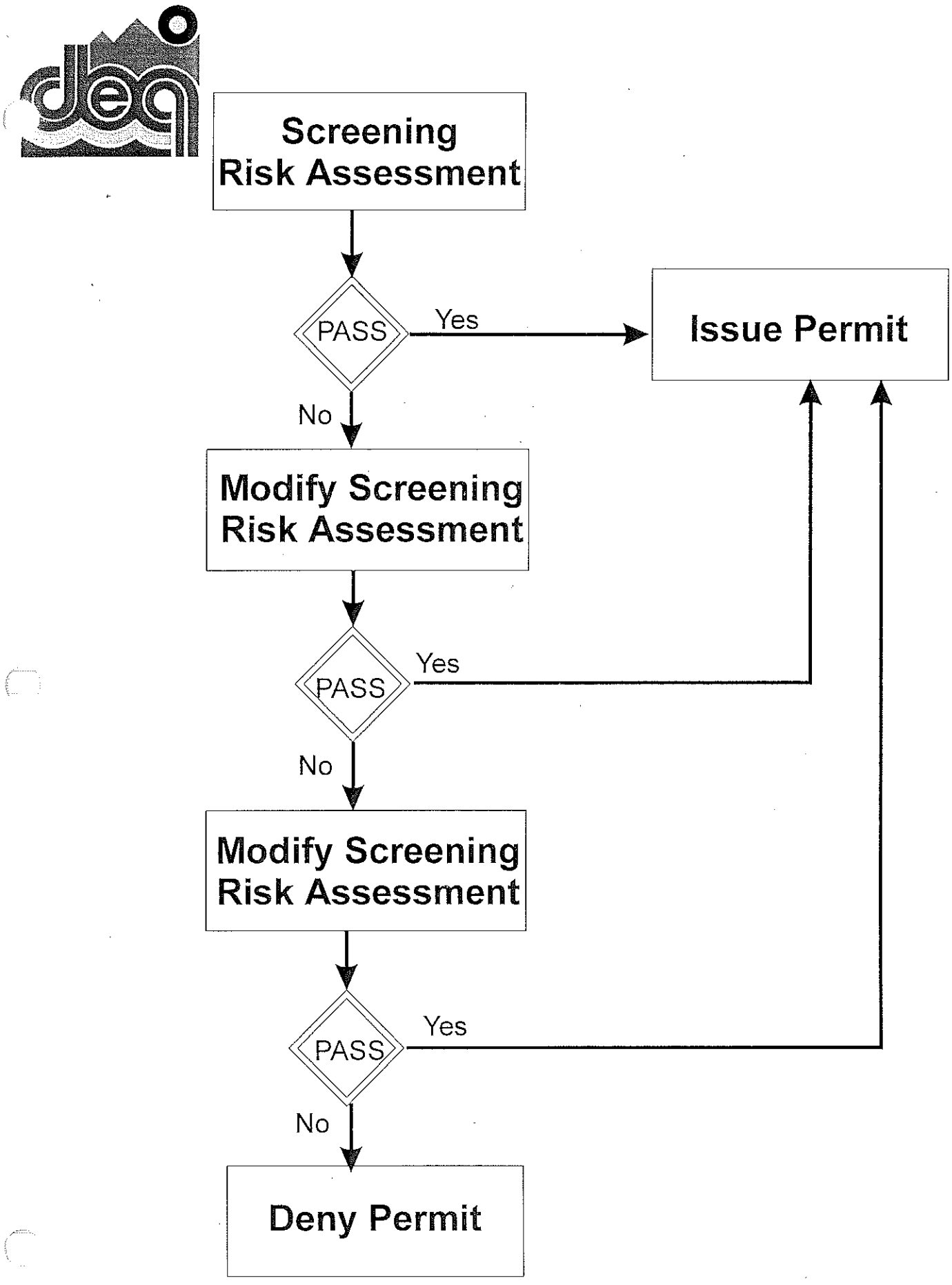
"During the shakedown, trial burn, and post-trial burn periods, if the emission rates listed in Table 6-2 are exceeded, the Permittee shall notify the Department in accordance with permit condition VI.A.5.vii."

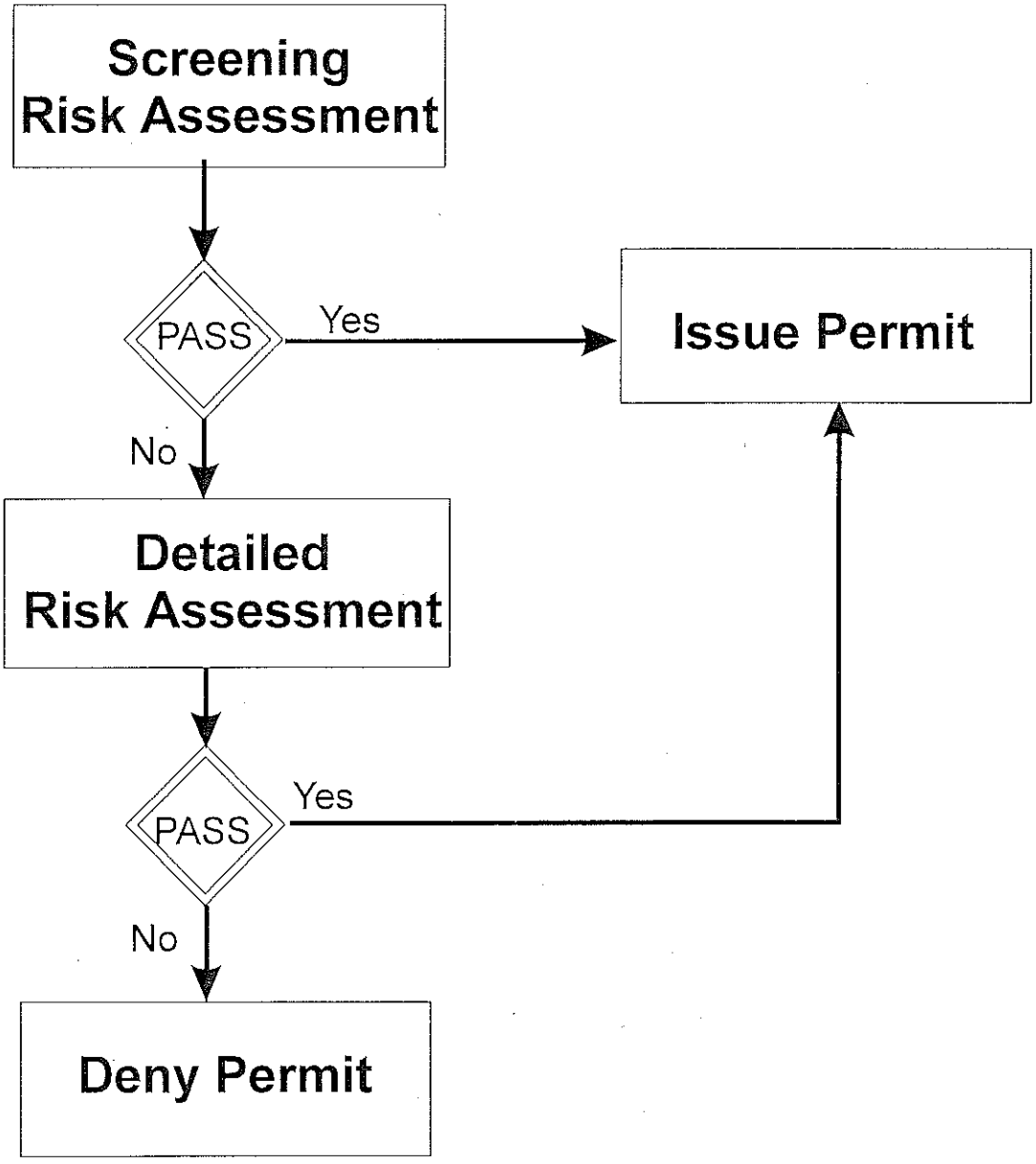
Hazardous Waste Permit

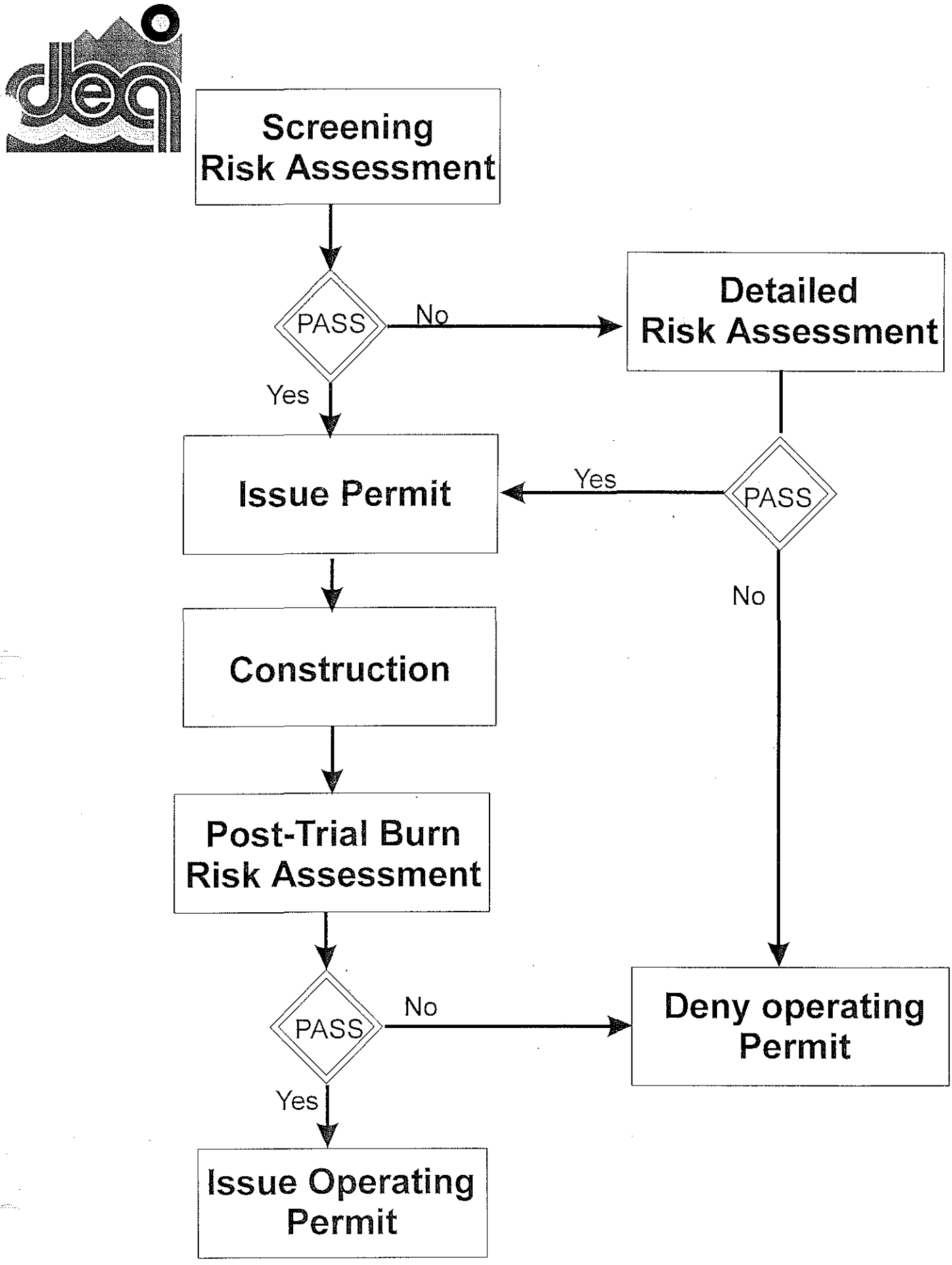
Draft Hazardous Waste Permit Condition VI.A.5.vii.

- If any prescribed emission rate is exceeded, then the Permittee shall notify the Department within 24 hours of its discovery.
- Based on the exceedance notification and any additional information, the Director may direct the Permittee to stop waste feed to the appropriate incinerator(s).

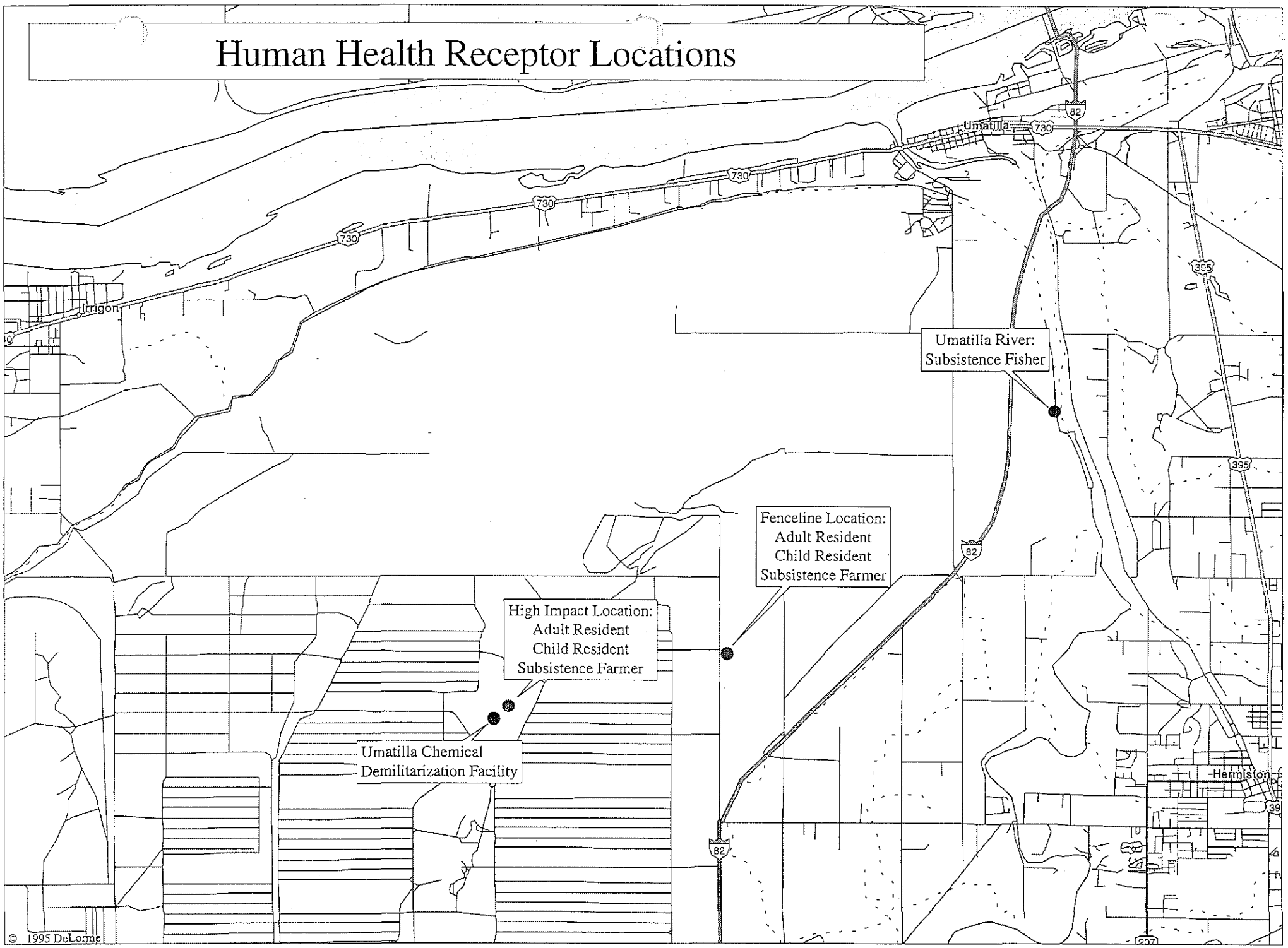
Source - 40 CFR 270.32 (b)(2)


Screening
Risk Assessment
PASS
Yes
Issue Permit
No
Modify Screening
Risk Assessment
PASS
Yes
No
Modify Screening
Risk Assessment
PASS
Yes
No
Deny Permit

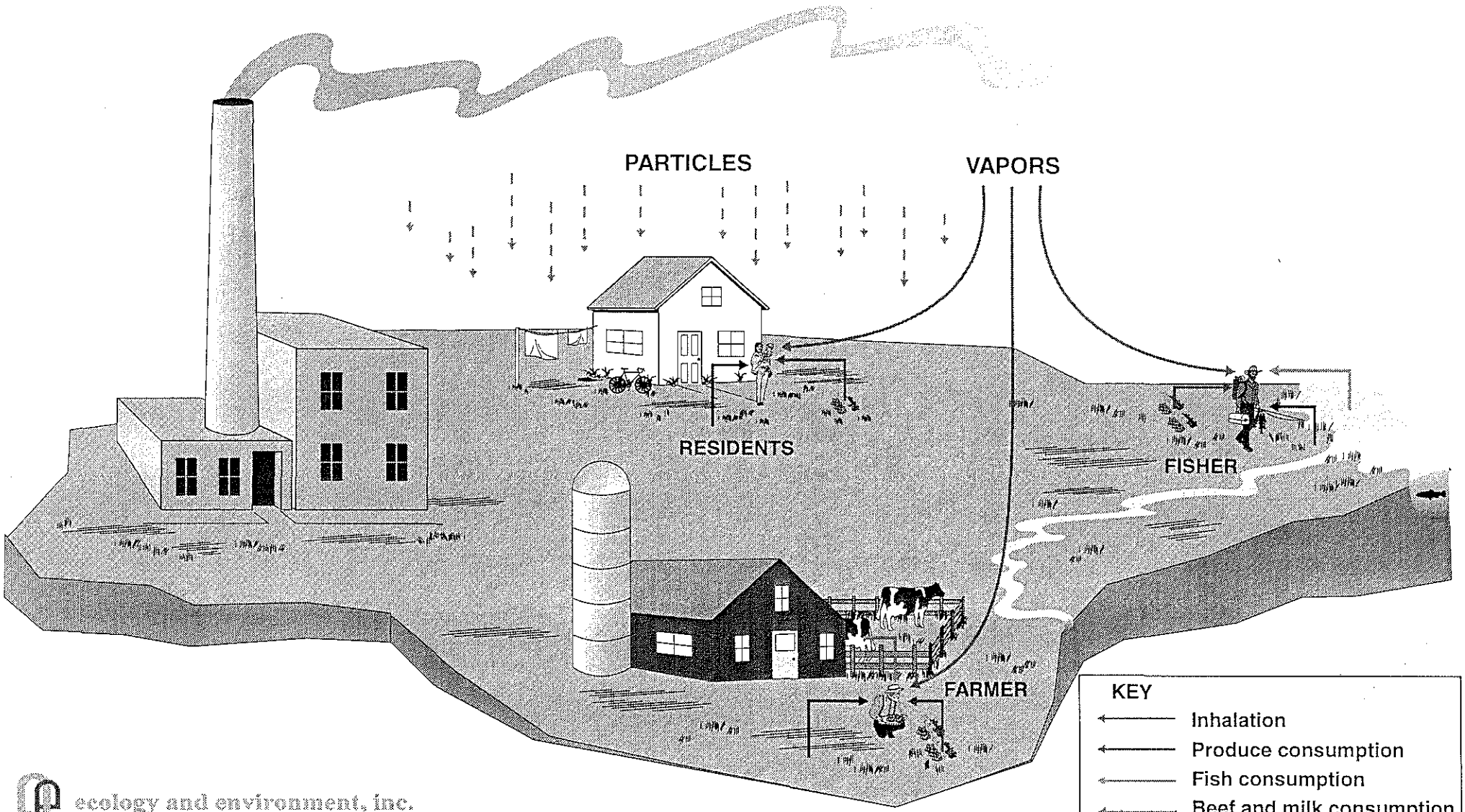

Screening
Risk Assessment
PASS
Yes
Issue Permit
No
Detailed
Risk Assessment
PASS
Yes
No
Deny Permit


Screening Risk Assessment
PASS
No
Detailed Risk Assessment
Yes
Issue Permit
Yes
PASS
No
Construction
Post-Trial Burn Risk Assessment
PASS
No
Deny operating Permit
Yes
Issue Operating Permit

Human Health Receptor Locations



SELECTED HUMAN EXPOSURE PATHWAYS



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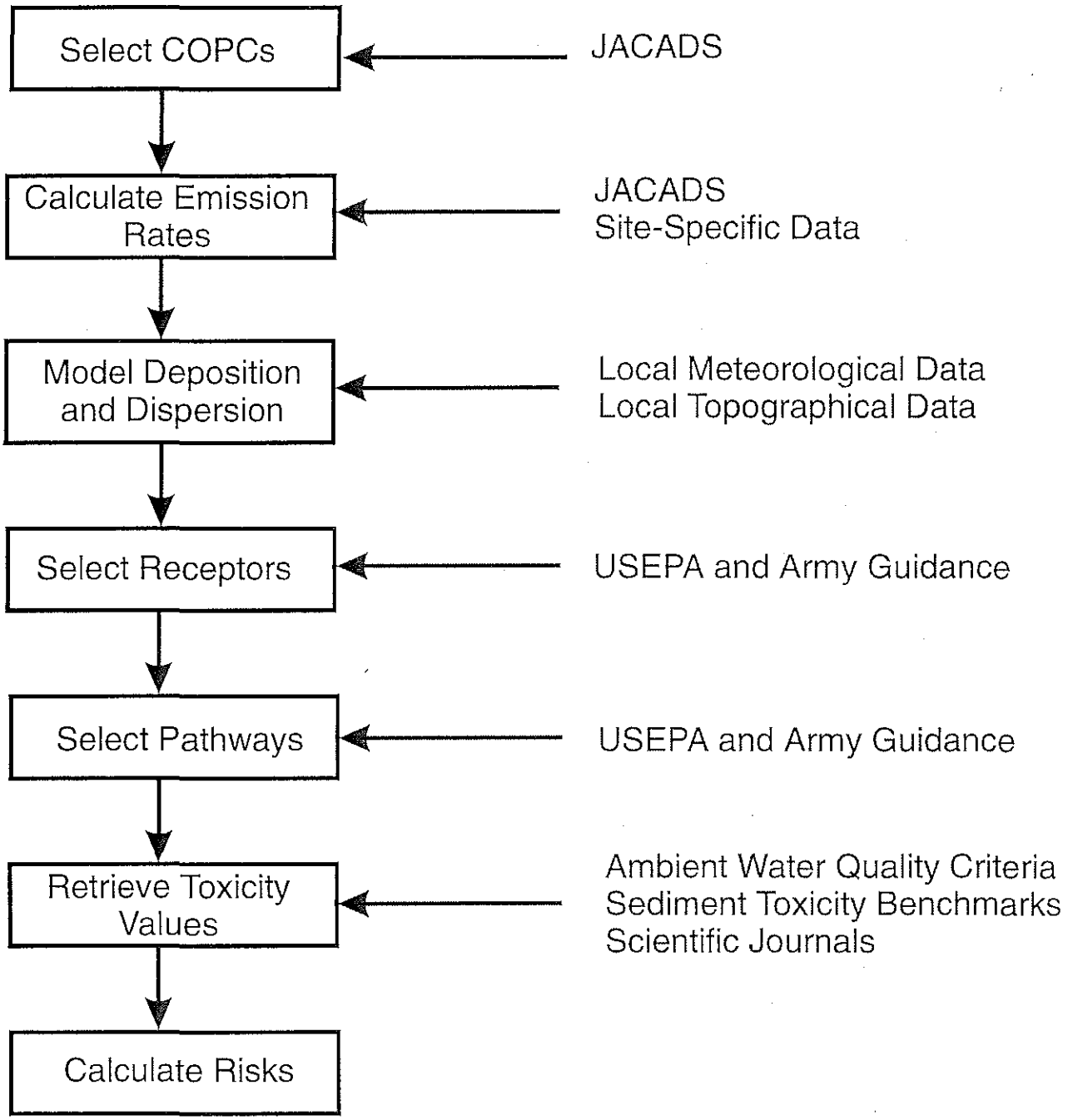
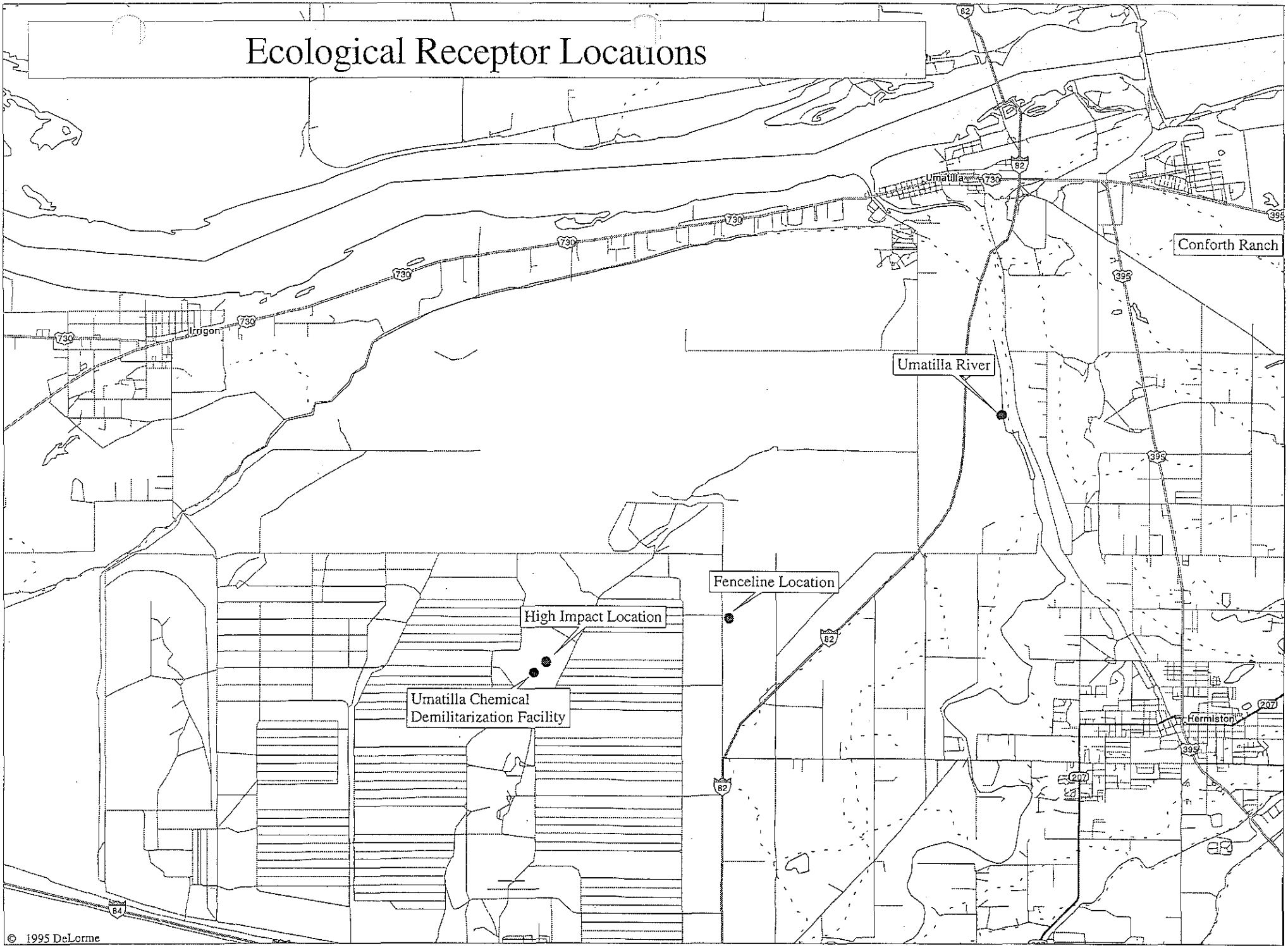
ECOLOGICAL RISK ASSESSMENT PROCESS



Ecological Receptor Locations



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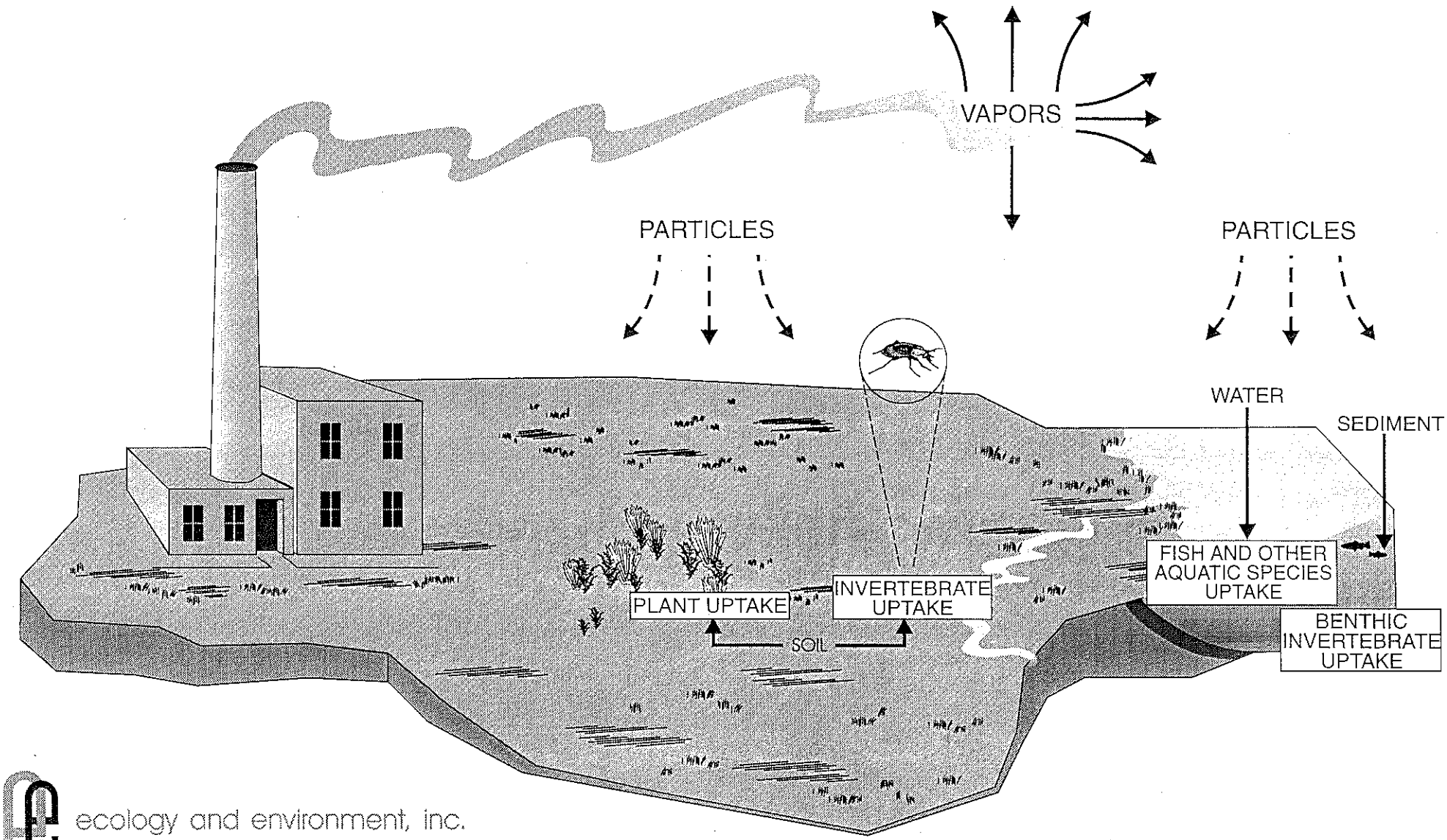

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Human Health Risk Assessment

Receptor Locations

- High-Impact Location - 300 feet northeast of stack.
- Fenceline Location - maximally-impacted location off-site.
- Umatilla River Location - Subsistence Fishers assumed to reside along the Umatilla river at the location where air concentrations and deposition rates were highest.

Human Health Risk Drivers

High Impact Location

- HD/HT - Soil Ingestion (Child Resident and Subsistence Farmer)
- TCDD - Beef and Milk Consumption (Subsistence Farmer Only)
- Manganese - Inhalation (Adult and Child Resident and Subsistence Farmer)
- Thallium - Beef Consumption (Subsistence Farmer Only)

Ecological Risk Assessment

Receptor Locations

- High Impact Location - 300 feet northeast of stack.
- Fenceline Location - 2.5 miles northeast of stack - maximally-impacted off-site habitat.
- Umatilla River Location - 5 miles northeast of stack - maximally-impacted riverine habitat.
- Conforth Ranch Location - about 7.5 miles northeast of stack - maximally-impacted wetland habitat.

Ecological Risk Drivers

High Impact Location

- **Mercury - Soil macroinvertebrates (i.e., bugs)**

Post-Trial Burn Risk Assessment

- Will use emissions data actually collected from the Umatilla Chemical Agent Disposal Facility.
- A multi-year database of meteorological data will be available.
- Site-specific exposure data will be incorporated, if available.
- Up-to-date toxicity data will be utilized.
- Transfer through the food chain may be considered.

PROPOSED

Permit No.: 25-0024
Expiration Date: 9-01-2000

AIR CONTAMINANT DISCHARGE PERMIT

Department of Environmental Quality
Eastern Region, Bend Office
2146 N.E. Fourth Street, Suite 104
Bend, OR 97701
Telephone: (541) 388-6146

Issued in accordance with the provisions of ORS 468A.040 and based on the land use compatibility findings included in the permit record.

ISSUED TO:

Umatilla Army Depot Activity
Umatilla Army Depot
Hermiston, Oregon 97838-9544

PLANT SITE LOCATION:

Umatilla Army Depot
Hermiston, Oregon 97838

INFORMATION RELIED UPON:

Application No.: 12804

Date Received: 5-08-1991 and 8-31-1995

LAND USE COMPATIBILITY STATEMENT:

Not applicable for this Federal facility (Umatilla Co. Planning Dept., 7-11-1991)

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Stephanie Hallock, Eastern Region Administrator — Dated

Source(s) Permitted to Discharge Air Contaminants:

TYPE OF FACILITY (FROM TABLE 4, OAR 340-28-1750)	STANDARD INDUSTRY CODE
44.e. Incinerators, Hazardous Waste	4953

PERMITTED ACTIVITIES

The permittee is herewith allowed to discharge exhaust gases containing air contaminants only in accordance with the permit application and the limitations contained in this permit. Until such time as this permit expires or is modified or revoked, the permittee is herewith allowed to discharge exhaust gases from those processes and activities directly related or associated thereto in accordance with the requirements, limitations, and conditions of this permit from the air contaminant source(s) listed above.

Compliance with the specific requirements, limitations and conditions contained herein does not relieve the permittee from complying with all other laws, rules and standards administered by the Department, nor does it allow significant levels of emissions of air contaminants not limited in this permit or contained in the permit application.

PERFORMANCE STANDARDS AND EMISSION LIMITS

Many of the regulatory requirements of the Umatilla Chemical Agent Disposal Facility (UMCDF), located at the Umatilla Army Depot Activity (UMDA) are specified in the Resource Conservation and Recovery Act (RCRA) Permit OR6 213 820 917 (referred to as Hazardous Waste (HW) Permit). As many of the regulatory requirements overlap between HW and Air Quality, the most stringent requirements of each permit are applicable. This Air Contaminant Discharge Permit (ACDP) refers to the HW Permit in these cases. During the construction and operation of this facility, inspections will be conducted by both Air Quality and Hazardous Waste Department personnel.

1. The permittee shall not burn any waste other than pre-approved hazardous and solid waste from the UMCDF as limited to the demilitarization of unitary nerve agent at the UMCDF.

2. Particulate emissions from any single air contaminant source (except for fuel burning equipment) shall not exceed any of the following:

   a. 0.2 grains per standard cubic foot, for sources existing prior to June 1, 1970;

   b. 0.1 grains per standard cubic foot, for sources installed, constructed, or modified after June 1, 1970; and

   c. An opacity equal to or greater than twenty percent (20%) for a period aggregating more than three (3) minutes in any one (1) hour, excluding uncombined water vapor.

3. The permittee shall operate and control the steam generating boilers in accordance with the following list of boiler operating parameters and emission limitations. Any boiler that is listed as inactive must not be used without the prior approval of the Department.

PROPOSED

Table 1
Boiler Parameters

Boiler Identification				Maximum Limits		
Name	Number	Status	Fuel Used	Capacity	Opacity[2]	Particulate[3]
		A,I,B[4]		MMBtu/hr[1]	Percent	gr/dscf
Umatilla Army Depot (UMDA) Boilers						
Pacific	1,2,7,10 18,30,33	A	Diesel	1	40	0.2
Weil Mc.	654	A	Diesel	0.85	20	0.1
Weil Mc.	655-1 655-2	A B	Diesel	1 0.85	20	0.1
Various	208,77 116,129 617	I	Diesel	1 to 2.3	40	0.2
Kewanee	28-1 28-2	A B	Res.Oil	2	40	0.2
York Superior	37-1 37-2	A B	Res.Oil Res.Oil	4.1 4.1	20 40	0.1 0.2
Milwaukee	433	I	Res.Oil	5	20	0.1
Various	5,115 130,131 612	I	Res.Oil	1.8 to 4	40	0.2
Air Furnaces	7 total	I	Diesel	4.2 each	40	0.2
Umatilla Chemical Agent Disposal Facility (UMCDF) Boilers						
TBD-Steam	1 2	P P	Natural Gas/Propane	24 24	20 20	0.1 0.1
TBD-Hot Water	1 2	P P	Natural Gas/Propane	20 20	20 20	0.1 0.1

Notes:

TBD - to be determined, the manufacturer has not been specified at this time.

(1) Maximum hourly average million (MM) British thermal units (Btu)/hour, heat input.

(2) Maximum opacity that shall not be equalled or exceeded for a period or periods aggregating more than three minutes in any one hour, excluding uncombined water vapor.

(3) Particulate emission limitation is stated in grains per standard cubic foot, corrected to 12% carbon dioxide.

(4) Status: A = active, I = inactive, B = backup boiler, P = proposed.

4. The permittee shall not use any fuel oil containing more than:

   a. 1.75 percent sulfur by weight for ASTM Grade 3 or 4 (residual or bunker C).

   b. 0.3 percent sulfur by weight for ASTM Grade 1 (distillate).

   c. 0.5 percent sulfur by weight for ASTM Grade 2 (distillate).

5. The permittee shall operate and control the unitary nerve agent munitions incinerators (2 Liquid Incinerators (LIC), Deactivation Furnace (DFS), Metal Parts Furnace (MPF), and Dunnage Incinerator (DUN)) in accordance with the following list of operating parameters and emission limitations:

   a. Particulate matter: See HW Permit Module VI and VII.

   b. Opacity as measured visually or by a transmissometer shall not exceed 10 percent for a period aggregating more than six (6) minutes in any sixty-minute period.

   c. Hydrogen Chloride (HCl): See HW Permit Module VI and VII.

   d. Carbon Monoxide (CO): See HW Permit Module VI and VII.

   e. Combustion gas temperature requirements: See HW Permit Module VI and VII.

   f. Automatically controlled secondary burners: See HW Permit Module VI and VII.

   g. Each incinerator shall be operated at all times under the direction of one or more individuals who have received training following the outline and procedure of Volume 12, Section H, of the RCRA permit application. Any amendments or changes to this training program shall be submitted to the Department promptly.

   h. Incinerator interlock system: See HW Permit Module VI and VII.

6. The permittee shall not allow the emission of odorous matter or other fugitive emissions so as to create nuisance conditions off the permittee's property. Nuisance conditions will be verified by Department personnel. The creation of nuisance conditions may, in addition to any other action the Department may take, result in a permit modification to require a compliance schedule to control the nuisance conditions.

7. The maximum munition process rates are shown in Table 2 below. The permittee may not process munitions at any rate greater than the limits in Table 2 on an hourly basis:

Table 2
Campaign Description and Maximum Munition Feed Rates

No.	Campaign Description	No. of Munitions	LIC max/hr[a]	DFS max/hr[a]	MPF max/hr[a]	Tons Agent[b]
1	GB M55 Rocket	91,442	193	38.8	N/A	489
2	VX M55 Rocket	14,519	136	38.8	N/A	72.6
3	GB M121A1 Projectile	47,406	317	160	181	154
4	VX M121A1 Projectile	32,313	227	160	157	96.9
5	GB M426 Projectile	14,246	142	57.1	97	103
6	VX M426 Projectile	3,752	93.8	57.1	81	27.2
7	GB MC-1 Bomb	2,418	9.36	N/A	7.3	266
8	GB MK-94 Bomb	27	19.17	N/A	7.3	1.5
9	VX TMU-28 Spray Tank	156	1	N/A	1	106
10	HD Ton Container	2,635	1.54	N/A	1.72	2,340
11	VX M23 Land Mine	11,685	130	70	N/A	61.3

Notes:

N/A = Not Applicable
a) Max/hr represents the maximum number of munitions allowed to be processed in the given unit.
b) Represents the total amount of agent contained in the munitions for the particular campaign.

Dunnage Incinerator (DUN):

The maximum feed rate to the DUN is 360 lbs/hr of non-metal items such as wood pallets, and 19 lbs/hr of metals, on a 8 hour average basis.

Brine Reduction Area (BRA):

The maximum feed rate to the BRA is 43,800 lbs/hr of brine, on an rolling hourly basis.

These limits may not be exceeded without prior approval from the Department.

Comment:

VX (isopropyl methyl phosphonofluoridate) is the least volatile but most toxic and persistent agent stored.

GB (o-ethyl-S-(2-diisopropylamino ethyl) methyl phosphonothiolate), also known as Sarin, is the most volatile of the agents.

HD (bis-2-chloroethyl sulfide) is a blister agent also known as mustard. Although often called mustard gas, it is actually a liquid.

PLANT SITE EMISSION LIMITS

8. The Plant Site Emission Limits (PSEL) for the facility are shown in the PSEL table below:

Table 3
Plant Site Emission Limit

Source	Particulate Matter (PM)		Particulate Matter (PM_{10})		CO		NO_x		SO_2		VOC	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
UMDA Boilers	1.3	0.9	1.0	0.7	1.0	1	7.8	5.1	37	24	0.2	0.1
UMCDF Boilers	0.2	0.8	0.2	0.8	4.5	19	2.2	9.5	0.3	0.8	0.2	0.9
Common Stack (LIC,DFS, MPF)	2	2.1	2	2.1	8.9	13	98	103	26	25	0.2	0.3
DUN	0.3	0.9	0.3	0.9	1.6	4.6	9.2	28	0.3	0.9	---	---
BRA	2.5	7.6	2.5	7.6	0.6	1.8	0.3	0.9	0.1	0.1	---	---
credits		87		87								
TOTALS	6.3	99	6	99	17	39	118	147	64	51	0.6	1.3

Note: --- denotes negligible emissions

The maximum annual emissions through the common stack from munitions processing and fuel use for PM_{10}, CO, NO_x, and VOC are based on the following five munitions campaigns being completed in a single year: 1,2,7,8, and 9 (see campaign descriptions in Condition 7 above). The maximum annual emissions of SO_2 through the common stack are based on the processing of the following 6 (six) campaigns containing VX or HD, and the related fuel use, in a single year: 2,4,6,9,10, and 11. The maximum operations and annual emissions from the common stack are also based on a maximum of 6,000 hrs of processing and 2,760 hrs of standby mode. Standby mode includes operating fuel-burning equipment to keep the various process units warm.

The annual emissions from the Dunnage incinerator (DUN) are based on 6,000 hrs of maximum operation and 2,760 hrs of standby mode.

The annual emissions from the Brine Reduction Area (BRA) are based on 6,000 hrs of operation and 2,760 hours of standby mode.

The UMDA boiler PSEL is based on the following: A maximum fuel use of 150,000 gal/yr (115 gal/hr) of No. 5 fuel oil, and 100,000 gal/yr (75 gal/hr) of diesel oil.

Any increases above the PSEL or operating conditions must receive the prior approval of the Department.

The particulate matter emission credits are from the shutdown of the previous deactivation furnace and the shutdown of the conventional open burn/open detonation activities. These credits will expire by April 5, 1997 unless the UMDA provides the Department with a specific, approvable plan for their use before that time. These credits are for UMDA internal use only and are not transferrable.

9. The permittee shall cease operations at any process area that handles agent (LIC, DFS, MPF, the DUN stack and the Munitions Demilitarization Building (MDB)) if that process unit has emissions of agent equal to or exceeding the following concentrations, as measured by the agent continuous emissions monitor (ACAMS) unit for that emission point:

Table 4

Allowable Stack Gas Concentration	
Agent	mg/m^3
VX	0.0003
GB	0.0003
HD	0.03

Note: These concentrations represent emissions of agent at lower rates than would be allowed at each thermal process unit (the MDB is not a thermal process) with that unit meeting the applicable destruction removal efficiency (DRE) of 99.9999% or 99.99%, depending on the process unit.

10. The pre-trial burn health risk assessment showed that the operations represented in the Table 3 (PSEL) and the Table 2 (Munitions Campaign Table) present a potential health risk lower than regulatory risk guidance levels. Actual operations of the UMCDF will depend on further risk evaluation of the trial burn test results. However, the permittee shall not burn munitions at rates higher than those shown in Table 2. The operations of the facility must be structured to present potential total health risks at or below the regulatory guidance levels.

PROPOSED

SOURCE TESTING REQUIREMENTS

11. TRIAL BURNS: The specifications for the trial burn of surrogate and agent are detailed in the RCRA Permit, Module VI.

12. In addition to the trial burn requirement of Condition 11 above, the permittee shall monitor the emissions of NO_x during the trial burns for VX, and SO_2 during the LIC trial burns for the chemical agent HD. Within 3 months of the trial burn tests the Department will specify the trial burn, test frequency and duration.

    All tests shall be conducted in accordance with the testing procedures on file at the Department and with the pretest plan submitted at least 30 days in advance and approved by the Source Test Coordinator in the Eastern Region, Bend Office (unless otherwise notified). All test data and results shall be submitted for review to the Source Test Coordinator within 45 days after testing, unless otherwise specified by the Department.

    Only regular operating staff may adjust the combustion system and emission control parameters during the source performance tests and within two (2) hours prior to the tests. Any operating adjustments made during the source performance tests, which are a result of consultation during the tests with source testing personnel, equipment vendors or consultants, may render the source performance test invalid.

    During the NO_x and SO_2 source tests the following parameters should be monitored and recorded:

    a. Opacity readings on the exhaust stack following the procedures of EPA Method 9.

    b. Concentration of pollutant being monitored, in parts per million (ppm).

    c. Weight and time of material charged, if on a batch basis.

    d. Feed rate and type of waste material, if on a continuous basis, for both hazardous (agent or mustard) and other materials.

    e. Composition of metals in the waste feed.

    f. Type and average rate of fuel used.

    g. Process operating parameters during the emissions source test.

    h. Operating parameters of emission control equipment, including but not limited to pressure drop across the scrubbers, packed tower, baghouse (if applicable), and carbon filter (if applicable).

SPECIAL CONDITIONS

13. The permittee shall notify the Department in writing of the date of initial construction, and the date when the initial systems of the UMCDF are started up. The notification shall be submitted no later than seven (7) days after startup.

14. The permittee is prohibited from all detonation and open burning of old conventional weapons except as allowed under the Superfund (CERCLA) cleanup efforts or specifically approved by the Department. The permittee shall notify the Department (Pendleton Office, 541-276-4063) prior to the event, and provide an estimate of the quantity of material detonated and the time of detonation.

15. The proposed steam boilers (2) for the UMCDF will be subject to New Source Performance Standards 40 CFR 60, Subpart Dc, for steam generating units. Specifically, the permittee is required to submit to the EPA, Region X, and a copy to the Department, the following information for each boiler:

    a. The date of installation of the natural gas boiler.

    b. The data of actual start-up of the boiler.

    c. The design heat input capacity of the boiler.

    d. The annual capacity factor at which the permittee anticipates operating the boiler based on all fuels fired and on each individual fuel (natural gas and propane).

MONITORING REQUIREMENTS

16. The permittee shall effectively inspect and monitor the operation and maintenance of the plant and associated air contaminant control facilities and shall implement the procedures necessary to monitor and record the following parameters. A record of all such data shall be maintained for a period of two years at the plant site for inspection by the authorized representatives of the Department. All required continuous monitoring shall be conducted in accordance with a Department approved plan, which must be submitted within six (6) months prior to the initial trial burn.

    a. All parameters to be reported to the Department annually as required in Conditions 21 and 22.

    b. Training review provided for all operating personnel.

    c. Parameters recorded by Continuous Monitoring Systems, as specified in Conditions 17 and 18.

    d. Excess emissions records as defined in OAR 340-28-1400 through 340-28-1440 (recorded on occurrence).

    e. A description of any maintenance to the air contaminant control system (recorded on a weekly basis).

CONTINUOUS MONITORING REQUIREMENTS

Meteorological Monitoring:

17. The permittee shall monitor the meteorological conditions of the UMCDF site on a continuous basis throughout the operation of the facility in which unitary chemical weapons are processed. The permittee shall continue to follow the meteorological monitoring plan as previously submitted to the Department, and shall advise the Department in writing of any changes to the monitoring plan. As needed, or requested by the Department, the permittee shall update and submit amendments to the monitoring plan to the Department for approval.

    Annual meteorological data reports shall be made available to the Department upon request.

Monitoring for CO, O_2, Chemical Agent, and Temperature:

18. The permittee shall install, maintain, and operate continuous monitoring systems in accordance with the Department's Continuous Monitoring Manual for demonstrating compliance with Conditions 5 and 9. The monitoring system shall be installed and operated in accordance with the following schedule:

    a. By no later than 6 months prior to the initial trial burn, the permittee shall submit, for Department approval, a Quality Assurance Plan for all continuous monitoring. The plan shall include provisions for the proper installation, maintenance, operation, and data recording for all continuous monitoring systems in accordance with the Department's Continuous Monitoring Manual. At least annually, the Department shall be notified of any changes to the Quality Assurance Plan.

    b. By no later than 90 days prior to the initial trial burn, the Quality Assurance Plan shall be implemented.

    c. By no later than 60 days prior to the initial trial burn, the permittee shall conduct initial monitor certification testing/verification in accordance with the Department's Continuous Monitoring Manual for all continuous monitoring equipment. The results of the testing shall be submitted to the Department within 30 days of the test completion date.

    d. By no later than the initial trial burn, and during operations thereafter, the permittee shall commence continuous monitoring and continuous data recording.

    e. Continuous monitoring shall be done for the following parameters:

        i. Oxygen (LIC, DFS, MPF, DUN): The instantaneous and average hourly O_2 concentration after the secondary combustion chamber (percent).
        ii. Carbon monoxide (LIC, DFS, MPF, DUN): The instantaneous and average hourly and 8-hour rolling average concentration (in ppm) in the incinerator exhaust, corrected to 7% O_2.

iii. Chemical agent using the Automatic Continuous Air Monitoring System (ACAMS) for VX, GB, HD (LIC, DFS, MPF, DUN, Munitions Demilitarization Building exhaust air system (HVAC)): Continuous monitoring for emissions concentration of the chemical agents, mg/m^3, on a 3 to 8 minute cycle-averaging time. The monitors shall be capable of monitoring to a quantification level at 20% of the allowable stack concentration (ASC) for the agents.
iv. Control equipment final outlet temperature (LIC, DFS, MPF, DUN): Continuous.
v. Final combustion chamber exit temperature (LIC, DFS, MPF, DUN): Recorded at the beginning of each incineration cycle and continuously recorded throughout the cycle.

19. Submit an agent monitoring detection program plan as specified in the HW Permit Module II H.5.

20. All records associated with continuous monitoring data, including, but not limited to, original data sheets, charts, calculations, calibration data, production records and final reports shall be maintained for a continuous period of at least five years and shall be furnished to the Department upon request.

REPORTING REQUIREMENTS

21. The permittee shall submit to the Bend Office of the Eastern Region by February 15 three (3) copies of the following information for the preceding calendar year:

a. Operating parameters:

i. Amount and type of waste burned in each incinerator on an annual basis, and on a campaign basis (Number of munitions of each type, dates each campaign began and finished).
ii. Quantities and types of fuel burned in the incinerators on an annual basis.
iii. Quantities and types of fuel burned in the boilers on an annual basis.
iv. Total operating time of each incinerator (hrs/yr), and total operation on standby, (hrs/yr) for each incinerator.
v. Maximum hourly and annual amount of brine processed in the BRA.

b. A description of changes to the training program (RCRA application Volume 12, Section H) shall be submitted for Department approval.

c. A log of all planned and unplanned excess emissions in accordance with OAR 340-28-1440.

d. Explain any permanent changes made in the plant process or production which would effect air contaminant emissions, and indicate when the changes were made.

e. List all major maintenance performed on air pollution equipment.

f. The report shall be sent to the Bend Office of the Eastern Region, 2146 N.E. 4th St., Suite 104, Bend OR 97701, unless otherwise notified. The permit number shall be prominently displayed on the report.

22. The permittee shall submit to the Bend Office of the Eastern Region by the 15 day of the month following each calendar quarter three (3) copies of the following information for the preceding calendar quarter. The reporting shall begin the first calendar quarter in which the first trial burn test event begins.

a. A summary of progress with the trial burn test events and schedule.

b. A status of the munitions processed to date and campaign schedule.

FEE SCHEDULE

23. The Annual Compliance Determination Fee for this permit is due on August 1 of each year this permit is in effect. An invoice indicating the amount, as determined by Department regulations, will be mailed prior to the above date. The fee shall be submitted to the Business Office of the Department in Portland (unless otherwise notified).

GENERAL CONDITIONS AND DISCLAIMERS

G1. The permittee shall allow Department of Environmental Quality representatives access to the plant site and pertinent records at all reasonable times for the purposes of making inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emission discharge records and otherwise conducting all necessary functions related to this permit in accordance with ORS 468.095.

G2. The permittee shall have available at the facility at all times a copy of the Air Contaminant Discharge Permit.

G3. The permittee is prohibited from conducting open burning, except as allowed by OAR 340 Division 23.

G4. The permittee shall at all times conduct dust suppression measures to meet the requirements set forth in "Fugitive Emissions" and "Nuisance Conditions" in OAR 340-21-050 through 340-21-060.

G5. In accordance with OAR 340-28-1400 through 340-28-1450, the permittee shall immediately (i.e. as soon as possible but in no case more than one hour after the beginning of the excess emission period) notify the Department by telephone or in person of any excess emission, other than pre-approved startup, shutdown, or scheduled maintenance. Notification shall include the source name, nature of the emissions problem, name of the person making the report, name and telephone number of contact person for further information, date and time of the onset of the upset condition, whether or not the incident was planned, the cause of the excess emission (startup, shutdown, maintenance, breakdown, or other), equipment involved in the upset, estimated type and

quantity of excess emissions, estimated time of return to normal operations, efforts made to minimize emissions, and a description of remedial actions to be taken. Follow-up reporting shall be made in accordance with Department direction and OAR 340-28-1430(2) and 340-28-1440.

Notification shall be made to the appropriate regional or branch office. Current Departmental telephone numbers are:

Pendleton (541) 276-4063 Bend (541) 388-6146
Portland (503) 229-5263

In the event of any excess emissions which are of a nature that could endanger public health **(other than emissions of chemical agent that are handled by the Chemical Stockpile Emergency Preparedness Program (CSEPP))** and occur during nonbusiness hours, weekends, or holidays, the permittee shall immediately notify the Department by calling the Oregon Accident Response System (OARS). The current number is 1-800-452-0311.

G6. The permittee shall notify the Department in writing using a Departmental "Notice of Construction" form, or "Permit Application Form", and obtain approval in accordance with OAR 340-28-800 through 340-28-820 before:

a. Constructing or installing any new source of air contaminant emissions, including air pollution control equipment, or

b. Modifying or altering an existing source that may significantly affect the emission of air contaminants, or

c. Making any physical change which increases emissions, or

d. Changing the method of operation, the process, or the fuel use, or increasing the normal hours of operation to levels above those contained in the permit application and reflected in this permit and which result in increased emissions.

G7. Application for a modification of this permit must be submitted not less than 60 days prior to the source modification. A Filing Fee and an Application Processing Fee must be submitted with an application for the permit modification.

G8. The permittee shall notify the Department in writing using a Departmental "Permit Application Form" within 60 days after the following:

a. Legal change of the registered name of the company with the Corporations Division of the State of Oregon, or

b. Sale or exchange of the activity or facility.

Applicable Permit Fees must be submitted with an application for the name change.

PROPOSED

G9. Application for renewal of this permit must be submitted not less than 60 days prior to the permit expiration date. A Filing Fee, an Application Processing Fee and an Annual Compliance Determination Fee must be submitted with the application for the permit renewal.

G10. The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

G11. This permit is subject to revocation for cause as provided in OAR 340-14-045.

ALL INQUIRIES SHOULD BE DIRECTED TO:

Department of Environmental Quality
Eastern Region, Pendleton Office
700 SE Emigrant St., Suite 330
Pendleton, Oregon 97801
Telephone: (541) 276-4063

PROPOSED

Permit Number: 25-0024
Application No.: 12804

Department of Environmental Quality
Eastern Region, Bend Office
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AIR CONTAMINANT DISCHARGE PERMIT APPLICATION REVIEW REPORT

Umatilla Army Depot Activity
Hermiston, Oregon 97838-9544

PSEL CRED	SOURCE TEST	CMS	AMB MON	COMPL SCHED	SPEC COND	REPORT A	REPORT Q	REPORT M	EXCESS R	EXCESS N	NSPS	NSR	OR PSD	NESHAP	SIZE A1	SIZE A2	PUBL NOTC
X	X	X	X		X	X	X		X		X		X		X		X

GENERAL BACKGROUND INFORMATION

1. The Department of the Army operates the Umatilla Depot Activity (UMDA), located approximately west of Hermiston and just north of Interstate 84. As the result of an international treaty to dispose of chemical weapon stockpiles, Public Law 99-145 was enacted in 1986. This law directed the Department of Defense to destroy the United States stockpile of unitary chemical agents by December 31, 2004, of which approximately 12% of the nation's stockpile are stored at the Umatilla Depot. The Army proposes to construct the Umatilla Chemical Agent Disposal Facility (UMCDF), where the weapons will be taken apart into their basic components, the collected chemical agent and explosive components destroyed, and the metal parts decontaminated. The liquid agent will be destroyed in the liquid incinerators, the explosives in the deactivation furnace, and the contaminated metal parts treated in the metal parts furnace. Miscellaneous packaging materials, crates, and other solid waste generated during the process will be burned in the dunnage incinerator. The environmental permits for the proposed facility are based on permit applications received from the Army. The proposed operations and emissions are evaluated to determine if they meet or exceed the regulations. The permits represent the conditions the applicant must meet to assure compliance with the regulations, and ultimately protect the health of the people and the environment.

   Three different unitary chemical agents are contained in the various rockets, bombs, mines, projectiles, spray tanks and bulk containers. The agents are:
   VX (isopropyl methyl phosphonofluoridate) is the least volatile but most toxic and persistent agent stored.
   GB (o-ethyl-S-(2-diisopropylamino ethyl) methyl phosphonothiolate), also known as Sarin, is the most volatile of the agents.

HD (bis-2-chloroethyl sulfide) is a blister agent also known as mustard. Although often called mustard gas, it is actually a liquid.

Different buildings will be built for the operations and supporting services. The main building, the munitions demilitarization building or MDB, houses the incinerators and encloses the actual handling and separating of the munitions with an explosion proof design. The container handling building is the area where munitions are received from the munitions igloos and prepared for handling in the MDB. Other buildings include a laboratory, personnel and maintenance building, security and the pollution abatement equipment systems areas.

The UMCDF will conduct 11 different chemical agent munition destruction campaigns. The different campaigns are designed to handle the many types of chemical munitions: Rockets, projectiles, bombs, bulk containers, spray tanks, and land mines. The different munitions require different methods of handling and disassembly prior to incineration of the liquid, propellant, or metal parts. The campaigns have been grouped together for like waste streams. For example, GB containing land mines and GB containing bombs may be processed in one campaign, then the facility would be prepared for the next campaign, making process changes where appropriate. As a result, the emission rates for each of the incinerators will vary throughout the UMCDF operations, depending on the specific type of material being processed during each campaign.

The Army began evaluating the destruction of the aging unitary chemical agents two decades ago. A few research operations were funded, including the Chemical Agent Munitions Disposal System (CAMDS) located at Tooele, Utah. At the request of the Army in November 1982, the National Research Council (NRC) conducted a study to help direct the Army towards a stockpile disposal solution. The NRC concluded that thermal treatment of the munitions was the preferred disposal alternative. A prototype disposal facility was built in the late 1980's on Johnston Atoll in the Pacific Ocean, where a portion of the chemical weapons stockpile is stored. This facility is currently in operation and has completed all operation verification testing of the installed incineration technology and is currently processing munitions. The UMCDF, as well as the proposed facility at Anniston, Alabama, and the constructed facility in Tooele, Utah, is designed similar to the JACADS facility, with improvements made where possible.

The Army issued a Final Programmatic Environmental Impact Statement (FPEIS) in January 1988 which determined that on-site disposal of the stockpile was the environmentally preferred alternative. The Army further evaluated the Umatilla Army Depot site and determined that on-site disposal remained the environmentally preferred option at this location. Incineration of the agents and energetics was identified as the technology that would treat all types of agent and munitions.

Because of growing interest in alternatives to the incineration technology, Congress instructed the Army to recommend disposal technologies for all sites by December 31, 1993. The Army requested the

NRC to conduct two studies, one of which resulted in the report Alternative Technologies for the Destruction of Chemical Agents and Munitions, and the other Recommendations for the Disposal of Chemical Agents and Munitions. The NRC concluded that the incineration technology has been proven a safe and effective disposal process for the stockpile. And although some alternative technologies may be effective and should be evaluated and developed at an accelerated pace, the NRC further recommended that the disposal program proceed in parallel with the analyses and without deliberate delay.

Many regulatory requirements for a hazardous waste incinerator are specified in both the Air Quality regulations and the Hazardous Waste regulations. Where the requirements are duplicated in the regulations, the most stringent requirement is established in the permits. In most cases, the most stringent requirement is in the Hazardous Waste regulations. The Air Quality permit, called the Air Contaminant Discharge Permit, or ACDP, cites the Hazardous Waste permit by reference in the cases where the requirements are specified in that permit in detail.

The Department evaluated the emissions from the maximum possible operations of the facility during the permitting process. The Air Quality permit primarily specifies the requirements pertaining to emissions of the following criteria pollutants: Particulate Matter (PM, or PM_{10}), Carbon Monoxide (CO), Oxides of Nitrogen (NO_x), Sulfur Dioxide (SO_2), Volatile Organic Compounds (VOC). The potential emissions of hazardous air pollutants, although small in quantity, are also of importance. The potential emissions of these compounds were evaluated in a health risk assessment, which is discussed later in this review report. These emissions were predicted using the emission testing data from the existing Johnston Atoll facility. This facility underwent extensive emissions monitoring during the trial burn phase of its initial operations.

A very important aspect of the UMCDF permitting process is the trial burn phase. During the trial burn operations, the performance of the different process units is evaluated during different operating conditions. These conditions are specified, for example, at the lower limits of operating temperature in an incinerator. The operating temperatures during the trial burn tests which show successful operation define the maximum and minimum operating temperatures for the process. Generally, the particular process unit would operate at a temperature in the middle of the allowable range. The performance of the particular unit must meet the permit requirements before normal operations in the unit can commence. The emissions data collected during the trial burns will also be used to evaluate the validity of the emissions assumptions that were used in the pre-trial burn risk assessment. Where necessary, the risks will be reassessed and the operations of the UMCDF and the environmental permits may be modified. The facility must operate so that emissions, and associated health risks, are below the regulatory guidance levels.

2. This permitting process includes a renewal of the existing Air Contaminant Discharge Permit (ACDP) which was issued on 5-29-1985, and a major modification that includes the UMCDF activities. This permit replaces the existing permit. This is a major modification to the traditional Umatilla Depot Activity, including the construction and operation of the chemical weapons stockpile (unitary agents) demilitarization facilities.

3. The source is located in an area that is in attainment with the National Ambient Air Quality Standards (NAAQS) for all pollutants. The facility is located more than 100 kilometers away from a Class I wilderness area (Eagle Cap Wilderness).

4. A Land Use Compatibility Statement is not required for this Federal facility. This was acknowledged by Umatilla County Planning Department on 7-11-91.

5. Besides the current ACDP (air permit), other permits issued or required by the Department of Environmental Quality for this source include a Resource Conservation and Recovery Act (Hazardous Waste or HW) permit (OR6 213 820 917) for the storage and handling of hazardous waste. The HW permit is considered a parallel permit to the AQ permit, and is currently being proposed. Other permits include a solid waste storage permit and a water discharge permit.

6. The existing facility, which includes the UMDA boiler and limited open burn/open detonation activity, was inspected on 3-12-96, 5-18-94, 7-6-93 and 8-11-92, and found to be in compliance with permit conditions. The proposed facility will be inspected in the future as it is built and readied for operation. The operations prior to normal production will be inspected in detail during the trial burn phase of the project.

7. No complaints were received during the last five (5) years.

8. No enforcement actions have been taken against this source during the last five (5) years.

9. Proposed new air contaminant sources at the facility consist of the following:

   a. Two 600 boiler horse-power and two 500 boiler horse-power natural gas (NG) boilers, to be installed approximately in 1997. The two larger boilers will provide steam for the brine reduction area, and the two smaller boilers will provide hot water for the needs of the facility.

   b. Liquid Incinerators (LIC): The NG-fired, excess air units have a primary combustion chamber (2,700°F, 2 sec. residence time) and an afterburner (2,000°F, 2 sec. res. time). The LIC units are designed to handle 1,030 lbs of GB plus 2,000 lbs of decontamination solution per hour each, or 680 lbs of VX plus 2,000

lbs of decontamination solution per hour each. The exhaust gases are controlled by a Pollution Abatement System (PAS).

c. Deactivation Furnace (DFS): The natural gas-fired unit will have a primary chamber (excess air, 1000°F min., 15 minutes res. time for the non-combustibles) and an afterburner (2,200°F, 2 sec. res. time in general, 0.5 sec. for rockets). Exhaust gases are controlled by a PAS. The DFS is designed to handle 2,330 lbs/hr of explosives. A cyclone is used between the primary burner and afterburner to remove potential entrained solids. The cyclone is contained in a closed system, with the exhaust gaseous stream entering the afterburner, and the solid stream passing through a gate valve and into an enclosed receptacle. This cyclone is not considered an emission point.

d. Metal Parts Furnace (MPF): The MPF is designed to decontaminate metal parts that have been in contact with agent. The parts are exposed to high temperatures for a prolonged period of time to destroy any residual agent and enable the metal to be recycled. The MPF will operate on a batch load basis. The natural gas-fired, excess air unit has a primary chamber (1,400°F general, 1,600 °F for projectiles) with a residence time of approx. 15 minutes for the non-combustibles, and an afterburner (2,000°F, 0.5 sec. res. time). The exhaust gases are controlled by a PAS.

e. Pollution Abatement System (PAS) (4 total): Each PAS consists of a quench tower, venturi scrubber, packed bed scrubber and a demister, all in series. Each of the LIC, MPF, and DFS processes has a PAS system optimized for the individual process. A carbon filter bed will also be placed as the final control measure of the PAS, but the retention of any material in the bed has not been included in the emission estimates, and this provides an additional margin of control beyond estimated emissions. All 4 of these PAS systems exhaust through one common stack.

f. Dunnage Incinerator (DUN): The DUN is manufactured by Midland Ross Corp. and will burn the potentially agent-contaminated solid waste materials on a batch basis. The natural gas-fired unit will have a primary chamber (1,500°F, starved air) and an afterburner (2,000°F, 2 sec. res. time). The exhaust gases from the DUN are quenched and routed through a baghouse system.

g. Brine Reduction Area (BRA): 3 steam evaporators; 3 steam rotary drum dryers (in parallel). The particulate emissions will be controlled by 4 baghouse systems with 99+ percent particulate removal efficiency. Prior to the baghouses the combined dryer exhaust gases are heated above the dewpoint by a 10 million BTU/hr NG duct burner.

h. Munitions Demilitarization Building (MDB): The MDB is the area where the munitions are taken apart and drained of agent (where applicable) and prepared for incineration in either the LIC, DFS,

or MPF. The air inside this explosion-proof contained area is exhausted through the heating, ventilation and air conditioning (HVAC) exhaust. This air has the potential to be contaminated with agent. Prior to the exhaust, the air stream passes through a bank of carbon filter beds. The carbon acts as an adsorbent for any agent emissions. The exhaust air will be monitored by a continuous monitoring system (ACAMS) at various locations between the 6 carbon filter beds.

Existing Facility: The existing operations at the UMDA consists of many small boilers for heating purposes, and an occasional open burn/open detonation (ob/od) activity due to the cleanup activities being conducted at the Explosives Washout Plant Area and the Ammunition Demolition Activity Area due to past operations.

10. Source Test Information: The primary information source for emissions of pollutants other than the criteria pollutants is the trial burn data from the Johnston Island Chemical Agent Demilitarization Facility (JACADS). This facility served as the prototype for the chemical agent demilitarization program. The trial burn data from the operations at JACADS were used to help establish emission rates of compounds of principle concern (COPC) and provide operational information for the proposed facilities in Utah, Alabama, and other states as well as at the Umatilla Army Depot. As operations become established at the Tooele, Utah facility, additional emission and operational data will be used to further improve the design of UMCDF (and Anniston, AL) and optimize the operation and maintenance procedures to ensure the safest operation.

The JACADS trial burn data is voluminous and is part of the large file concerning the HW and Air Quality permit process for the UMCDF.

PLANT SITE EMISSION LIMIT (PSEL) INFORMATION

The Baseline Emission Rate concerns past operations at the UMDA;
The current Plant Site Emission Limit (Section 18 and continuing) concerns the current and proposed operations of the UMCDF and UMDA in general.

ORIGINAL PLANT SITE EMISSION LIMIT (PSEL)

11. A Baseline Emission Rate is established for all stationary sources that were constructed and/or operating during 1977 or 1978. This period represents the initial establishment of the Plant Site Emission Limit (PSEL) and the promulgation of major air quality permitting regulations (such as Prevention of Significant Deterioration (PSD)). The PSEL from the baseline period is a benchmark for emissions from facilities, as increases or decreases in emissions from the facility are compared with the standards in the regulations (see Section 22). Data from operating years different from the baseline year can be used to establish a baseline emission rate if it is representative of the operations and emissions of the baseline year.

Some permits did not have a Baseline Emission Rate established as the normal operations of the facility were not substantially different than the baseline year operations. The Baseline Emission Rate was often established only when a facility was being modified or changed. The Baseline Emission Rate for this source is established in this permit action. Prior to this renewal and modification, no PSEL had been determined for the deactivation furnace operations, the open burn/open detonation (ob/od), or the boiler/hot water heaters, although the facility was classified as A-1 (greater than 100 tons/yr of emissions). As shown in Sections 17 through 21, the current PSEL is established at the level of demonstrated need with some emission credits from the shutdown of the deactivation furnace and the regular ob/od operations.

12. The operating schedule for the facility in the baseline year 1977, and generally for the facility during the 1970s, was 52 wks/yr, 24 hrs/day.

13. The 1977 baseline information for the UAD is based on environmental reporting data from the fiscal year (FY) 1971, which was estimated to be similar to the calendar year 1977. The actual records for the year 1977 or 1978 could not be found. The baseline operating schedule for the boilers was primarily during the heating season, and throughout the year for hot water needs. The boilers used approximately 318,100 gallons of No. 5 fuel oil, 184,100 gallons of No. 2 fuel oil, and 2,962 gallons of No. 1 fuel oil.

14. The ob/od and deactivation activities occurred as needed throughout the year. Reported annual material open burned in FY 1971 was approximately 5,070 tons of rocket motors, 75mm shells, and white phosphorous mortar rounds; detonation of approximately 28 tons on white phosphorous mortar rounds; and deactivation or 336 tons of small arms, grenades, and fired brass during baseline. The estimates are based on information from the Depot and a report from the Army Environmental and Hygiene Agency (AEHA), titled Preliminary Air Pollution Engineering Survey No. 21-034-71, prepared for the Umatilla Army Depot, and by emission calculations provided to the Department in 1995.

    Emissions from the detonation, burning and deactivation of these materials have been estimated to be as high as 1,538 tons/yr of particulate matter. The primary source of particulate was from the open detonation, where white phosphorous contributed to the majority of particulate emissions. The baseline emissions are based upon a minimum estimate, in which 90% of the munitions detonated were projectiles which cause the least amount of particulate emissions. This minimum estimate resulted in approximate 287 tons/yr of PM, of which 80% is estimated to be PM_{10} (230 tons/yr).

15. Emissions in the baseline year 1977 are estimated to be as follows:

Table 1
Baseline Plant Site Emission Limit

Source	PM	PM_{10}	CO	NO_x	SO_2	VOC
	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr
Boilers	1.8	1.4	1.3	11	50	0.2
OB/OD, Deac[a] Furnace	287	230	---	---	---	---
fugitives[b]	---					
TOTALS	289	231	1.3	11	50	0.2

(a) Deac = Deactivation furnace, or popping furnace. Gaseous emissions from ob/od and deactivation are not quantified.
(b) Fugitives, other than from ob/od activities, are not quantified.

HISTORY OF CHANGES TO THE PLANT SITE EMISSION LIMIT

16. The Plant Site Emission Limit is established in this ACDP as a result of the determination of baseline emissions. Previously, the emissions from the deactivation furnace, boilers, and open burn/open detonation were not determined, other than as an estimate of greater than 100 tons/yr of particulate matter. Data to develop these baseline values was gathered during 1995 and submitted for the permit renewal and chemical weapons demilitarization permitting efforts. The baseline particulate PSEL was voluntarily reduced by the UMDA to 99 tons/yr to allow the facility to be considered a true minor source instead of a major source. At this point, 87 tons/yr of particulate remain as credit, and the difference between the baseline emission rate and the current operations (287 - 99 = 188 tons/yr) was removed from the permit.

PLANT SITE EMISSION LIMIT FOR CURRENT AND PROPOSED FACILITIES

17. The proposed normal operating schedule for the demilitarization facility is 8,760 hrs/yr (year-round), with the incinerators and BRA proposed to operate 6,000 hrs/yr and standby mode 2,760 hrs/yr, or whenever the incinerators are not in production mode. In the initial operation year, the DUN is anticipated to operate for 3,000 hrs, with 5,760 hours of operation in standby mode. The auxiliary and support facilities, such as the boilers, will operate throughout the year (8,760 hrs/yr). The operating schedule is based on the permit application and proposed operations of the facility.

18. The normal annual and maximum hourly amount of fuel burned in the UMCDF boilers is 344 million cubic feet (MMcf)/yr and 0.073 MMcf/hr of natural

gas. The remaining thermal processes (LIC, DFS, MPF, DUN) use varying amounts of fuel on an annual and hourly basis depending on whether the operation is in standby mode or operational. The thermal processes, except for the DUN, are assumed to be in standby mode for 2,760 hrs/yr. The maximum annual emission are based on an operation scenario detailed below.

19. The normal annual operations will depend on the actual campaigns that are scheduled and completed. The scheduling and success of the trial burn demonstrations will also have a role in the campaign schedule. The different campaigns are discussed and shown below.

20. A list of the various munitions campaigns are shown below, along with the number of each munition, and the maximum hourly feed rate that each incinerator is designed to destroy. The maximum annual emissions are based on an aggressive plan that would include campaign Nos. 1,2,7,8 and 9. This annual plan would involve the destruction of the M55 rockets immediately, followed by other munitions which would potentially have the highest emissions. The maximum annual emissions of SO_2 are from the destruction of munitions containing HD and those containing VX. Although these operation scenarios are not likely to occur during a one-year period, the optimistic schedule allows for a determination of worst-case, maximum annual and hourly emissions. The actual emission rate will be lower if the actual operations are carried out over a longer period of time. The entire operations are schedule to be completed in approximately 3.2 years. All of the chemical weapons could be destroyed in a one year period, but with the downtime associated with campaign change outs and other maintenance or permit requirements such as testing, the entire operations are expected to last for 3.2 years.

Note: This does not mean that the process units will all be operating for the entire 3.2 years; each unit is permitted to process waste for 6,000 hours per year maximum, with the remainder of the time operating on standby mode. This evaluation is further discussed in Section 22, the Health Risk Assessment.

PROPOSED

Table 2
Campaign Description and Maximum Munition Feed Rates

No.	Campaign Description	No. of Munitions	LIC max/hr[a]	DFS max/hr[a]	MPF max/hr[a]	Total Tons Agent[b]
1	GB M55 Rocket	91,442	193	38.8	38.8	489
2	VX M55 Rocket	14,519	136	38.8	38.8	72.6
3	GB M121A1 Projectile	47,406	317	160	181	154
4	VX M121A1 Projectile	32,313	227	160	157	96.9
5	GB M426 Projectile	14,246	142	57.1	97	103
6	VX M426 Projectile	3,752	93.8	57.1	81	27.2
7	GB MC-1 Bomb	2,418	9.36	7.3	7.3	266
8	GB MK-94 Bomb	27	19.17	7.3	7.3	1.5
9	VX TMU-28 Spray Tank	156	1	1	1	106
10	HD Ton Container	2,635	1.54	1.54	1.72	2,340
11	VX M23 Land Mine	11,685	130	70	72	61.3

a) Max/hr represents the maximum number of munitions allowed to be processed in the given unit.

b) Represents the total amount of agent contained in the munitions for the particular campaign.

21. The Plant Site Emission Limit for normal operation is greater than the baseline emission rate and is shown below. The increase is due to the operation of the Chemical Weapons Demilitarization facility.

Table 3
Plant Site Emission Limit

Source	Particulate Matter (PM)		Particulate Matter (PM_{10})		CO		NO_x		SO_2		VOC	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy
UMDA Boilers	1.3	0.9	1.0	0.7	1.0	1	7.8	5.1	37	24	0.2	0.1
UMCDF Boilers	0.2	0.8	0.2	0.8	4.5	19	2.2	9.5	0.3	0.8	0.2	0.9
Common Stack (LIC,DFS, MPF)	2	2.1	2	2.1	8.9	13	98	103	26	25	0.2	0.3
DUN	0.3	0.9	0.3	0.9	1.6	4.6	9.2	28	0.3	0.9	---	---
BRA	2.5	7.6	2.5	7.6	0.6	1.8	0.3	0.9	0.1	0.1	---	---
credits		87		87								
TOTALS	6.3	99	6	99	17	39	118	147	64	51	0.6	1.3

Note: --- denotes negligible emissions.

The maximum annual emissions through the common stack from munitions processing for PM_{10}, CO, NO_x, and VOC are based on the following five munitions campaigns being completed in a single year: 1,2,7,8, and 9. The maximum annual emissions of SO_2 through the common stack are based on the processing of six campaigns containing VX or HD in a single year: 2,4,6,9,10, and 11. The maximum operations are based on 6,000 hrs of processing and 2,760 hrs of standby mode. The emission estimates from this operation assumption is conservative as it is unlikely that all of these campaigns will be processed in a single year. The maximum emission estimates, however, are applied throughout the operating life of the project.

Maximum annual emissions of agent from the common stack are based on maximum hourly agent emission rates assuming 6,000 hrs of operation processing agent.

The annual emissions from the Dunnage incinerator (DUN) are based on 6,000 hrs of operation and 2,760 hrs of standby mode, which represents the maximum predicted annual emissions from the unit. The actual operation of the DUN for the first year is planned to be 3,000 hrs with the unit on standby for the remainder of the time. This would reduce the amount of actual emissions from the DUN for the initial year of

operation. During the second year, emissions from the common stack are predicted to be less than the initial year.

The annual emissions from the BRA are based on 6,000 hrs of operation and 2,760 hours of standby mode, processing a maximum of 43,800 lbs of brine per hour (8 hour operating average).

The UMDA boiler PSEL is based on the following: A maximum fuel use of 150,000 gal/yr (115 gal/hr) of No. 5 fuel oil, and 100,000 gal/yr (75 gal/hr) of diesel oil.

These amounts may not be exceeded without prior approval by the Department.

The emission credits are due to downsizing of the Depot Activity and the virtual elimination of the storage of conventional weapons. The credits represent a reduction in the amount of emissions at the UMDA since the baseline year operations. The permittee may use the emission credits to establish a new PSEL for new or modified operations, but if no use is specified, the credits are removed from the permit. A portion of the credits were used to provide for the particulate emissions of the proposed UMCDF project. The remaining credits will expire by April 5, 1997 unless a plan is submitted to the Department specifying the future internal use of the emissions credits.

SIGNIFICANT EMISSION RATE

22. The difference in emissions from the baseline PSEL and the current, proposed PSEL is compared with the Significant Emission Rate (SER). If the current PSEL has increases in emissions over the baseline PSEL greater than the SER, then the increase in emissions must be further evaluated for applicability with additional regulations. The Plant Site Emission Limit increase over baseline is less than the SER as defined in OAR 340-28-110 for PM_{10}, CO, SO_2, and VOC and is shown below. No further air quality analysis is required for these pollutants. The Plant Site Emission Limit increase over baseline for NO_x is greater than the SER. NO_x emissions include emissions of nitrogen oxide (NO) and nitrogen dioxide (NO_2).

Table 4
Significant Emission Rate Comparison

Pollutant	Baseline Emissions	PSEL	Increase	Significant Emission Rate
	tons/year			
PM/PM_{10}	99	99	0	15
CO	1.3	39	37.7	100
NO_x	11	147	136	40
SO_2	50	51	1	40
VOC	0.2	1.3	1.1	40

The NO_x emissions increase required review under the Department's New Source Review Regulations.

An air quality analysis was conducted by the permit applicant, and verified by the Department, which demonstrated that the NO_x emission increase will not cause air quality levels in excess of any ambient air quality standards or Prevention of Significant Deterioration (PSD) increment, will not have a significant impact (including visibility impairment) within any Class I area, and will not cause significant impact on any non-attainment area. The NO_x emissions screening analysis has indicated that the source will not cause unacceptable NO_x ambient air quality impacts or contribute to any exceedence of ambient air quality standards. The maximum annual off site concentration of NO_x was modeled at less than 1.0 $\mu g/m^3$ (the National Ambient Air Quality Standard for NO_x is 100 $\mu g/m^3$). This indicates that the proposed NO_x emissions will not be harmful to the environment or human health. As potential emissions are also less than 250 tons per year per pollutant, as described in OAR 340-28-1940(3), the source satisfies the exemption requirement of OAR 340-28-1941(3) and is exempt from further New Source Review analysis.

23. Emissions of chemical agent will be monitored continuously at various locations in the processes that handle such agent. Final monitors are located before the stack exhaust of the LIC, DFS, MPF, and DUN, as well as at the heating, ventilation, and air conditioning (HVAC) exhaust from the main complex that dismantles the munitions (the munitions demilitarization building, or MDB). All of the agent monitors are capable of testing the air prior to entrance into the carbon filter units and within different beds in the filter. In the event that agent is detected in the exhaust stream, the corresponding operations will be stopped, and any agent in the exhaust stream will be captured by the carbon filtration units. The agent monitoring units are termed Automatic Continuous Air Monitoring System (ACAMS). The BRA emission stack is also equipped with an ACAMS, although organic material is not processed in the unit.

The facility will also have remote monitors for agent around the UMCDF area. A specific plan for the monitoring program will be submitted to the Department within 1 year of the effective date of the permit. The monitoring units presently used by the Army are called Depot Area Air Monitoring System (DAAMS). The DAAMS monitors agent concentrations over a period of time, whereas the ACAMS is a continuous monitor with concentration readouts every few minutes (from 3 to 8 minutes).

24. The Army was required to collect on-site meteorological data to establish a meteorological data set for the UMCDF. The Department has required the Army to continue collecting meteorological data for the site to establish a multi-year data set, and to have actual site monitoring data during the UMCDF operations. This data will be used in any future computer modeling for the evaluation of pollutant dispersion or risk assessment purposes.

RISK ASSESSMENT of AIR TOXICS and TRIAL BURN EVALUATION

25. A human health risk assessment and a screening-level ecological risk assessment was conducted to evaluate the associated health risks with the maximum operations proposed at the UMCDF. The risk assessment, using pre-trial burn data, was conducted by Ecology and Environment, (E&E), under contract through the Department. This pre-trial burn risk assessment (PreRA) is detailed in a report from E&E called Pre-Trial Burn Risk Assessment for the Proposed Umatilla Chemical Weapons Demilitarization Facility. The following is only a brief summary of the risk assessment results. The actual document should be reviewed for detailed information on the assumptions and methodology in the risk evaluation process.

Summary of PreRA: The PreRA was conducted following EPA guidance and recent toxicological information and risk assessment methodology updates. The PreRA effort was also coordinated with similar efforts for the proposed demilitarization facility in Anniston, Alabama, and for the constructed facility in Tooele, Utah. Special effort was taken to work with the agencies in these other states, the EPA regional offices, EPA headquarters, as well as with the US Army representatives to use a consistent risk approach at all of the sites involved.

Emissions of compounds evaluated in the PreRA were derived from the actual emissions measured from the Johnston Atoll Chemical Agent Disposal System (JACADS). Although a new facility has been constructed at Tooele Army Depot in Utah, data from trial burn operation is not yet available. The emissions from JACADS were scaled to the proposed operations at the UMCDF, or established at the maximum allowable stack concentration was used. The computer model for predicting the dispersion of emissions (ISCST3) was used along with local meteorology (wind speed, direction, temperature etc.). The purpose of the model is to predict locations of maximum annual concentration of pollutants and maximum annual deposition, both wet and dry. Direct exposure to pollutants is primarily through inhalation of vapors and particles, while indirect exposure to pollutants is primarily through ingestion: Consumption of above and below ground

produce; consumption of beef, milk, and fish; and incidental ingestion of soil. The risks from inhalation exist during the actual munitions processing at the facility: When the facility is not operating, exposure through this risk pathway is eliminated.

The risk probability associated with potential exposure to the air and land deposition concentrations was predicted for a number of different cases. One such case is the potential exposure to a subsistence farmer, a person who is assumed to live in the area of maximum exposure, and eat vegetables and meat that have been raised at that same location.

Residents and subsistence farmers were assumed to be located along the UMDA fence line, northeast of the proposed facility. Other receptors were also assumed to be located along the Umatilla river, and at other ecological sensitive areas, such as the Conforth Ranch, to evaluate effects upon aquatic and sediment dwelling organisms.

Conservative exposure assumptions were used throughout the risk assessment, and focused on the maximum exposure area to ensure that the risks are protective of other potentially exposed populations outside of the maximum exposure area. People and the environment were assumed to be exposed continuously for 3.2 years at the maximum pollutant concentrations and deposition, as well as being exposed to indirect pathways for 30 years. In this way, exposure to potential environmental contaminants is evaluated for a period of time long after the destruction of the munitions is complete.

The results of the human health evaluation indicate that potential risks to any person located off the UMDA site were below the risk guidance levels of 1×10^{-5} for cancer risk and a hazard quotient of 0.25 for non-cancer risks. [Note: A potential lifetime cancer risk of 1×10^{-5} means that a person exposed to the pollutants at that location, considering the exposure assumptions, has a 1 in 100,000 probability, or chance, of contracting cancer due to the UMCDF activity. The probability number 1×10^{-5} is also written as 1 x 10-5, or a probability of 0.00001] These potential risks for persons living at the UMDA fence line are summarized in the Risk Summary Table below (Table 5). The total potential risks are separated into the different risk pathways to detail the risk contribution from these pathways. The subsistence farmer is assumed to produce and eat all food from the fence line exposure location, as well as live there. The adult and child residents are assumed to grow produce and live at the site, but not raise and eat exclusively their own meat and dairy products from that site. The subsistence fisher lives by the nearest body of water that has the highest impact from the UMCDF. The fisher person is assumed to raise all of the produce consumed from the same exposure location.

Table 5
Potential Fence Line Location Risk Summary

Fence Line Location and Subsistence Fisher Excess Cancer Risks				
Exposure Pathway	Population Subgroup			
	Adult Resident	Child Resident	Subsistence Farmer	Subsistence Fisher
Inhalation	1 x 10-6	3 x 10-7	2 x 10-6	4 x 10-7
Soil Ingestion	2 x 10-7	4 x 10-7	3 x 10-7	6 x 10-8
Home Grown Produce Consumption	8 x 10-9	2 x 10-9	4 x 10-8	2 x 10-9
Beef Consumption	---	---	2 x 10-6	---
Milk Consumption	---	---	1 x 10-6	---
Fish Consumption	---	---	---	4 x 10-7
TOTAL RISK	2 x 10-6	8 x 10-7	5 x 10-6	9 x 10-7

Note: --- means not calculated. These areas were not part of the exposure pathway.

The results of the air modeling indicate that the location of potential maximum air concentration and deposition rates is approximately 100 to 150 meters northeast of the proposed UMCDF main processing building. The potential risks were determined at this high-impact location to be considered a maximum for comparison, and to determine what compounds are responsible for the risk (risk-drivers). Actual exposure to the potential pollutants at this site is not possible, for it is located within the Depot boundary in a restricted access area. The risk assumptions are similar to those outlined above for the fence line location, including the subsistence farmer, and adult and child residents. However, no individuals currently reside or farm and live in this area or would be expected to do so during the operation of the UMCDF. The primary health risk was due to the inhalation pathway at this location. A summary of the potential risks to the different persons living at that location during the entire UMCDF operation and afterward is shown in Table 6 below.

Table 6
On-site Location Risk Summary

UMCDF On-site Location Excess Cancer Risks			
Exposure Pathway	Population Subgroup		
	Adult Resident	Child Resident	Subsistence Farmer
Inhalation	3 x 10-5	7 x 10-6	4 x 10-5
Soil Ingestion	4 x 10-6	8 x 10-6	6 x 10-6
Home Grown Produce Consumption	3 x 10-7	6 x 10-8	2 x 10-6
Beef Consumption	---	---	6 x 10-5
Milk Consumption	---	---	6 x 10-5
TOTAL RISK	4 x 10-5	2 x 10-5	2 x 10-4

Note: --- means not calculated. These areas were not part of the exposure pathway.

The primary risk-drivers were determined to be arsenic, manganese, thallium, HD/HT (mustard agent), and dioxin compounds. Although all compounds will be carefully evaluated during the trial burn emissions testing, the risk-drivers presented here and identified in the PreRA will be particularly scrutinized during the trial burn.

Trial Burn Testing Requirement Discussion

Trial burn emissions monitoring is required as the main requirement for the permittee to demonstrate that the process units (LIC, DFS, MPF, DUN) are capable of meeting the performance standards and health protective emission rates of the permits (AQ and HW). The trial burn tests are mandatory prior to actual production operations at the facility.

Trial burn emission tests will be required for surrogate compounds prior to the actual combustion of chemical agent or agent containing compounds. The surrogate chemical is chosen because it is very difficult to incinerate, and yet is neither toxic to handle nor presents a threat to the facility or community during trial burn operations. Upon proving that the process units are capable of meeting performance requirements on the surrogate compounds, then the chemical agent trial burn is conducted. Although the trial burn plan is specified in the RCRA permit, additional detailed requirements of the surrogate and chemical agent trial burns will be determined by the Department in the future. Besides proving that the process units are capable of meeting the agent destruction requirements, the primary purpose of the trial burn is to determine the

emission rate of other potentially toxic compounds, such as products of incomplete combustion and other constituents of potential concern (COPC), such as metals and chlorinated organics such as dioxins.

The emission rates used in the pre-trial burn Risk Assessment establish health protective maximum emission rates. The results of the trial burn emissions testing will verify if the process units are capable of limiting the emission rates of those compounds to levels lower than evaluated in the Risk Assessment under worst-case operating conditions. The trial burn tests are designed to evaluate the performance of the process units under operating conditions that are worst case. The actual operating parameters of the process units will be established at conditions more favorable than during the trial burns. The trial burn tests establish the limits of operation for the process units, and the emissions from those operations represent worst case emissions. In the event that some constituents are emitted at higher rates than the pre-trial burn emission rates, then the health risks from the higher rate will be assessed. It is likely that some constituents will be emitted at different rates than the pre-trial burn assessment, but the total risk from operations cannot be greater than the risk guidance levels. The emissions tests from the limited actual operation during the trial burn will demonstrate the actual performance of the process units.

Other Emissions Testing:

The permit contains requirements to monitor the emissions of NO_x and SO_2 during the trial burn operations. These tests are required to verify if the process units are emitting these compounds at or below the emission rates specified in the permit. The emissions of NO_x can vary with a number of operating parameters, such as temperature, O_2 level, and the amount of nitrogen in the fuel or waste feed. The emissions of SO_2 are primarily dependent on the amount of sulfur in the waste feed and fuel. Natural gas contains only trace amounts of sulfur, so the primary source of emissions is the waste feed. The chemical agent HD contains the most amount of sulfur, and therefore, the munitions destruction campaigns containing HD have the potential to emit the highest amounts of SO_2.

ADDITIONAL REQUIREMENTS

26. Source testing requirements contained in the permit include requirements for trial burn demonstrations for surrogate agent compounds and agent.

27. Continuous monitoring requirements contained in the permit include CO, O_2, NO_x, and chemical agent.

28. Ambient monitoring requirements contained in the permit include the operation of monitors for chemical agents around the UMCDF or Umatilla Depot boundary. A monitoring detection program for potential agent emissions from the UMCDF will be submitted for Department approval within 1 year of permit issuance.

29. Special conditions contained in the permit include the reporting of any OB/OD CERCLA cleanup activities, NSPS reporting requirements, and the notification of the start-up of initial operations at the UMCDF.

30. The source is required to submit reports to the Department annually for fuel use, munitions destroyed, summaries of monitoring equipment performance, and monitoring data. Quarterly reports are also required once the trial burn testing begins. Many of the reporting details are required by the HW permit which will also be reviewed by the Air Quality staff.

31. The source is subject to immediate (within one hour) reporting of non-agent excess emissions. Any emissions of chemical agent above permitted levels are reported immediately through the HW permit contingency plans or the CSEPP program if applicable.

32. The two new steam boilers at the demilitarization facility are subject to federal regulations for New Source Performance Standards (NSPS), 40 CFR 60 Subpart Dc.

33. This source is not subject to federal regulations for New Source Review, and demonstrated exemption from state New Source Review. This source is not subject to federal regulations for Prevention of Significant Deterioration (PSD). This source is not subject to federal regulations for National Emissions Standards for Hazardous Air Pollutants (NESHAP).

PUBLIC NOTICE

34. Public hearings are scheduled for Hermiston, Pendleton, Portland, and the Tri-Cities, WA. area to receive oral comments on the proposed permit. Written comments will be accepted until June 17, 1996. The public hearings will be held at the following locations:

May 13, 1996
5:00-7:00 p.m. (open house)
7:00-9:00 p.m. (public hearing)
Pendleton Convention Center
1601 Westgate
Pendleton, OR

May 14, 1996
5:00-7:00 p.m. (open house)
7:00-9:00 p.m. (public hearing)
Federal Building Auditorium
825 Jadwin Avenue
Richland, WA

May 29, 1996
5:00-7:00 p.m. (open house)
7:00-9:00 p.m. (public hearing)
World Trade Center
121 SW Salmon Street
Building 2 Mezzanine
Portland, OR

June 10, 1996
5:00-7:00 p.m. (open house)
7:00-9:00 p.m. (public hearing)
Hermiston Community Center
415 Highway 395 South
Hermiston, OR

PJB:TJJ:DAW
May 8, 1996

UMDA BOILER WORKSHEET

BOILERS USING RESIDUAL OIL #5							
6.10E+06	BTU/hr maximum						
MAX FUEL	3.18E+05	gal/yr		Emission Factor			
	150000	BTU/gal	reference	rate	units	lb/hr	
2 boilers	115.0	gal/hr max				max	ton/yr
	24	hour/day					
	particulate		DEQ	10	lb/1000 GAL	1.15	1.59
	CO		Factor	5	gallon	0.58	0.80
	NOx			55		6.33	8.75
	SO2			275		31.63	43.74
	VOC			1.1		0.13	0.17

DISTILLATE OIL-FIRED BOILERS							
10 SMALL BOILERS							
11000000	BTU/hr maximum						
MAX FUEL	1.87E+05	gal/yr		Emission Factor		lb/hr	ton/yr
	140000	BTU/gal	reference	rate	units	max	
	75	gal/hr max					
	particulate		DEQ	2	lb/1000 GAL	0.15	0.19
	CO		Factor	5	gallon	0.38	0.47
	NOx			20		1.50	1.87
	SO2			71		5.33	6.64
	VOC			0.34		0.03	0.03

OB/OD (see attached sheets from Robert Anderson, Dir. of Ammunition Equipment) open burn, open detonation and deactivation furnace		Tooele Army Depot				ton/yr
1971 data	5434 tons/yr muni		287	tons/yr PM		287
			0.8	fraction PM10		230

TOTAL BASELINE BOILER EMISSIONS						tons/yr
particulate						289
PM10 from OB/OD						230
CO						1.3
NOx						10.6
SO2						50.4
VOC						0.2

Based on emission factors for a small oil-fired boiler.
All boilers are used for space heating purposes.
Estimates are based on FY 1971 fuel use data, as reported in Army 1971 report.

PROPOSED

UMDA BOILER WORKSHEET
non-UMCDF

BOILERS USING RESIDUAL OIL #5

6.10E+06	BTU/hr maximum						
				24	hour/day		
MAX FUEL	1.50E+05	gal/yr	norm.	hour/yr		lb/hr	ton/yr
	150000	BTU/gal		emission	factor	max	
2 boilers	115.0	gal/hr ma	ref.	rate	units		
	particulate		DEQ	10	lb/1000 g	1.15	0.75
	CO		Factor	5		0.58	0.38
	NOx			55		6.33	4.13
	SO2			275		31.63	20.63
	VOC			1.1		0.13	0.08

DISTILLATE OIL-FIRED BOILERS

10 SMALL BOILERS							
11000000	BTU/hr maximum			24	hour/day		
MAX FUEL	1.00E+05	gal/yr	norm.	hour/yr		lb/hr	ton/yr
	140000	BTU/gal		emission	factor	max	
	75	gal/hr ma	ref.	rate	units		
	particulate		DEQ	2	lb/1000 g	0.15	0.10
	CO		factor	5		0.38	0.25
	NOx			20		1.50	1.00
	SO2			71		5.33	3.55
	VOC			0.34		0.03	0.02

TOTAL CURRENT NORMAL		lb/hr	tons/yr
particulate		1.3	0.9
PM10	80% of particulate	1.0	0.7
CO		1.0	0.6
NOx		7.8	5.1
SO2		37	24
VOC		0.2	0.1

Based on emission factors for a small oil-fired boiler.
All boilers are used for space heating purposes.
Estimates are based on highest of 1992-1994 fuel use data,
plus approx. 25% for a cold year.

PROPOSED

The following credits are from the shutdown of the conventional OB/OD and the conventional deactivation furnace. These credits will expire after 1 year unless specified for use by the Army.

Shutdown Credits:	ton/yr
particulate	98
PM10	98
CO	0
NOx	5.9
SO2	26
VOC	0.1

Total PSEL: current normal and shutdown credits	lb/hr	ton/yr
particulate	1.3	98.9
PM10	1.0	98.7
CO	1.0	0.6
NOx	7.8	11.0
SO2	37.0	50.2
VOC	0.2	0.2

PROPOSED

Boiler Worksheet

Emission Point	Pollutant	Operating Parameters	Emission Factor Rate	Reference	Emissions lb/hr	tons/yr
BOILERS Hot Water 1 & 2 on NATURAL GAS (combined, as emission factors are the same)						
two 500 hp boilers	PM/PM10	0.033 MMcf/hr	2.5 lb/MMcf	DEQ	0.08	
		283.5 MMcf/yr				0.35
	CO		61 lb/MMcf		2.0	
						8.6
	NOx		30 lb/MMcf		1	
						4.3
	SO2		3.8 lb/MMcf short term		0.1	
			2.6 lb/MMcf annual			0.4
	VOC		2.8 lb/MMcf		0.1	
						0.4
note: boilers are equipped with lo-NOx burners, can use LPG as a back-up fuel						
LPG backup: 0.37 Mgal/hr and 62 Mgal/yr: the emissions from propane comb. are essentially the same as NG						
MM = million; cf = cubic foot; hp = boiler horse power, M = one thousand						
BOILERS Steam, 1 & 2 on NATURAL GAS (combined, as emission factors are the same)						
two 600 hp boilers	PM/PM10	0.04 MMcf/hr	2.5 lb/MMcf	DEQ	0.10	
8760 hrs/yr		350.4 MMcf/yr				0.44
	CO		61 lb/MMcf	AP-42	2.4	
						10.7
	NOx		30 lb/MMcf	AP-42	1.2	
						5.3
	SO2		3.8 lb/MMcf short term	DEQ	0.2	
			2.6 lb/MMcf annual			0.5
	VOC		2.8 lb/MMcf	AP-42	0.1	
note: The PM is assumed to be 100% PM10						0.5
note: equipped with lo-NOx burners and can use LPG as a back-up fuel: 0.44Mgal/hr and 74 Mgal/yr						
Boiler TOTALS	PM/PM10				0.2	0.8
	CO				4.5	19.3
	NOx				2.2	9.5
	SO2				0.3	0.8
	VOC				0.2	0.9

Emission Point	Pollutant	Operating Parameters	Emission Factor Rate	Reference	Emissions lb/hr	tons/yr
Brine Reduction Area	duct burner, NG fired, w/lo-NOx					
10 MMBtu/hr	PM/PM10	1767404 dscf/hr	0.01 gr/dscf	baghouse design	2.52	
6000 hrs/yr			(grains per dry standard cubic ft)			7.57
	CO	0.01 MMcf/hr	61 lb/MMcf	AP-42	0.6	
		60 MMcf/yr				1.8
	NOx		30 lb/MMcf	AP-42	0.3	
						0.9
	SO2		3.8 lb/MMcf	short term DEQ	0.04	
			2.6 lb/MMcf	annual		0.08
	VOC		2.8 lb/MMcf	AP-42	0.03	
						0.08

note: Particulate matter is assumed to be 100% PM10
dscf = dry standard cubic feet; MM = million; cf = cubic feet

Standby data:

18 MMBtu/hr 2,760 hours standby operation minimum estimate

Operational data

6000 hours operation per year maximum estimat Natuaral Gas / propane backup

Liquid Incinerators (2), Standby Mode								
Emission Point	Pollutant	Operating Parameters	Emission Factor Rate		Reference	Emissions lb/hr	tons/yr
natural gas combustion							
36 MMBtu	PM10*	0.036 MMcf/hr	2.5	lb/MMcf	Pollution control	0.0002	
2760 hrs/yr		99.2 MMcf/yr	0.998	efficiency	system design		0.0002
	CO		35	lb/MMcf	AP-42/DEQ	1.3	
							1.7
	NOx		140	lb/MMcf	AP-42/DEQ	5.0	
							6.9
	SO2		3.8	lb/MMcf	short term DEQ	0.14	
			2.6	lb/MMcf	annual		0.1
	VOC		2.8	lb/MMcf	AP-42	0.10	
							0.14

* Note: Particulate matter is assumed to be 100% PM10
MM = million; cf = cubic feet; Btu = British thermal unit

Emissions from LIC Operations

munition campaign		hourly	PM10*	PM10	PM10	CO	CO	CO	NOx	NOx	NOx	SO2
	# munit.	feed rate	lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp	lb/hr
GB M55 Rocket	91375	193	0.8	0.004	0.19	3	0.016	0.71	13.4	0.069	3.17	0
VX M55 Rocket	14519	136	0.8	0.006	0.043	3.1	0.023	0.17	40.1	0.29	2.14	7.6
GB M121A1 Projectile	47406	317	0.8	0.003	0.060	3	0.009	0.22	13.4	0.042	1.00	0
VX M121A1 Projectile	32313	227	0.8	0.004	0.057	3.1	0.014	0.22	40.1	0.18	2.85	7.6
GB M426 Projectile	14246	142	0.8	0.006	0.040	3	0.021	0.15	13.4	0.094	0.67	0
VX M426 Projectile	3752	93.8	0.8	0.009	0.016	3.1	0.033	0.06	40.1	0.43	0.80	7.6
GB MC-1 Bomb	2418	9.36	0.8	0.085	0.10	3	0.32	0.39	13.4	1.4	1.73	0
GB MK-94 Bomb	27	19.17	0.8	0.042	0.00056	3	0.156	0.002	13.4	0.70	0.01	0
VX TMU-28 Spray Tank	156	1	0.8	0.800	0.062	3.1	3.1	0.24	40.1	40	3.13	7.6
HD Ton Container	2635	1.54	0.8	0.519	0.68	3.4	2.2	2.91	15.7	10	13.4	24.6
VX M23 Mine	11685	130	0.8	0.006	0.036	3.1	0.024	0.14	40.1	0.31	1.80	7.6

* Note: Particulate matter is assumed to be 100% PM10
For detailed emissions information see Vol. II, mass and energy balances

PROPOSED

SO2	SO2	VOC	VOC	VOC
lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp
0	0	0	0	0
0.06	0.41	0	0	0
0	0	0	0	0
0.03	0.54	0	0	0
0	0	0	0	0
0.08	0.15	0	0	0
0	0	0	0	0
0	0	0	0	0
7.6	0.59	0	0	0
16.0	21	0	0	0
0.06	0.34	0	0	0

For detailed information of emissions from specific campaigns, see the mass and energy balances in Vol. II of the application.

Standby mode:	2760	hours per year minimum estimate	operation mode:		Retort	Afterbrnr.
	24	MMBtu/hr max. standby	NG use:	lb/hr	248.1	1189.5
Production mode:	6000	hours per year maximum estimate		lbmol/hr	14.9	71.43

The campaigns with the most NG combusted is DFS1 and DFS2. The highest anticipated criteria pol. emisisons are from DFS3 and DFS4.

Emissions from Deactivation Furnace (DFS)			Emission Factor			Emissions	
Standby Mode, Nat. Gas	Pollutant	Operating Parameters	Rate		Reference	lb/hr	tons/yr
24 MMBtu	PM10	0.024 MMcf/hr	2.5	lb/MMcf		0.0001	
2760 hrs/yr		66.1 MMcf/yr	0.998	PM10 removal efficiency			0.0002
	CO		35	lb/MMcf	AP-42/DEQ	0.8	
							1.2
	NOx		140	lb/MMcf	AP-42/DEQ	3.4	
							4.6
	SO2		3.8	lb/MMcf	short term DEQ	0.09	
			2.6	lb/MMcf	annual		0.1
	VOC		2.8	lb/MMcf	AP-42	0.07	
							0.09

note: MM = million; cf = cubic feet

Emissions from Deactivation Furnace Operations

munition campaign		hourly	PM10	PM10	PM10	CO	CO	CO	NOx	NOx	NOx
	# munit.	feed rate	lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp
GB M55 Rocket	91375	38.8	1.2	0.031	1.4	5.1	0.13	6.01	55	1.4	64.76
VX M55 Rocket	14519	38.8	1.2	0.031	0.22	5.1	0.13	0.95	55.1	1.4	10.31
GB M121A1 Projectile	47406	160	0.7	0.004	0.10	3.4	0.021	0.50	21.4	0.13	3.17
VX M121A1 Projectile	32313	160	0.7	0.004	0.071	3.4	0.021	0.34	21.4	0.13	2.16
GB M426 Projectile	14246	57.1	0.7	0.012	0.087	3.4	0.060	0.42	21.5	0.38	2.68
VX M426 Projectile	3752	57.1	0.7	0.012	0.023	3.4	0.060	0.11	21.5	0.38	0.71
GB MC-1 Bomb	2418	7.3	0	0	0	0	0	0	0	0	0.00
GB MK-94 Bomb	27	7.3	0	0	0	0	0	0	0	0	0.00
VX TMU-28 Spray Tan	156	1	0	0	0	0	0	0	0	0	0.00
HD Ton Container	2635	1.54	0	0	0	0	0	0	0	0	0.0
VX M23 Mine	11685	70	0.7	0.010	0.058	3.7	0.053	0.31	21.3	0.30	1.78

PROPOSED

SO2	SO2	SO2	VOC	VOC	VOC	
lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp	
0	0	0	0	0	0	
0.1	0	0.02	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	standby mode
0	0	0	0	0	0	standby mode
0	0	0	0	0	0	standby mode
0	0	0	0	0	0	standby mode
0.2	0	0.02	0	0	0	

Standby mode: 2760 hours per year minimum estimate
21.2 MMBtu/hr max. standby
Production mode: 6000 hours per year maximum estimate

Emissions from MPF Standby Mode, natural gas									
Emission Point	fuel	Pollutant	Operating Parameters		Emission Factor Rate		Reference	Emissions lb/hr	tons/yr
MPF PAS									
	21.2 MMBtu	PM10	0.021	MMcf/hr	2.5	lb/MMcf	design	0.0001	
	2760 hrs/yr		58.4	MMcf/yr	0.998	PM removal efficiency			0.0001
		CO			35	lb/MMcf	AP-42/DEQ	0.7	
									1.0
		NOx			140	lb/MMcf	AP-42/DEQ	3.0	
									4.1
		SO2			3.8	lb/MMcf	short term DEQ	0.08	
					2.6	lb/MMcf	annual		0.1
		VOC			2.8	lb/MMcf	AP-42	0.06	
									0.08

note: MM = million; cf = cubic feet

Emissions from Metal Parts Furnace Operations

munition campaign	# munit.	hourly feed rate	PM10 lb/hr	PM10 lb/munit.	PM10 tons/camp	CO lb/hr	CO lb/munit.	CO tons/camp	NOx lb/hr	NOx lb/munit.	NOx tons/camp
GB M55 Rocket	91375	38.8	0.0001	0	0.0	0.7	0.00	0.00	3.0	0.0	0.00
VX M55 Rocket	14519	38.8	0.0001	0	0.00	0.7	0.00	0.00	3.0	0.0	0.00
GB M121A1 Projectile	47406	181	0.5	0.003	0.07	1.5	0.008	0.20	6.6	0.04	0.86
VX M121A1 Projectile	32313	157	0.4	0.003	0.041	1.5	0.010	0.15	7.2	0.05	0.74
GB M426 Projectile	14246	97	0.5	0.005	0.037	1.6	0.016	0.12	7.5	0.08	0.55
VX M426 Projectile	3752	81	0.4	0.005	0.009	1.6	0.020	0.04	8.4	0.10	0.19
GB MC-1 Bomb	2418	7.3	0.3	0.04	0.050	1.4	0.19	0.23	7.9	1.1	1.3
GB MK-94 Bomb	27	7.3	0.3	0.04	0.00055	1.1	0.15	0.002	5.7	0.78	0.01
VX TMU-28 Spray Tan	156	1	0.3	0.30	0.0234	1.7	1.7	0.13	9.5	9.5	0.74
HD Ton Container	2635	1.72	0.2	0.12	0.15	0.8	0.47	0.61	3.8	2.2	2.9
VX M23 Mine	11685	72	0.1	0.001	0.008	0.5	0.007	0.04	2.6	0.04	0.21

note: the MPF operates in standby mode during the M55 rocket campaigns.

PROPOSED

METAL PARTS FURNACE (MPF)
AND COMMON STACK
EMISSIONS WORKSHEET

SO2 lb/hr	SO2 lb/munit.	SO2 tons/camp	VOC lb/hr	VOC lb/munit.	VOC tons/camp	
0.08	0	0	0.06	0	0	standby mode
0.08	0	0	0.06	0	0	standby mode
0	0	0	0	0	0	
0.3	0.002	0.031	0	0	0	
0	0	0	0	0	0	
0.3	0.004	0.007	0	0	0	
0	0	0	0	0	0	
0	0	0	0	0	0	
0.4	0.40	0.031	0	0	0	
1.4	0.81	1.1	0	0	0	
0.2	0.003	0.016	0	0	0	

TOTAL Standby mode - common stack			PM10		PM10	CO		CO	NOx		NOx
LIC, DFS, MPS			lb/hr		tons/yr	lb/hr		tons/yr	lb/hr		tons/yr
			0.0004		0.0006	2.8		3.9	11.3		15.7

TOTAL COMMON STACK EMISSIONS PER CAMPAIGN, DURING OPERATIONS

			PM10	PM10	PM10	CO	CO	CO	NOx	NOx	NOx
CAMPAIGN	# munit.		lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp
GB M55 Rocket	91375	*	2.0	0.04	1.60	8.8	0.15	6.72	71.4	1.49	67.94
VX M55 Rocket	14519	*	2.0	0.04	0.27	8.9	0.15	1.12	98.2	1.71	12.45
GB M121A1 Projectile	47406		2.0	0.01	0.23	7.9	0.04	0.92	41.4	0.21	5.04
VX M121A1 Projectile	32313		1.9	0.01	0.17	8.0	0.04	0.72	68.7	0.36	5.76
GB M426 Projectile	14246		2.0	0.02	0.16	8.0	0.10	0.69	42.4	0.55	3.90
VX M426 Projectile	3752		1.9	0.03	0.05	8.1	0.11	0.21	70.0	0.91	1.70
GB MC-1 Bomb	2418	*	1.1	0.13	0.15	4.4	0.51	0.62	21.3	2.51	3.04
GB MK-94 Bomb	27	*	1.1	0.08	0.00	4.1	0.31	0.00	19.1	1.48	0.02
VX TMU-28 Spray Tan	156	*	1.1	1.10	0.09	4.8	4.80	0.37	49.6	49.60	3.87
HD Ton Container	2635		1.0	0.64	0.84	4.2	2.67	3.52	19.5	12.40	16.34
VX M23 Mine	11685		1.6	0.02	0.10	7.3	0.08	0.49	64.0	0.65	3.79

maximum campaign			2.0		2.11	8.9		8.83	98.2		87.3

TOTAL OPERATIONS + Standby			2.0		2.11	8.9		12.7	98.2		103

the maximum annual campaign is identified as:
For PM, CO, NOx, VOC: GB M55 Rocket,VX M55 Rocket, GB MC-1 Bomb, GBMK-94 Bomb, and VX TMU-28 Spray Tank (marked with an asterisk *)
For SO2: VX and HD campaigns

PROPOSED

METAL PARTS FURNACE (MPF)
AND COMMON STACK
EMISSIONS WORKSHEET

SO2		SO2	VOC		VOC
lb/hr		tons/yr	lb/hr		tons/yr
0.31		0.29	0.23		0.31

SO2	SO2	SO2	VOC	VOC	VOC
lb/hr	lb/munit.	tons/camp	lb/hr	lb/munit.	tons/camp
0.1	0.00	0.00	0.1	0.00	0.00
7.8	0.06	0.42	0.1	0.00	0.00
0.0	0.00	0.00	0	0.00	0.00
7.9	0.04	0.57	0	0.00	0.00
0.0	0.00	0.00	0	0.00	0.00
7.9	0.08	0.16	0	0.00	0.00
0.0	0.00	0.00	0	0.00	0.00
0.0	0.00	0.00	0	0.00	0.00
8.0	8.00	0.62	0	0.00	0.00
26.0	16.79	22.12	0	0.00	0.00
8.0	0.06	0.37	0	0.00	0.00

26.0		24.3	0.1		0.00

26.0		24.6	0.2		0.3

Standby mode:
5760 hours per year minimum estimate first year
2760 hours per year minimum estimate following years
4 MMBtu/hr max. standby

Production mode:
3000 hours per year maximum estimate first year
6000 hours per year maximum estimate following years

Emissions from Dunnage Incinerator (DUN)			Emission Factor		Emissions	
Emission Point	Pollutant	Operating Parameters	Rate	Reference	lb/hr	tons/yr
Process Operations						
4 MMBtu	PM10	0.004 MMcf/hr	0.3 lb/hr	Pollution control	0.3	
6000 hrs/yr		24.0 MMcf/yr	(0.01 gr/dscf fab filter	system design		0.9
	CO		1.5 lb/hr	design	1.5	
						4.5
	NOx		9.2 lb/hr	design	9.2	
						27.6
	SO2		0.3 lb/hr	design	0.3	
						0.9
	VOC		0 lb/hr	design	0.0	
						0.0

note: MM = million; cf = cubic feet

DUN STANDBY, natural gas			Emission Factor		Emissions	
Emission Point	Pollutant	Operating Parameters	Rate	Reference	lb/hr	tons/yr
4 MMBtu	PM10	0.004 MMcf/hr	2.5 lb/MMcf	Pollution control	0.00001	
2760 hrs/yr		11.0 MMcf/yr	0.999 efficiency	system design		0.00001
	CO		20 lb/MMcf	DEQ	0.1	
						0.1
	NOx		100 lb/MMcf	DEQ	0.4	
						0.6
	SO2		3.8 lb/MMcf	short term DEQ	0.02	
			2.6 lb/MMcf	annual		0.01
	VOC		5.3 lb/MMcf	DEQ	0.02	
Standby emissions based on AP-42 for a commercial boiler						0.03

DUN TOTAL		lb/hr	ton/yr
and max hourly	PM10	0.30	
			0.90
	CO	1.6	
			4.6
	NOx	9.2	
			28.2
	SO2	0.3	
			0.9
	VOC	0.02	
			0.0

maximum quantity of munitions to be destroyed - individual campaign data

campaign	type	# of munitions application basis		Actual numbers # each	tons agent		process ability Max/hr* DFS	min.hrs** DFS	Max/hr LIC	min.hrs LIC	Max/hr MPF	min.hrs MPF	
1	GB M55 Rocket		91442	91375	488.9	X	38.8	2355	193	473	38.8	2355	
2	VX M55 Rocket		14519	14519	72.57	X	38.8	374	136	107	38.8	374	
3	GB M121A1 Projectil	<	50000	47406	154.1		160	296	317	150	181	262	
4	VX M121A1 Projectile	<	40000	32313	96.94		160	202	227	142	157	206	
5	GB M426 Projectile	<	15000	14246	103.3		57.1	249	142	100	97	147	
6	VX M426 Projectile	<	7000	3752	27.2		57.1	66	93.8	40	81	46	
7	GB MC-1 Bomb	<	5000	2418	266	X	7.3	331	9.36	258	7.3	331	
8	GB MK-94 Bomb	<	300	27	1.46	X	7.3	3.7	19.17	1.4	7.3	3.7	
9	VX TMU-28 Spray T.	<	400	156	105.8	X	1	156	1	156	1	156	
10	HD Ton Container	<	3000	2635	2340		1.54	1711	1.54	1711	1.72	1532	
11	VX M23 Land Mine	<	15000	11685	61.35		70	167	130	90	72	162	
					3717.62			5912		3229		5575	total min. hours

* maximum munitions processed per hour

X - max scenario hours

** minimum amount of processing hours under max emissions scenario = 3220 996 3220

TOTAL NEW PROCESS EMISSIONS: Criteria Pollutants											
		PM10		CO		NOx		SO2		VOC	
		lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
Boilers		0.2	0.8	4.5	19	2.2	9.5	0.28	0.8	0.2	0.9
Incin. Sys.		2.0	2.11	8.9	12.7	98.2	103	26	24.6	0.2	0.3
(common)											
DUN		0.30	0.90	1.58	4.61	9.2	28.2	0.3	0.9	0.02	0.03
BRA		2.5	7.6	0.6	1.8	0.3	0.9	0.04	0.08	0.03	0.08
TOTAL		5.0	11.4	15.6	38.5	109.9	141.5	26.6	26.4	0.5	1.3

note: the total is based on the maximum hourly emissions and the total annual emissions from each system.
The common stack emissions represent the worst-case campaign year, with minimal standby time.

TOTAL Standby	PM10		CO		NOx		SO2		VOC	
common stack	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr	lb/hr	tons/yr
(LIC, DFS, MPS)	0.0004		2.8		11.3		0.31		0.23	
		0.0006		3.9		15.7		0.29		0.31

Silver 2 Process for the Destruction of Chemical Agents & Munitions

AEA

EQC

Silver 2 Process

INTRODUCTION

Developed by AEA Technology for the destruction of nucle arindustry wastes, such as:

- insoluble plutonium oxide residues from uranium plutonium oxide fuel dissolution
- spent solvent from reprocessing operations
- ion exchange resins
- cellulose tissues

and the destruction of plutonium contaminated material together with the recovery of the plutonium

AEA

Silver 2 Process

HOW DOES IT WORK?

Ag(II) is formed

Ag(II) either reacts with water to form radicals (very energetic molecular fragments) which attack the waste.

or

attacks the waste directly.

Either way, the waste is oxidised to carbon to carbon dioxide and water. The oxygen required comes at this stage from water molecules in the electolyte.

nitric acid is destroyed, being converted to nitrous acid and nitrogen oxides. If nothing was done, very soon all of the acid would disappear and the cell would not function. To prevent this, the oxygen in air is used to reform the acid in a regenerator.

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Silver 2 Process

OVERALL REACTION

Organics + Oxygen $\longrightarrow$ CO_2 + H_2O

Overall, neither silver nor acis is consumed.

The overall reaction is exactly the same as combustion, we are driving it along under gentle conditions by putting in electric power.

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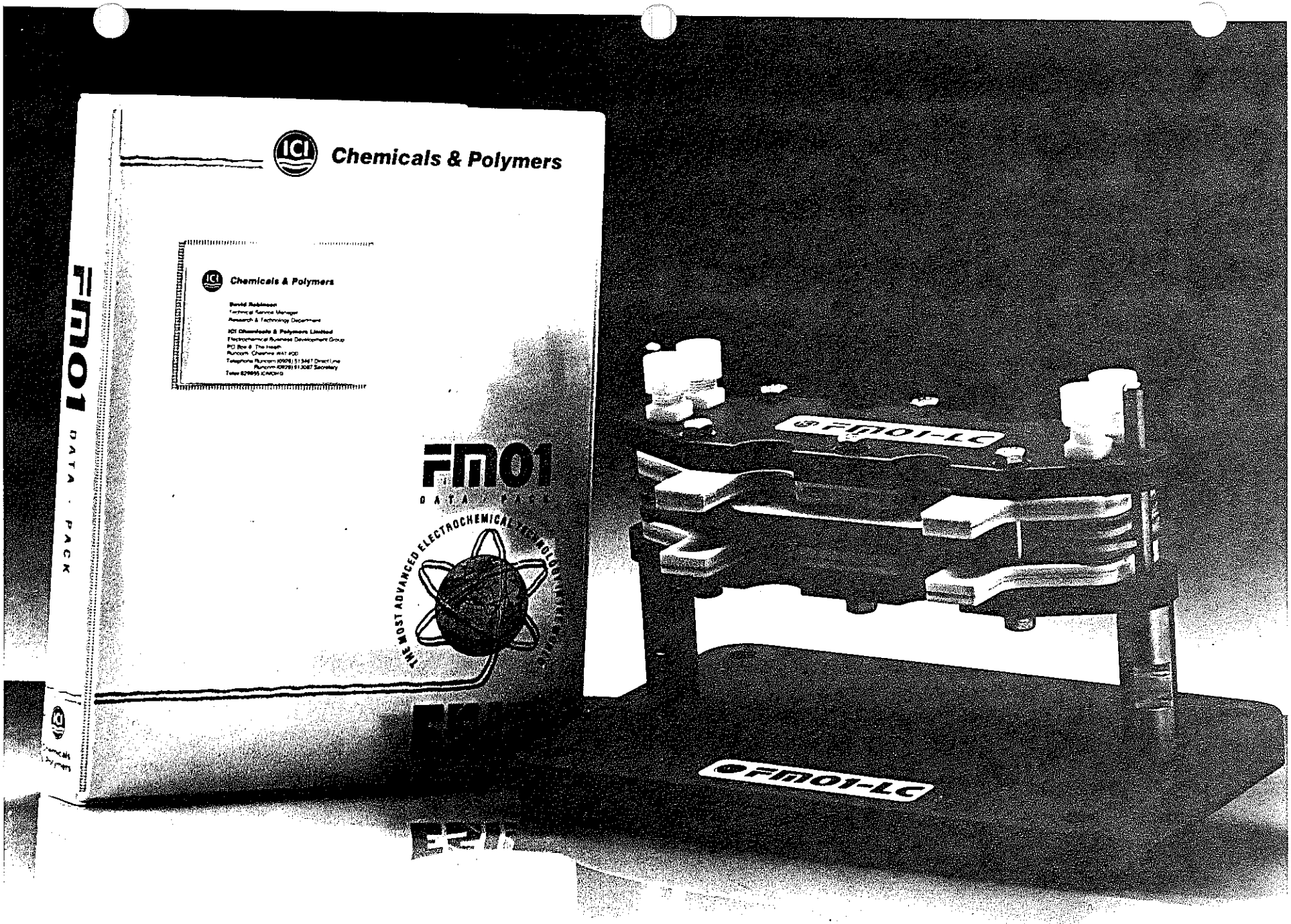
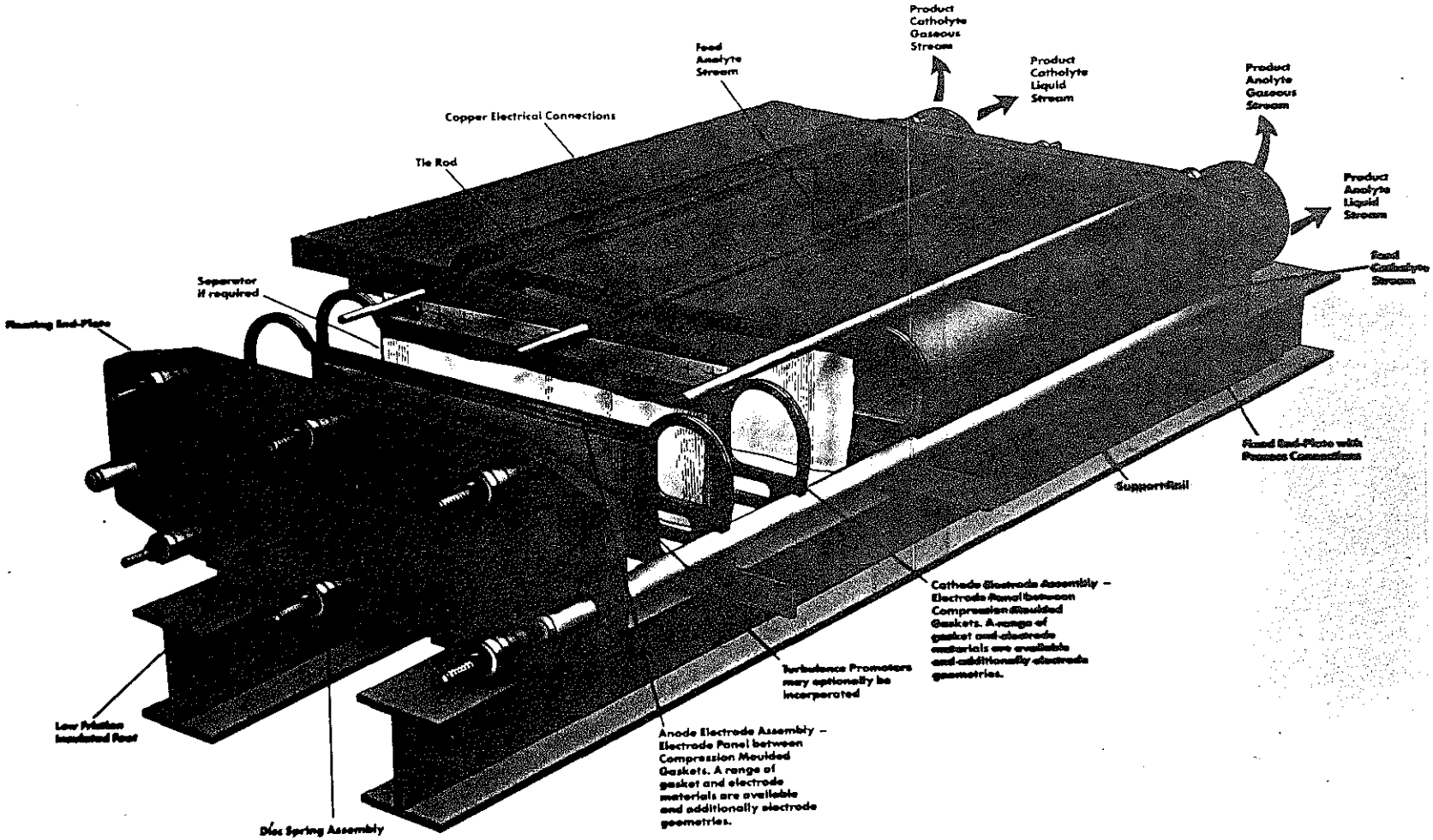
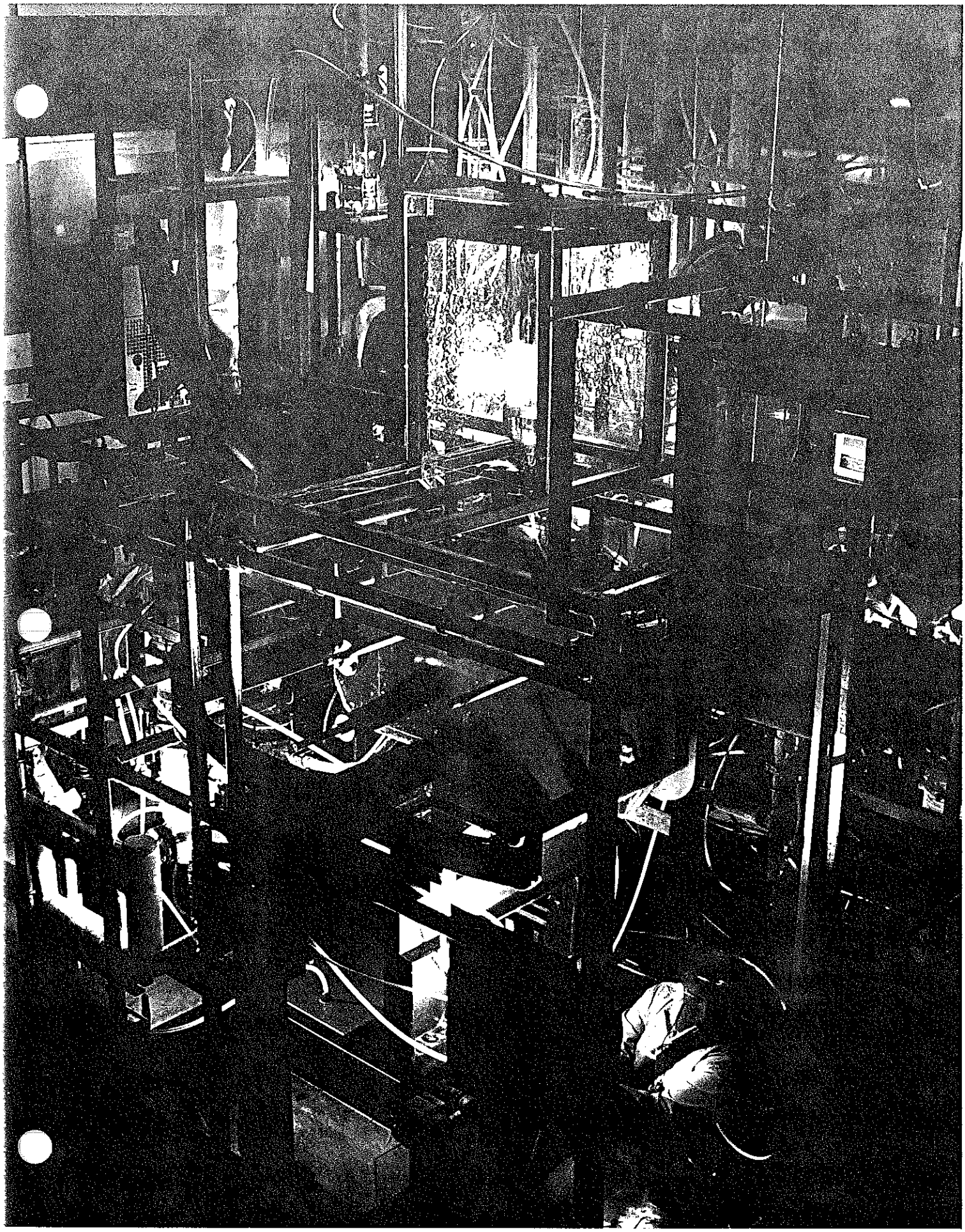
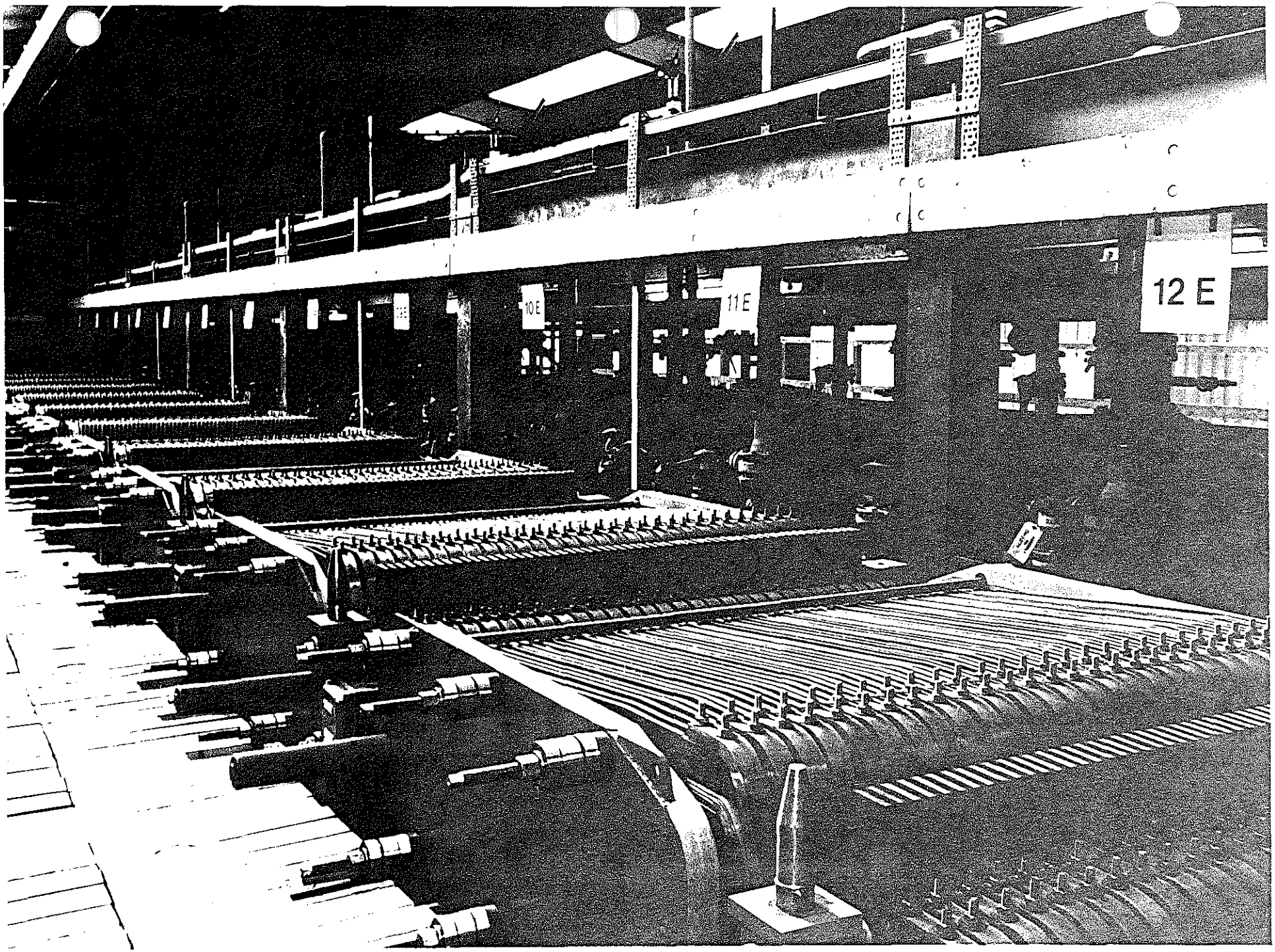

Chemicals & Polymers
FM01
DATA · PACK
Chemicals & Polymers
FM01
DATA · PACK
THE MOST ADVANCED ELECTROCHEMICAL TECHNOLOGY
FM01-LC
FM01-LC


Product Catholyte Gaseous Stream
Feed Analyte Stream
Product Catholyte Liquid Stream
Product Analyte Gaseous Stream
Copper Electrical Connections
Tie Rod
Product Analyte Liquid Stream
Separator if required
Fixed End-Plate with Process Connections
Support Rail
Cathode Electrode Assembly – Electrode Panel between Compression Moulded Gaskets. A range of gasket and electrode materials are available and additionally electrode geometries.
Turbulence Promoters may optionally be incorporated
Low Friction Insulated Foot
Anode Electrode Assembly – Electrode Panel between Compression Moulded Gaskets. A range of gasket and electrode materials are available and additionally electrode geometries.
Disc Spring Assembly




10 E
11 E
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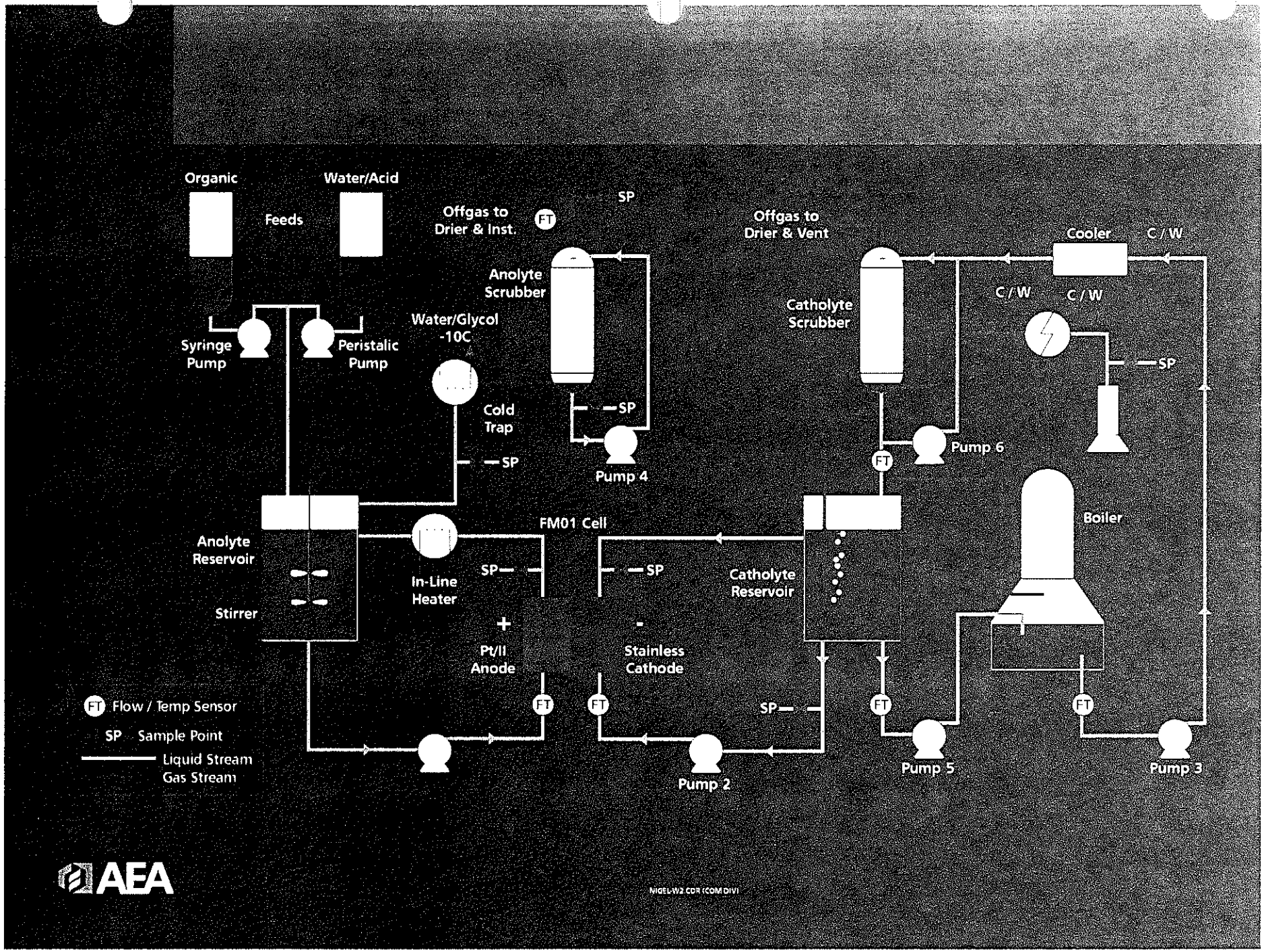
Organic
Water/Acid
Feeds
Offgas to Drier & Inst.
FT
SP
Offgas to Drier & Vent
Cooler
C / W
Anolyte Scrubber
Catholyte Scrubber
C / W
C / W
Water/Glycol -10C
Syringe Pump
Peristalic Pump
SP
Cold Trap
SP
Pump 4
FT
Pump 6
Boiler
FM01 Cell
Anolyte Reservoir
In-Line Heater
SP
SP
Catholyte Reservoir
Stirrer
+
Pt/Ir Anode
-
Stainless Cathode
FT Flow / Temp Sensor
SP Sample Point
Liquid Stream
Gas Stream
FT
FT
SP
FT
FT
Pump 2
Pump 5
Pump 3
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NIGEL-W2 CDR (COM DIV)

Silver 2 Process

TBP AS AN ANALOGUE FOR NERVE AGENTS

- Tri-butyl phosphate (TBP) used in the nuclear fuel recycling process to recover uranium and plutonium from a solution of nitric acid and dissolved fuel. The TBP is mixed with odourless kerosene (OK)

- the development programme for TBP/OK destruction has resulted in 750 hours operation of the 2,000 amp pilot plant, including a 14 day continuous run.

- TBP has a similar structure to organo-phosphorus nerve agents and is less reactive than the organo-phosphorus nerve agents. So TBP can be used as an analogue for nerve agents in Silver 2 experiments.

Silver 2 Process

SUMMARY OF CHEMICAL AGENT DESTRUCTION EXPERIMENTS

- performed at CBDE (Porton Down) using an FM01 rig

- purpose to demonstrate the destruction each of the following chemical agents by the Silver 2 process:

  - agent GA (Tabun)
  - agent GB (Sarin)
  - agent VX
  - distilled S-mustard (HD)
  - UK specification weapons-grade mustard
  - UK specification thickened S-mustard

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Agents Destroyed

Agent	Code	Experiments	Amount
Sarin	GB	2	20g
VX	VX	2	20g
Mustard (pure)	HD	2	20g
Mustard (thickened)	HD	2	10g
UK Weapons Grade	HD	1	10g
VX / Dinitrotoluene	-	2	7.4VX
			10.0D
Total Agent Destroyed			**107.4g**

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Silver 2 Process

CONTROL SYSTEM

- control parameters:
  - temperature
  - liquid flowrate
  - liquid composition
  - gas flowrate
  - gas composition
  - DC current
  - DC voltage
- None of the control parameters require unusual sensors

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Silver 2 Process

END OF CAMPAIGN RECOVERY

- mix anolyte and catholyte liquors together
- recover silver for next campaign via silver chloride
- silver free liquid effluent remains.
- this stream is suitable for immobilisation using cementation technology developed for the nuclear industry or disposal as industrial waste

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Silver 2 Process

PLANT THROUGHPUTS FOR A 360 kW DC SILVER II PLANT

- Throughput

- Modular construction, several 40 foot ISO containers
- Scale-up by replicating modular units so negligible technical and financial risk
- First module can be installed on site within 345 days of order to proceed, subsequent modules on-line at 60 day intervals thereafter

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Silver 2 Process

SUMMARY

- the Silver 2 Process is a safe, environmentally acceptable method of disposing of organic compounds
- the complete destruction of actual chemical agents has been demonstrated on a small scale
- the destruction of actual explosives has been demonstrated on a small scale
- a method for the disposal of munitions has been demonstrated using a simulated muniton containing VX and the energetic simulant di-nitrotoluene

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Silver 2 Process

SAFETY ISSUES

- The Silver 2 Process operates at low temperature (20 to 90 °C) and near atmospheric pressure.
- When the electrical supply is isolated then no more Ag(II) ions are generated and so the oxidation reaction stops.
- Organic compounds can be fed directly into the Silver 2 Plant such that there is minimal hold-up of unreacted organic in the Plant.
- The carbon dioxide produced from the destruction of the organic compounds will cause the offgas stream from the anolyte circuit to be inherently safe by rendering the gas stream non-flammable.

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Silver 2 Process

SUMMARY OF CHEMICAL MUNITION DESTRUCTION EXPERIMENTS

- performed at CBDE (Porton Down) using an FM01 rig
- purpose to demonstrate the destruction of an aluminium bodied munition containing chemical agent and energetics by the Silver 2 Process
- simulated munition was an aluminium capsule containing 3.6 g of VX and 8 g of 2,4 di-nitrotoluene (DNT) to simulate the energetics
- experimental conditions
  - anolyte temperature — 50 °C and 90 °C
  - anolyte composition — 8 M acidity, 0.5 M Ag^{e} ions
  - Duration of experiment — 6 hours
- at the end of the experiment, the aluminium capsule had been dissolved and the chemical agent could not be detected by CBDE using their approved analysis techniques

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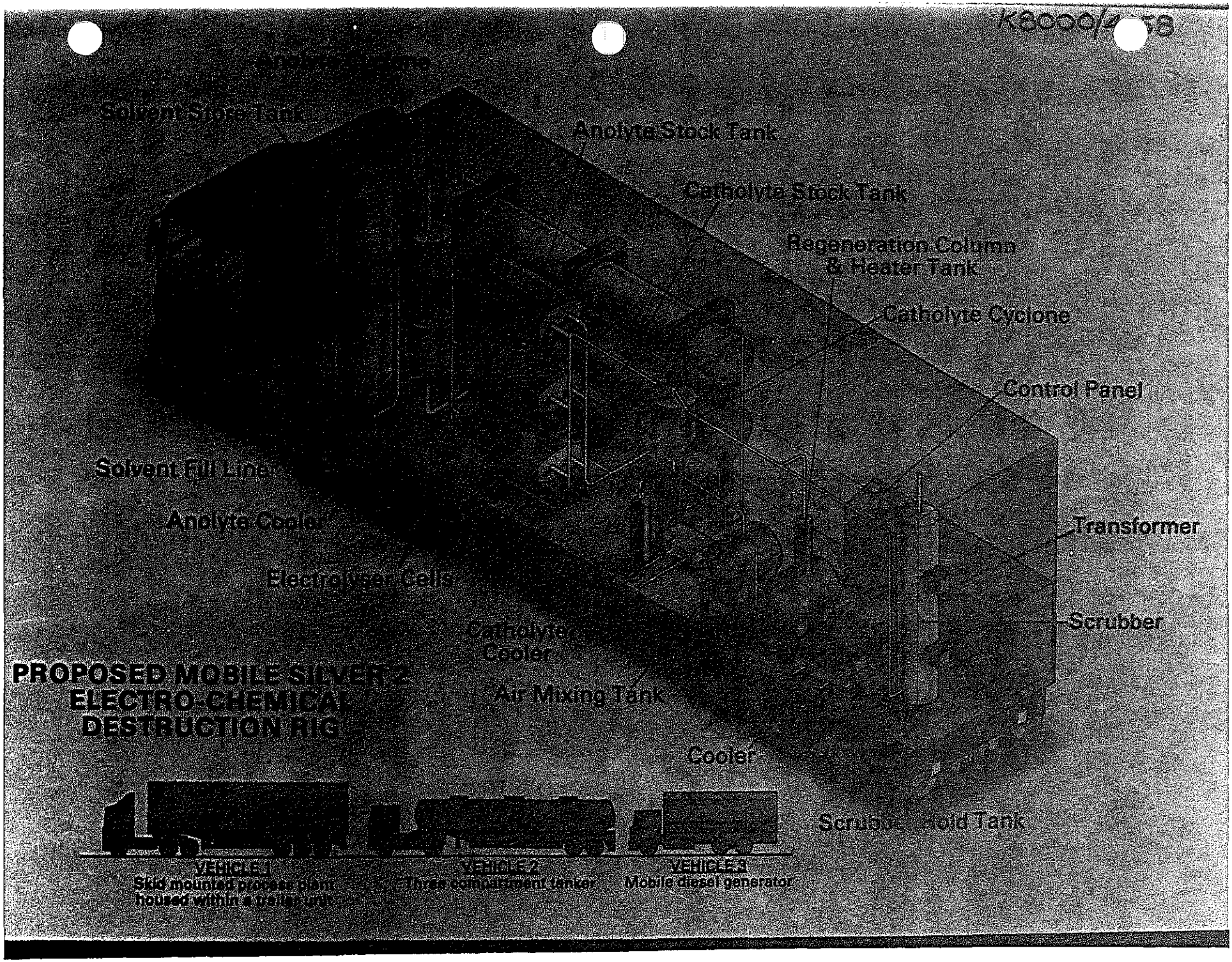
K8000/458



PROPOSED MOBILE SILVER 2 ELECTRO-CHEMICAL DESTRUCTION RIG

Silver 2 Process

SUMMARY OF EXPLOSIVES DESTRUCTION EXPERIMENTS

- performed at UK MOD Royal Military College of Science (RMCS) Shrivenham using an H-cell
- purpose to demonstrate the destruction of a range of explosives by the Silver 2 Process:
  - trinitrotoluene (TNT)
  - recrystallised RDX
  - the plastic explosive Demex 100
  - triple base propellant (50 % nitroguanidine, 25 5 nitro-cellulose, 25 % nitro-glycerine)
- experimental conditions

- anolyte temperature	90 °C
- anolyte composition	8 M acidity, 0.5 M Ag^{e} ions
- Duration of experiment	5 hours
- Amount of explosive used	5 g

- the dissolved carbon concentration fell from 9,250 ppm to approximately 100 ppm, showing that the explosives had been destroyed

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Silver 2 Process

CONCEPT FOR DISPOSAL AT SMALL DISCOVERY SITES

- **Gain access to the organic content of recovered munitions**

  Gain access to the organic content of the recovered munition by:

  - electrochemical cutting
  - Water jet cutting
  - Mechanical saw
  - Drill and flush
  - "Hot tapping"

- **Destroy the chemical agent content of the munition using**

  The destruction of the chemical agent content of 2 off 155 mm shells in 18 hours requires a 4 kW Silver 2 Plant. This is the same size as the existing Silver 2 Pilot Plant operated at Dounreay since 1988.

- **Decontaminate the munition casing using the Silver 2 Process**

  Washing the contaminated internal areas of the muniton casing with Silver 2 solution will destroy any residual chemical agents in the shell

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Silver 2 Process

CONCEPT FOR RECOVERY OF MUNITIONS

- Generate robust and reproducible map of suspected site showing x, y, z location of potential munitions using passive non-intrusive detection techniques already used in Oil Industry

- Manually recover the potential Munitions or use a safer remote operated technique adapted from existing Oil Industry practices

- Use existing non-invasive techniques (Visual, X-ray, Back scatter neutron activation or Ultrasonic scanning) to identify type of munition and organic content

Silver 2 Process

ADVANTAGES OF PROPOSED CONCEPT FOR SMALL RECOVERY SITES

- Mobile - all equipment transportable within 40 ft ISO containers
- Flexible
- uses Remote Operated Vehicles
- uses existing demonstrated technologies
- available within 1 year of receiving order to proceed

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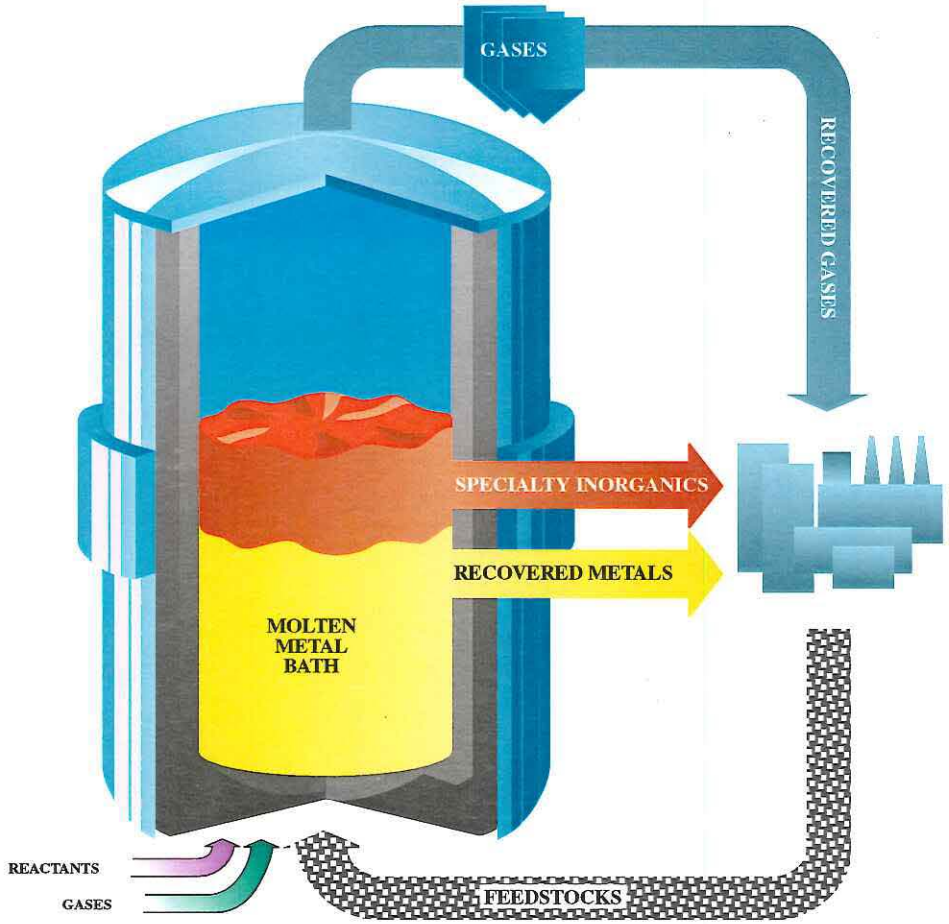
Main Groups of Compounds so far Destroyed by Silver II Process

1,1 DIMETHYL HYDRAZINE
2-BUTOXYETHANOL
40-60 PETROLEUM SPIRITS
BUTANOL
CELLULOSE
CHLOROFLUOROBENZONIC ACID
CS
DDT
DEMEX
DIELDRIN
DINITROPHENOL
DODECAN
ETHANOL
ETHYLBENZENE
ISOPROPANOL
M-NITRO-P-TOLUIDINE
METHYLENE CHLORIDE
MIXED IEX RESIN
N-METHYL-2-PYRROLIDONE
NITROSOBENZENE
ODOURLESS KEROSENE
P-TYOLEUNESULPHONIC ACID
PERCHLOROETHYLENE
RDX
SARIN (GB)
UDMH (ROCKET FUEL)
TABUN (GA)
TETRAHYDROFURAN
TRI-NITROCELLULOSE
TRICHLOROBENZENE
TRICHLOROETHYLENE
TRITOLYL PHOSPHATE
VX
10% TBP/OK
2-CHLOROETHUL ETHYL SULPHIDE
ALDRIN
BUTYLHYDROXY ACETATE
CHLOROBENZENE
CHLOROFORM
CYCLOHEXANE
OTTO TORPEDO PROPELLANT
DI-NITROTOLUENE
DIETHYLAMINE
DIOXIN
ENDRIN
ETHER
HEXA-NITROCELLULOSE
LINDANE
METHANOL
MIXED ALIPHATIC AMINES
MIXED PCB ISOMERS
NITROGLYCERINE
OCTANOIC ACID
OIL SLUDGE
PAINT RESIDUES
PHENOL
XYLENE
SCINTILLATION COCKTAIL
SOMAN (GD)
TETRAHYDROFURAN
TOLUENE
TRI-NITROTOLUENE
TRICHLOROETHANE 1,1,1
TRIETHANOLAMINE
UREA FORMALDEHYDE
DECON 90 (NUCLEAR DECONTAMINATION AGENT)
SDG3
S-MUSTARD (DISTILLED, THICKENED, WEAPONS GRADE)

M4 Environmental L.P.

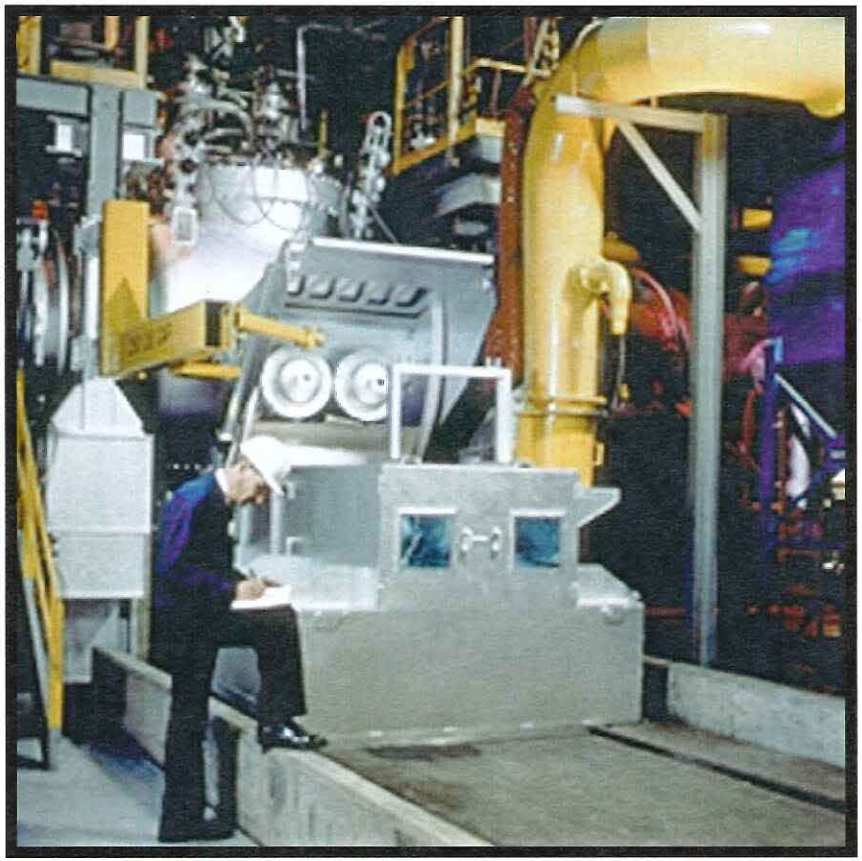
Chemical Demilitarization
Program Overview

Catalytic Extraction Processing



- **Elemental Recycling Process**
- **What goes in?**
  - solids, sludges, liquids, gases
- **What happens?**
  - dissolution at 2400-3200°F
- **What comes out?**
  - saleable products: metals, gases, inorganics

CEP Provides Superior Technical and Environmental Performance



- **Over a wide range of heterogeneous feeds, long-term operability trial results consistently demonstrated**
  - DRE > 99.9999%
  - NOx and SOx < 3 ppm
  - non-leachable condensed phase products
  - Dioxins/furans non-detectable to targeted regulatory standard of 0.1 ng/Nm^3 TEQ
  - no hazardous wastewater
- **BDAT equivalency designations by EPA and Recycling Certifications by MADEP based on third-party results and assessments**

Representative Feed Processed by the CEP Demonstration Prototype

Feed	Key Elements	Chemical Structure	Product Recovery	DRE
Hydrocarbons				
Polystyrene/ graphite	C, H	Straight chains	99% to syngas	≥99.9999%
Ion Exchange Resin	C, H	Hydrocarbon aromatics	95% to syngas 1% to nitrogen 1% to ferroalloy	≥99.9999%
Oxygen-Bound Compounds				
Acetone	C, H, O	Ketone	99% to syngas	≥99.9999%
Industrial Biosolid waste	C, H, O (P, Na, Ca, Mg)	Highly variable hetero-geneous organics & inorganics	70% to syngas 8% to nitrogen 20% to ceramic 1% to ferroalloy	≥99.9999%
Halogenated Compounds				
Chlorotoluene/ heavy organics	C, H, Cl	Halogenated aromatics	87% to syngas 12% to ceramic	≥99.9999%
K019/K020[1]/ chlorobenzene/ Fuel oil	C, H, Cl	Halogenated aroma-tics, Halogenated straight chains	76% to syngas 23% to ceramic	≥99.9999%
F024[2]/ Fuel oil/ chlorotoluene	C, H, Cl	Halogenated aroma-tics, Halogenated straight chains	82% to syngas 13% to HCl gas <1% to ceramic	≥99.9999%
Nitrogen-Bound Compounds				
Dimethyl Acetamide/ heavy organics	C, H, N	Amides	96% to syngas 3% to nitrogen	≥99.9999%[4]
K027[3]	C, H, N	Isocyanates	93% to syngas 5% to nitrogen <1% to ceramic <1% to ferroalloy	≥99.9999%
Benzonitrile	C, H, N	Cyanides	86% to syngas 13% nitrogen	≥99.9999%
Phosphorous-Bound Compounds				
Diazinon	C, H, N, P, O, S	Pyridine ring, Phosphothioic acid	85% to syngas 4% to nitrogen 8% to ceramic 2% to ferroalloy	≥99.9999%[5]
Sulfur-Bound Compounds				
Diazinon with sulfur	C, H, N, P, O, S	Pyridine ring, Phosphothioic acid	85% to syngas 4% to nitrogen 8% to ceramic 2% to ferroalloy	≥99.9999%[5]
Metal Containing Compounds				
Surplus Metal Componentry	C, H, O, N, Fe, Al, Si, Cu, and other metals	Precious, volatile (Pb, Zn), & reducible met-als (Cr, Ni), plastics, exothermic inorganics	25% to syngas 8% to ceramic 63% to ferroalloy	≥99.9999%

CEP Has Received U.S. Federal Regulatory Acceptance

PROJECT	DATE
WHITE HOUSE ADMINISTRATION	
U.S. Vice President Gore selected MMT's Fall River facility to announce National Environmental Technology Strategy, stating the CEP is a "premier example" of an innovative technology beging used to clean up our environment and at the same time provide jobs and economic growth	4/18/95
US EPA	
EPA Metal Recovery Report to Congress (CEP featured as "Innovative Metal Recovery Technology")	6/17/94
Determination that CEP provides equivalent performance for eight RCRA-listed isocyanate waste codes for which incineration had been mandated Best Demonstrated Available Technology (BDAT)	10/24/94
Determination that CEP provides equivalent performance for F024 RCRA-listed chlorinated organic waste for which incineration had been mandated as BDAT	7/18/95
Permit to Conduct Research and Development Testing of Polychlorinated Biphenyls	11/2/95
EPA amended Land Disposal Restrictions regulations to state that CEP achieves BDAT for all RCRA-listed wastes for which incineration or combustion has been mandated, and formally designated CEP as a "non-combustive" technology	4/08/96
EPA proposes to exclude specified CEP synthesis gas for fuel use from the RCRA definition of solid waste	4/19/96

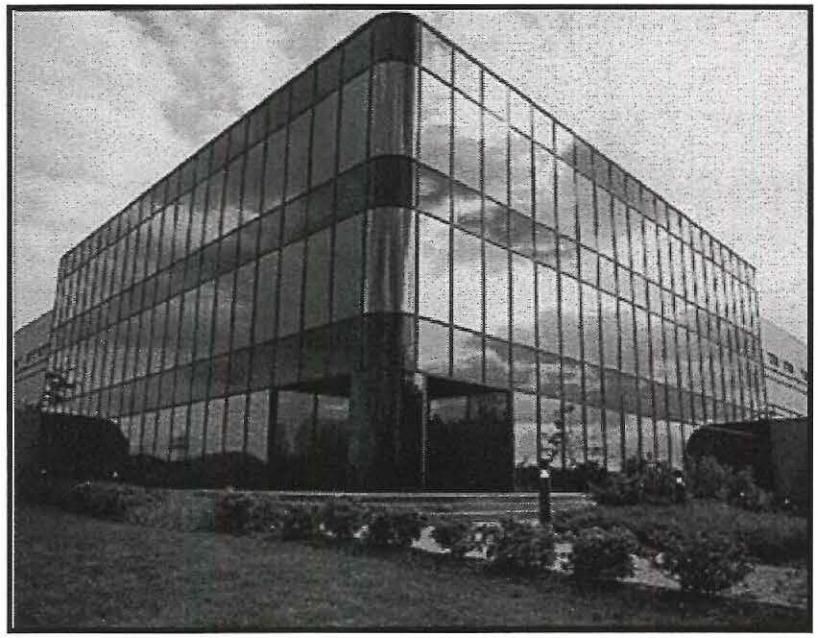
CEP Has Received State Regulatory Acceptance

MASSACHUSETTS	
MADEP Recycling R&D Permit (Fall River)	9/20/93
MADEP R&D Recycling Certification (CEP of Wastewater Treatment Biosolids)	12/1/93
MADEP R&D Recycling Certification (CEP of Surplus Electronic Componentry)	5/17/94
MADEP R&D Recycling Certification (CEP of Chlorinated Organic Hazardous Waste, F024, K019, and K020)	1/24/95
MADEP R&D Recycling Certification (CEP of Toluene Diisocyanate Residue K027)	3/01/95
OHIO	
OH EPA Preliminary Recycling Analysis (CEP recycling unit exempt from RCRA-permitting for central hazardous processing facility)	6/28/94
TEXAS	
TNRCC designation of CEP as "Innovative Technology"	8/4/93
TNRCC determination that MMT's Bay City CEP project is legitimate use/reuse recycling and CEP is a non-incineration, non-BIF technology	2/27/96
CALIFORNIA	
Acceptance of CEP into California Technology Certification program and finding that CEP is a non-combustion technology	6/16/95
TENNESSEE	
TNDEC determination that CEP is not combustion and constitutes legitimate use/reuse recycling	5/3/96

APU-10 and Gas Handling Train

M4 Environmental Mixed Waste Processing Facility

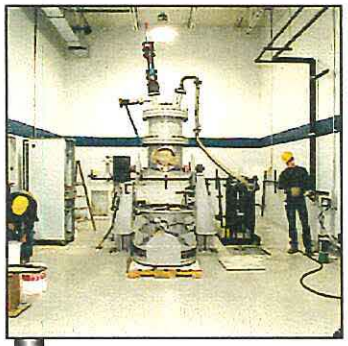
Multiple Units to Support Government and Industrial Mixed Waste Recycling with Site Capacity > 2,000 tpy



- Location: Oak Ridge, TN
- Customer base: Privatized demonstration facility for DOE hazardous and mixed radioactive waste
- First unit fully commissioned Q4/95
- Initial target feeds: Contaminated organic sludges, inorganic sludges, scrap metal, soils, organic debris, DOE complex wastes
- Recovered products include decontaminated metals, synthesis gas, and ceramics

M4 Acquires Technology Center July 28, 1995

RPU-1 Operational



RPU-3 Vessel Arrives

RPU-1 Processes UF_6

RPU-3 Processes Mixed Waste

1996

JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY

1995

Combo Gas Handling Train Complete

Building Improvements complete at Technology Center

RPU-2 Operational

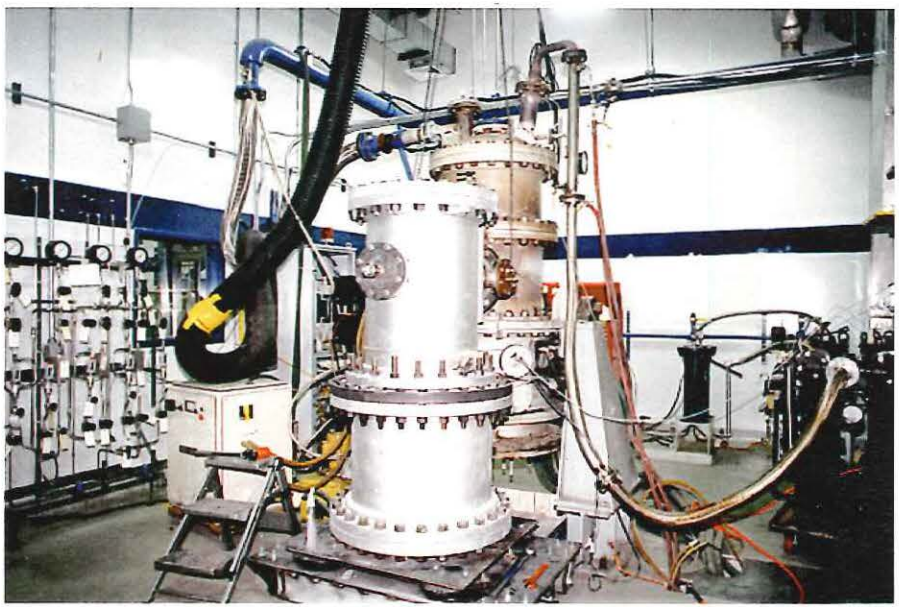
75% Mechanically Complete Test and Checkout Underway

Present Day Combo Combo is 90% Mechanically Complete

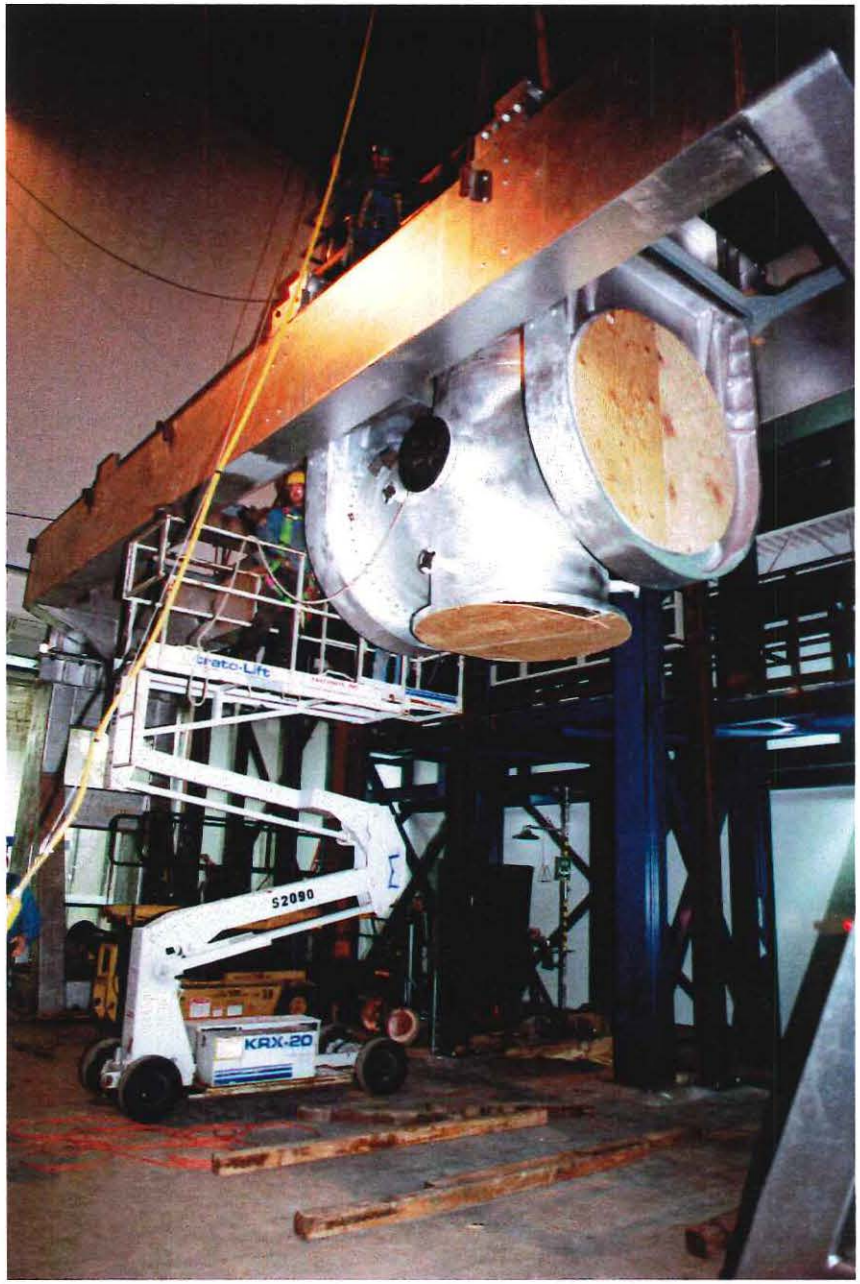
Hot Metal Testing Begins

m4643

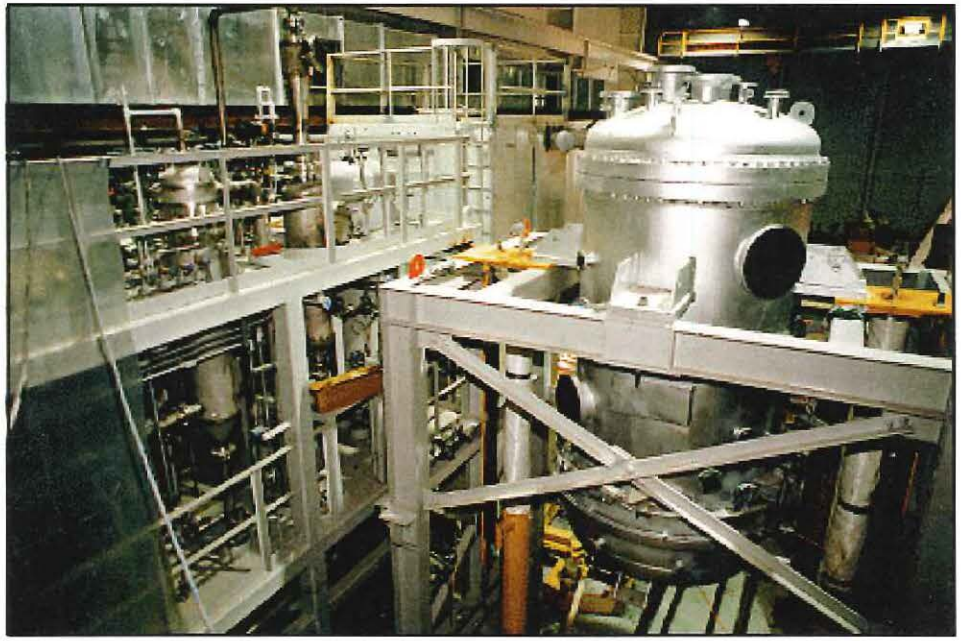
RPU-3

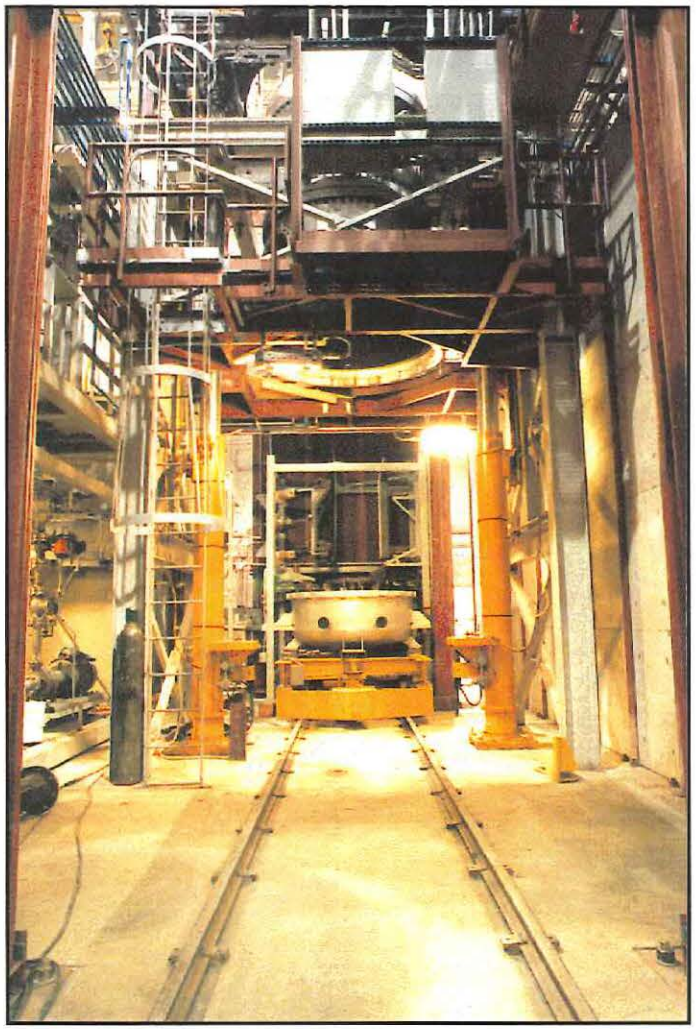


- **It will be used for larger-scale process demonstrations and for processing government and commercial waste streams. 1995.**


Strato-Lift
S2090
KRX-20

SEG Facility





M4 ENVIRONMENTAL L.P.

M4742\11
5/13/96

Destruction Removal Efficiency (DRE) Calculation

- **Standard definition:**

  DRE = 100* [(amount injected) - (amount detected)]/[(amount injected)]

- **DRE calculations:**

Run	Amount Injected (g)	Lower Detection Limit (μg)[a]	DRE
HD-1	31.31	< 0.2	≥ 99.9999994%
HD-2	11.43	< 0.2	≥ 99.9999983%
HD-3	27.29	< 0.2	≥ 99.9999993%
HD-4	33.67	< 0.2	≥ 99.9999994%
HD-5	27.6	< 0.2	≥ 99.9999992%
HD-6	33.4	< 0.2	≥ 99.9999994%
HD-1-FeS	29.14	< 0.2	≥ 99.999998%
HD-2-FeS	28.05	< 0.2	≥ 99.999998%

[a] Analytically limited as discussed previously with NRC and US Army.

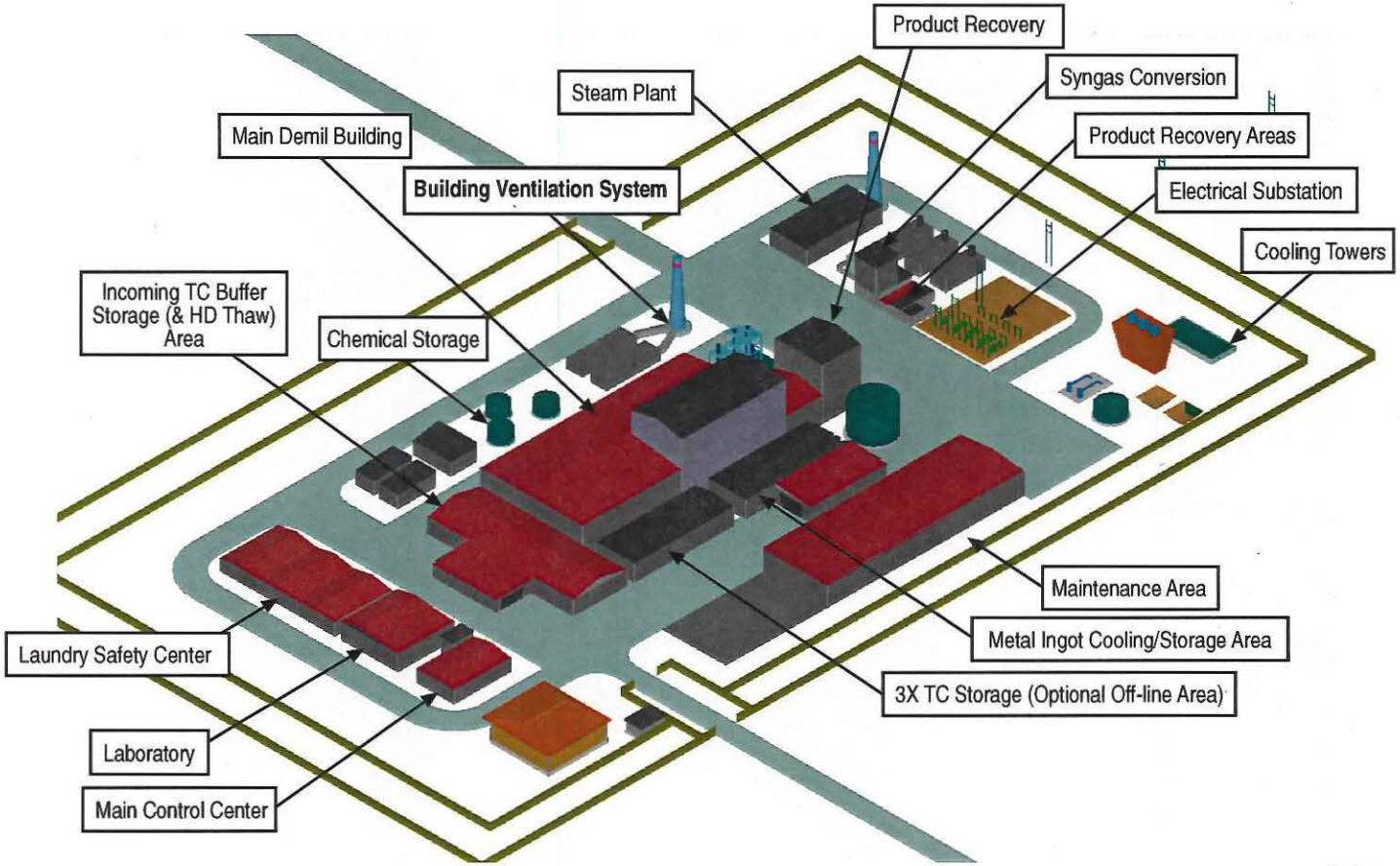
Destruction Removal Efficiency (DRE) Calculation (continued)

- **Standard definition:**
  DRE = 100* [(amount injected) - (amount detected)]/[(amount injected)]
- **DRE calculations:**

Run	Amount Injected (g)	Lower Detection Limit (μg)[a]	DRE
VX-1	24.17	< 0.2	≥ 99.9999992%
VX-2	28.57	< 0.2	≥ 99.9999993%
VX-3	30.61	< 0.2	≥ 99.9999994%
VX-4	22.21	< 0.2	≥ 99.9999991%
VX-5	25.53	< 0.2	≥ 99.999999%
VX-FeP,FeS	21.9	< 0.2	≥ 99.9999988%
VX-FeP,FeS	27.6	< 0.2	≥ 99.999999%

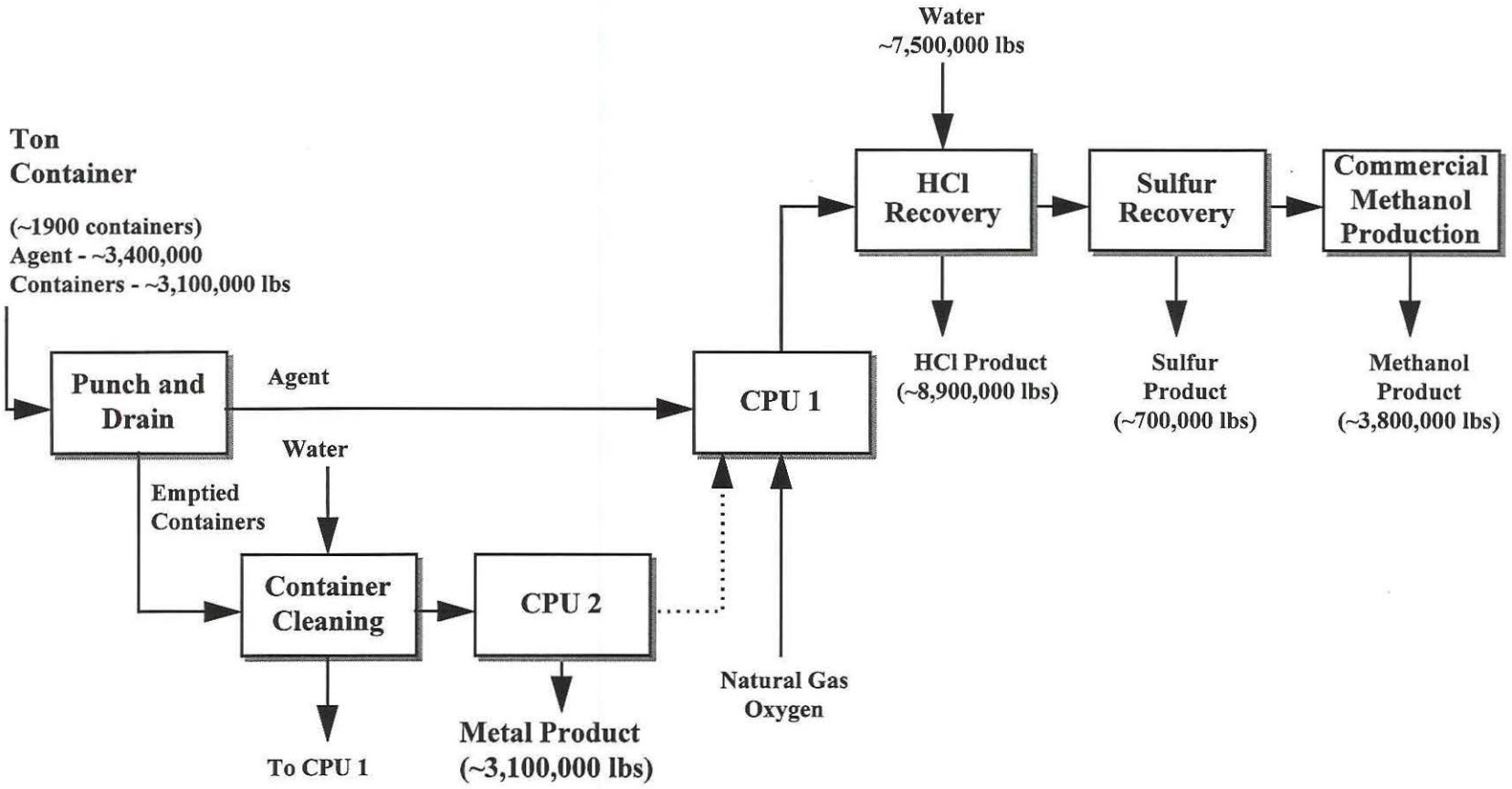
[a] Analytically limited as discussed previously with NRC and US Army.

Chem Demil Facility Concept - Low Volume Bulk Site



Chemical Demilitarization Project Mustard Destruction at Aberdeen

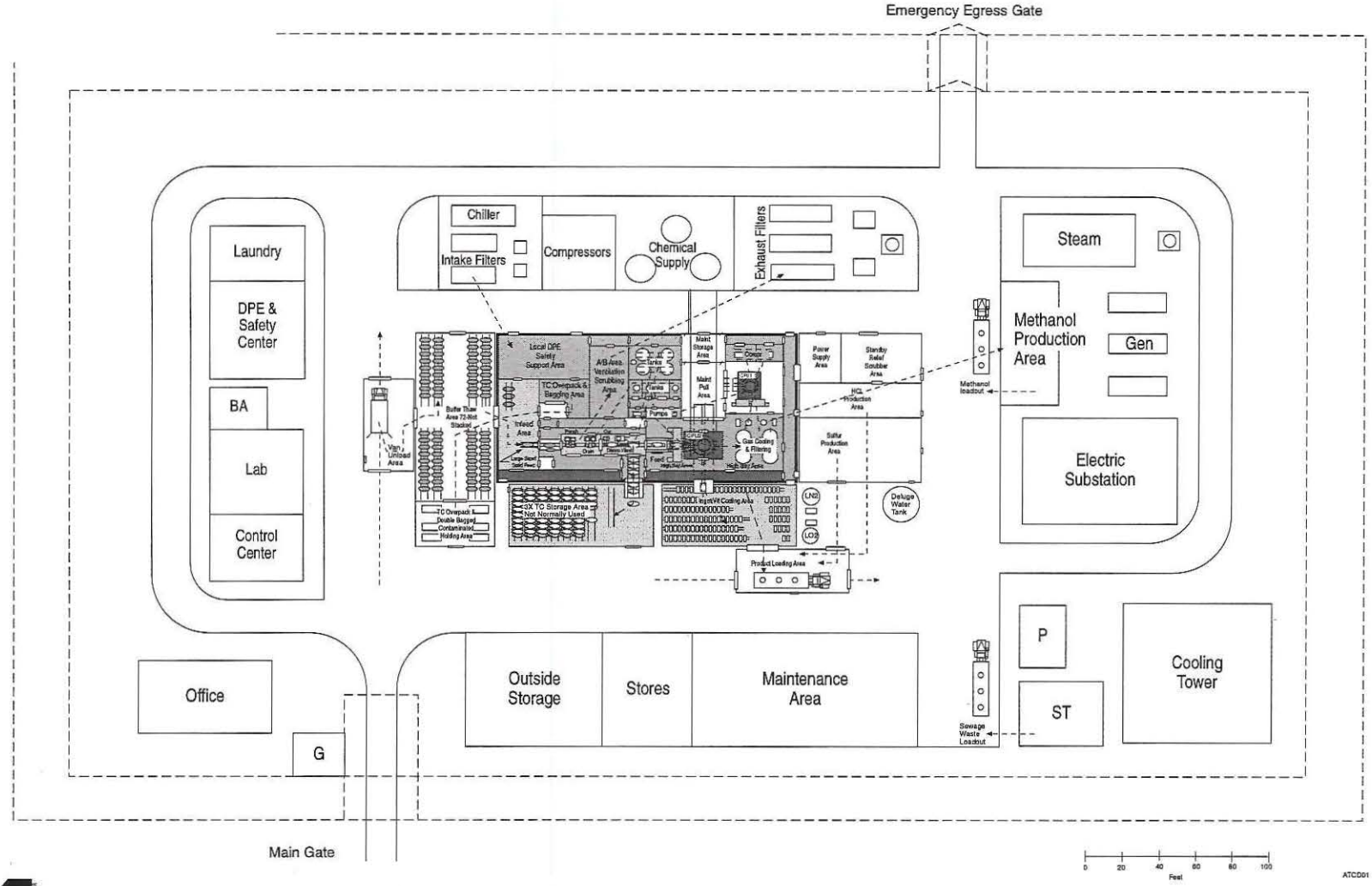
(Approximate Annual Usage and Production Rate)



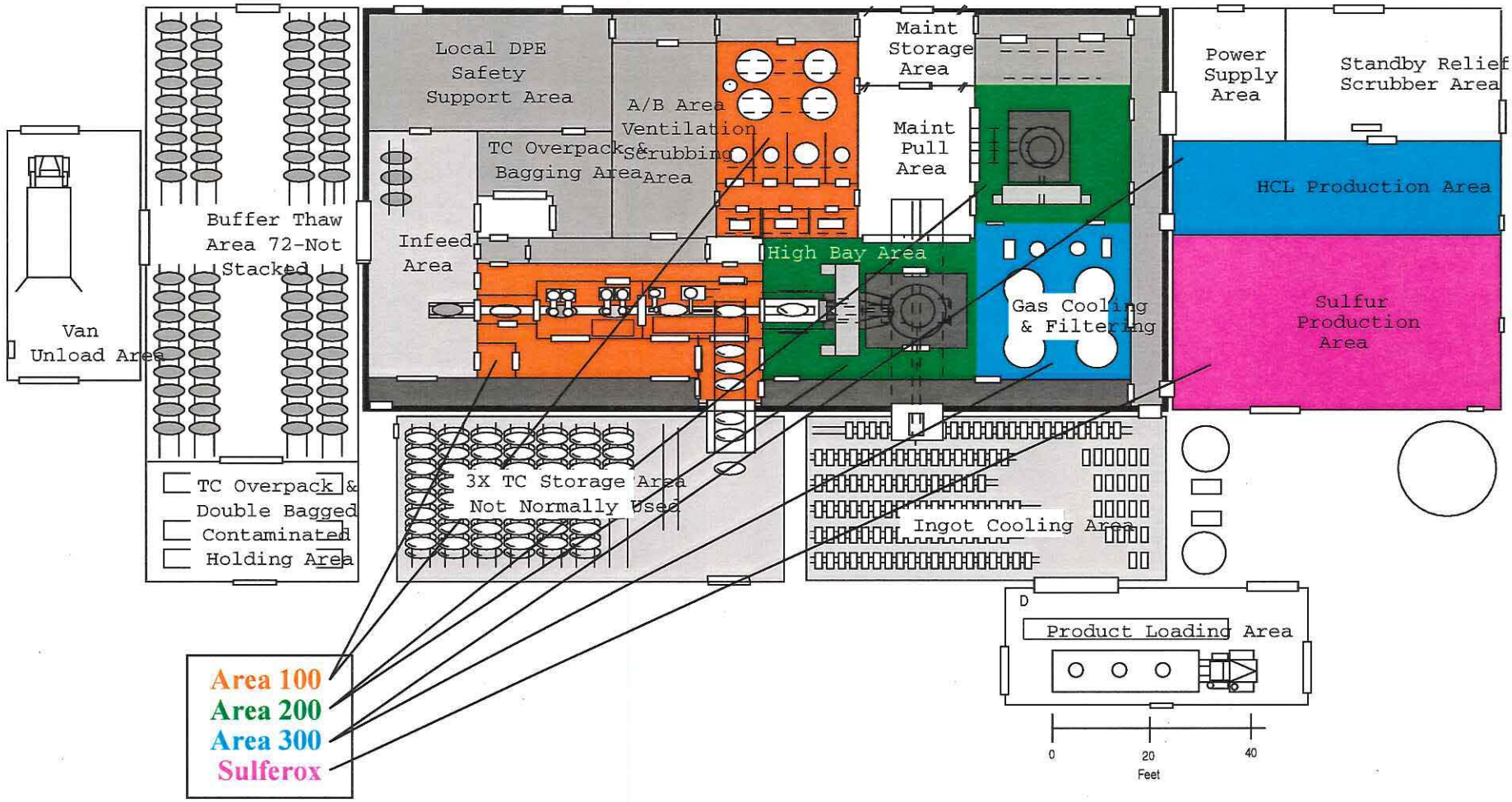
M4 ENVIRONMENTAL L.P.

* SCFM = Standard Cubic Feet per Minute

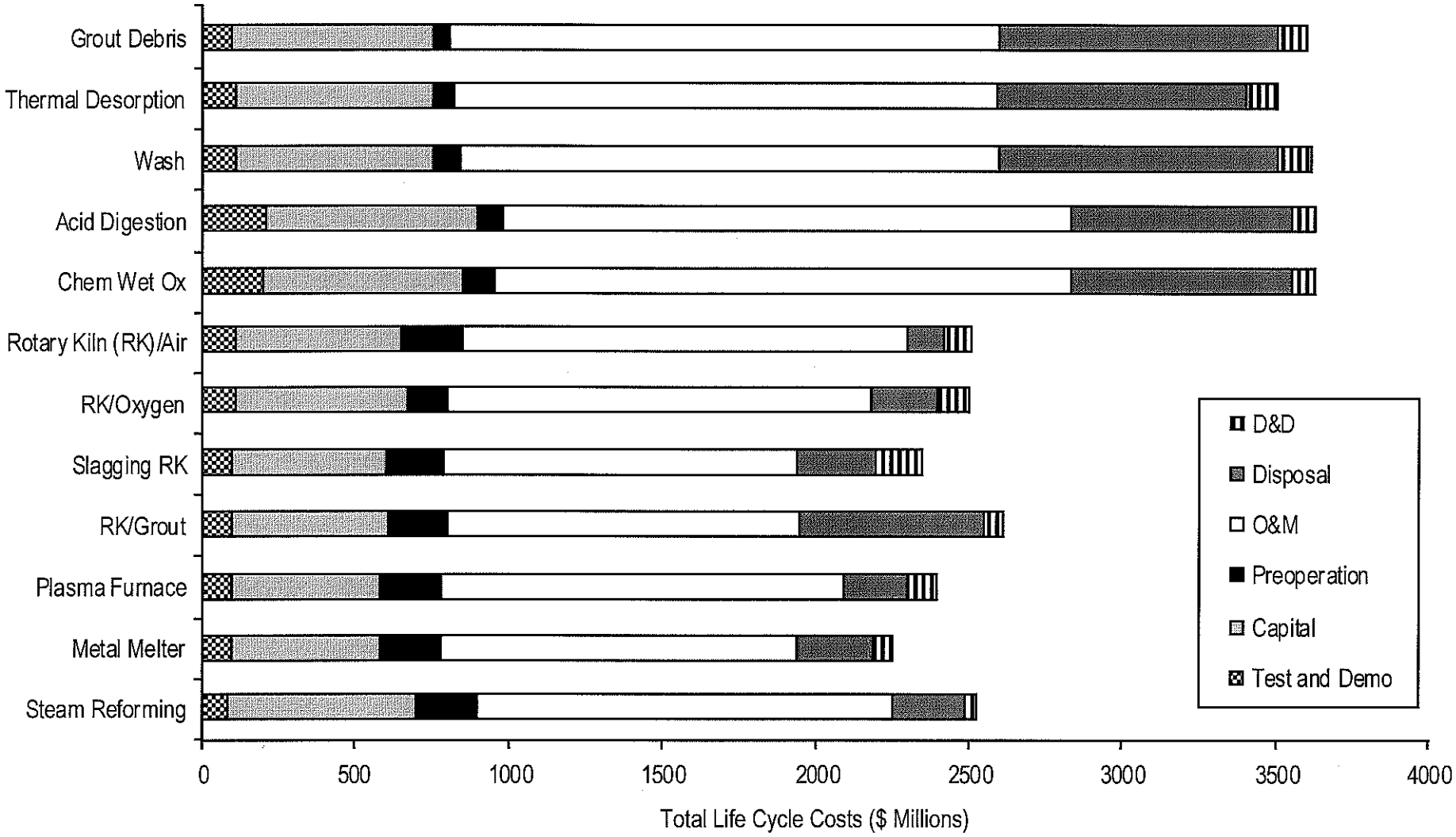
Basic Site Layout for Aberdeen Facility (Power Generation)



Basic Site Layout for Aberdeen Facility (Power Generation)



DOE - Life Cycle Costs for Non-Thermal Greater Than for Thermal Systems



Prepared by DOE Science and Technology organization for the MW Program

M4742\19
5/14/96

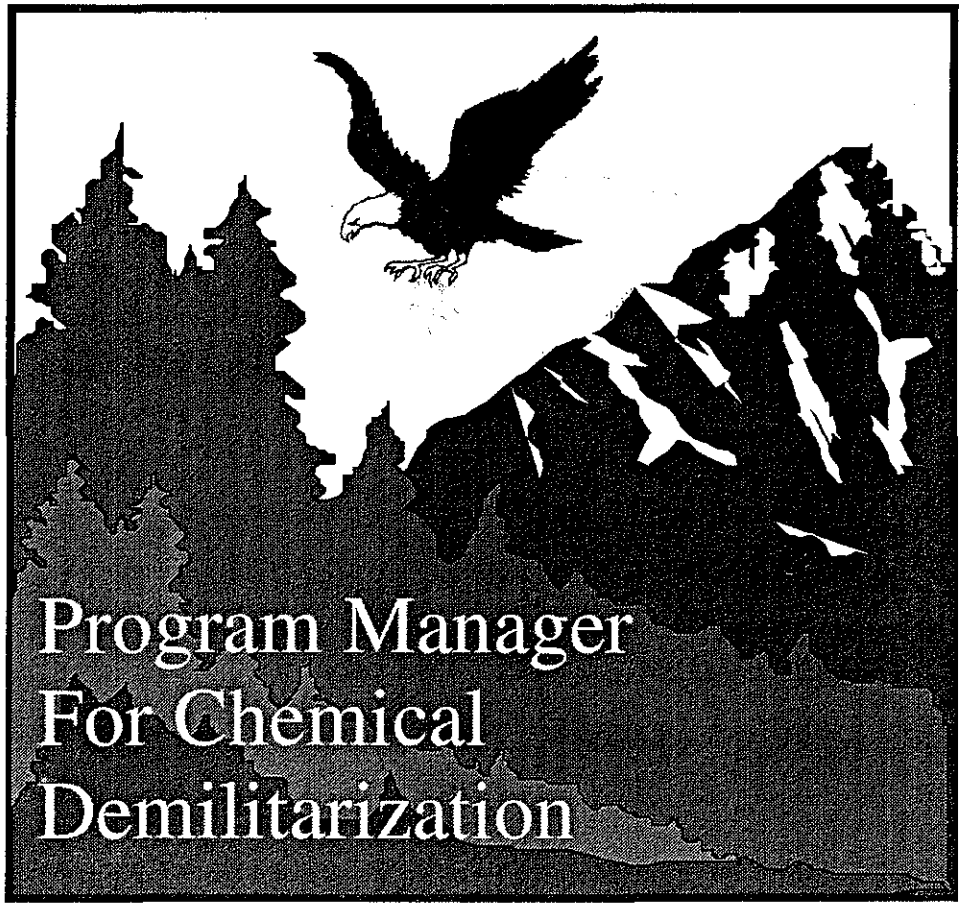
Molten Metal - Chem Demil Discriminators

- Superior environmental performance
- Safety emphasis in design, construction, operations
- Substantial pollution prevention/waste minimization benefits
- Complete solution - agent, metal-residuals, dunnage, decon fluids
- Robustness of process
- Well proven technology
- Ease of integration into stockpile programs
- Unique regulatory standing - recycle vs. RCRA treatment
- Cost and schedule advantages
- Strong team with mission success records
- Private sector approach

REVIEW OF NEUTRALIZATION-BASED TECHNOLOGIES FOR MUSTARD AND VX

Presented To:
Oregon Environmental Quality Council

16 May 1996



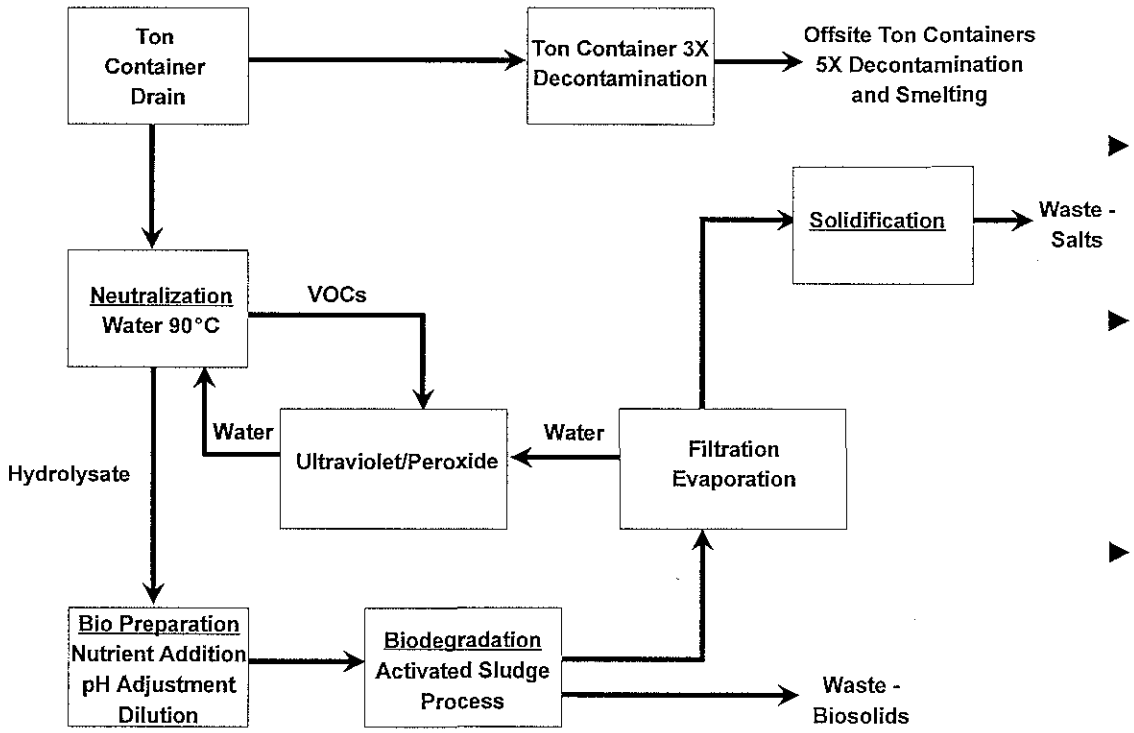
Presented By:
Dr. J. Richard Ward, Chief Scientist
Alternative Technologies and Approaches

Mr. Reid Smith, Project Manager
Stone & Webster Engineering Corporation

REVIEW OF ARMY EXPERIENCE WITH NEUTRALIZATION

- Chemical Defense - Decontamination
- Chemical Disposal - Project Eagle: Rocky Mountain Arsenal
  - 4,200 Tons of GB were Destroyed: 1973 - 1976
  - Research into H, HD and VX: Limited Success
  - Apparent Reformation of Agent
  - Large Amount of Hazardous Waste
- 1984 - NRC Reviewed Range of Disposal Technologies and Endorsed Incineration
- 1990 - ERDEC Showed Reformation was Analytical Artifact
- 1994 - NRC Recommended Proceed Expeditiously to Minimize Total Risk - Conduct Parallel Research and Development into Neutralization-Based Technologies for Bulk-Only Sites

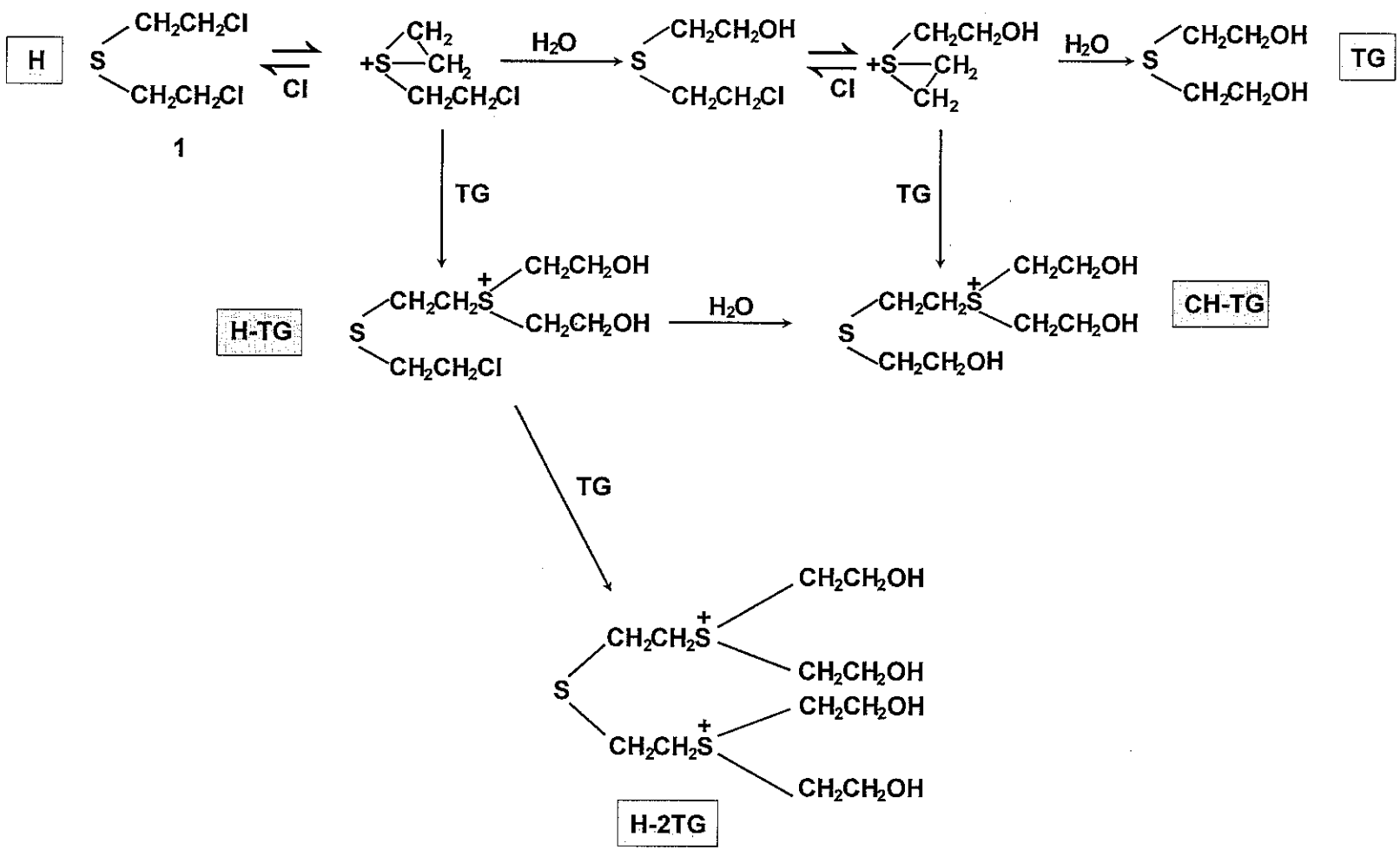
HD NEUTRALIZATION FOLLOWED BY BIODEGRADATION PROCESS



- Low-Temp/Low-Pressure Process
- Demonstrated Agent Destruction at Lab and Bench-Scale
- Uses Common Public Waste Water Treatment Plant Sludge
- Bio-Effluents - Toxicity Low Enough to Consider Sanitary Sewer Discharge

Program Manager
For Chemical
Demilitarization

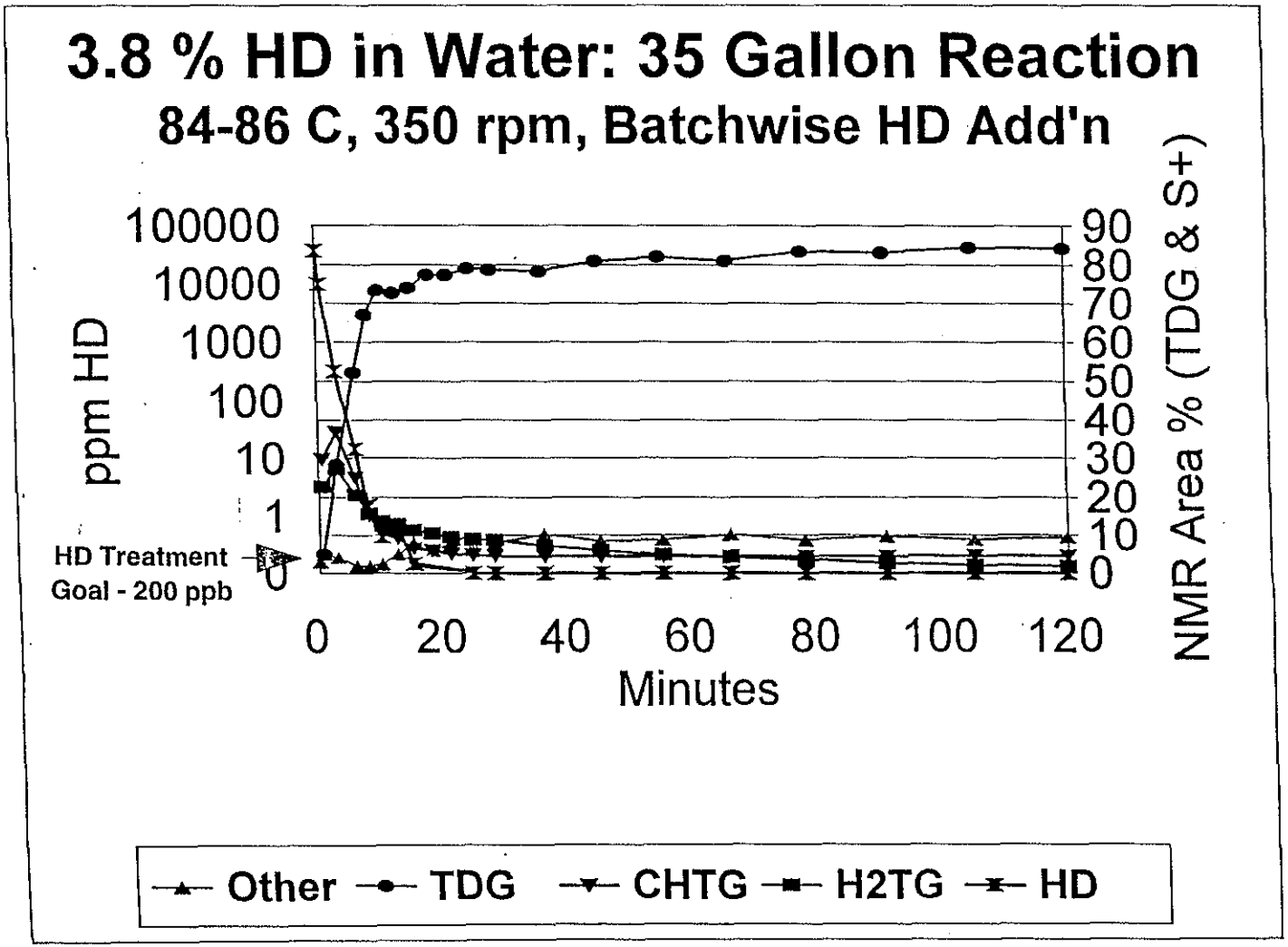
MUSTARD NEUTRALIZATION CHEMISTRY



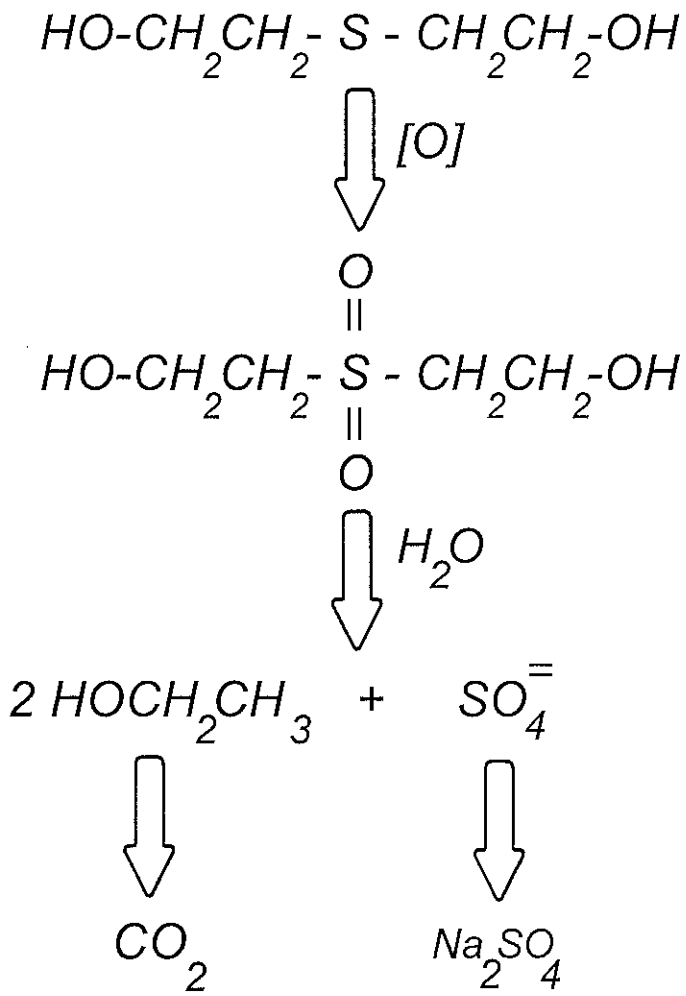
The Reaction Proceeds Through a Series of Sulfonium Ion Intermediates to Thiodigycol

Program Manager For Chemical Demilitarization

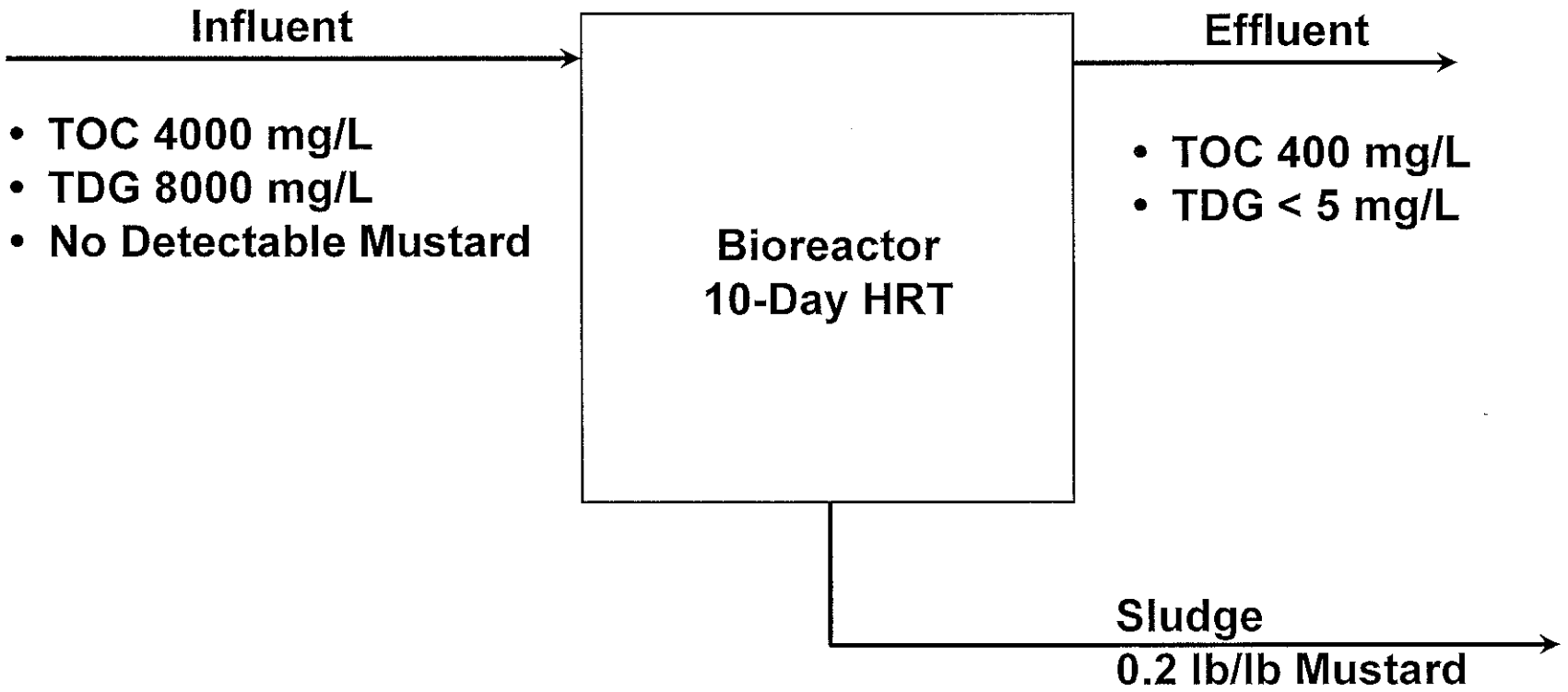
HD IN WATER
35 GALLON



BIODEGRADATION OF THIODIGLYCOL



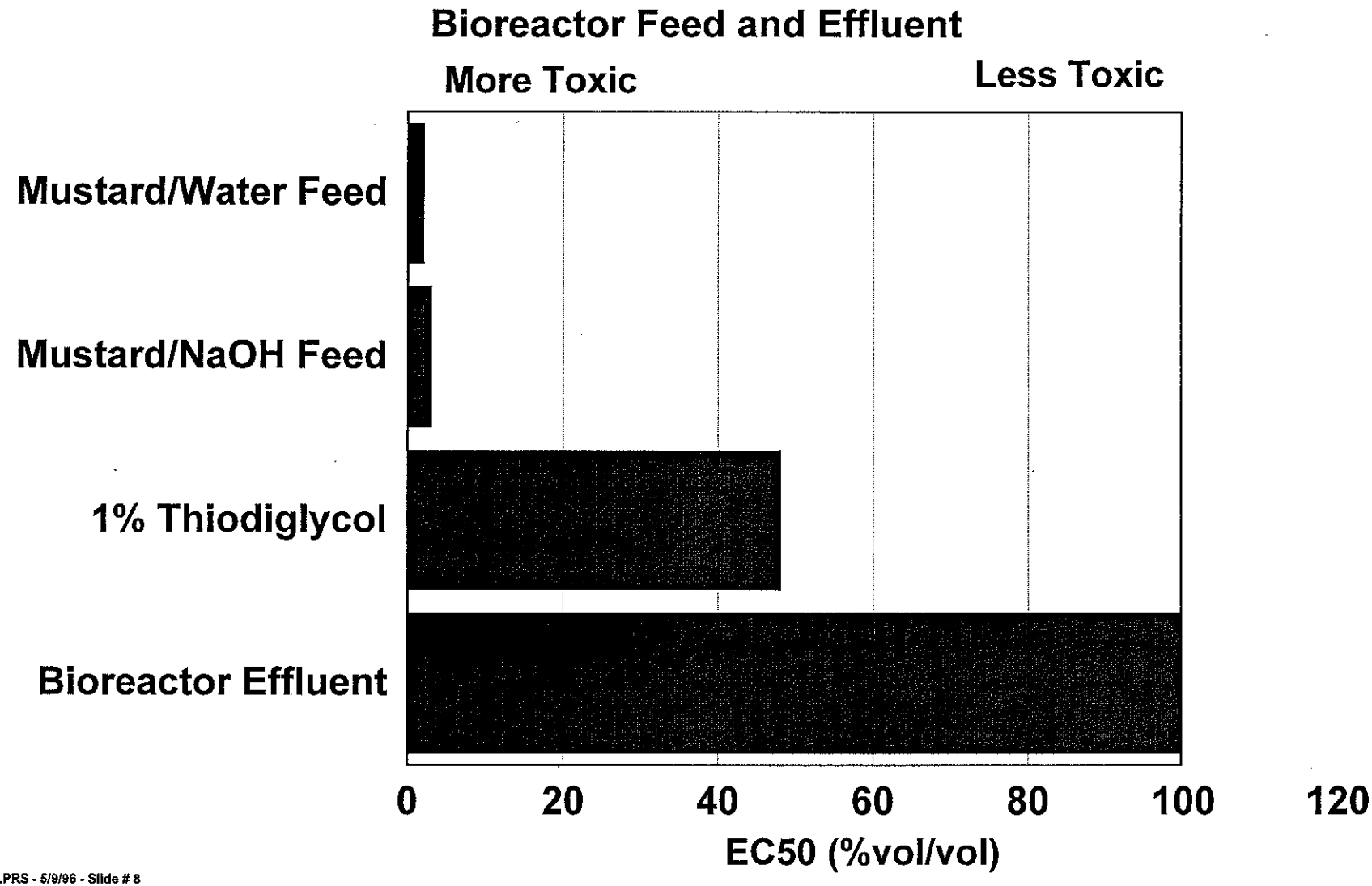
MUSTARD BIODEGRADATION RESULTS



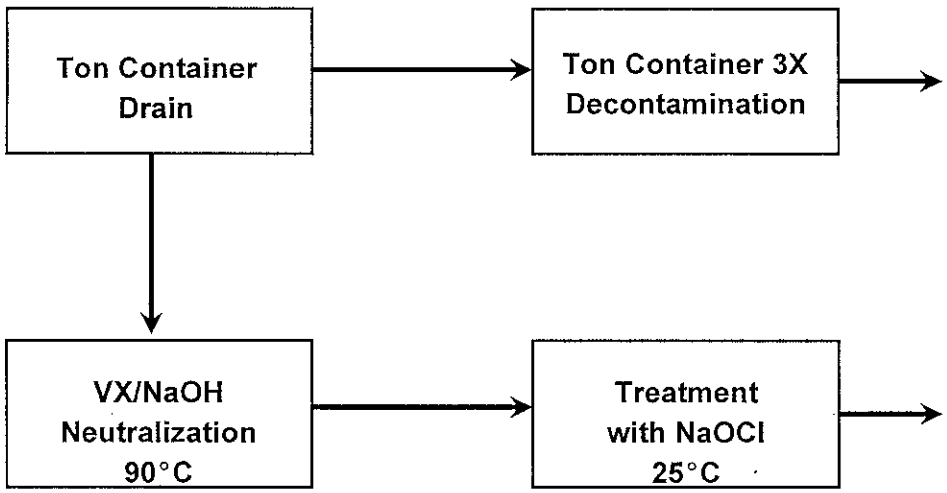
- 90% Total Organic Carbon (TOC) Removal
- >99.9% Thiodiglycol (TDG) Removal

Program Manager
For Chemical
Demilitarization

MICROTOX DATA



VX NEUTRALIZATION FOLLOWED BY OFFSITE WASTE WATER TREATMENT



- Low-Temp/Low-Pressure Process
- Successfully Detoxified VX in Lab and Bench-Scale
- Standard Commercial Equipment Design
- Standard Reagents

Neutralization Followed by Offsite Waste Water Treatment

Program Manager
For Chemical
Demilitarization

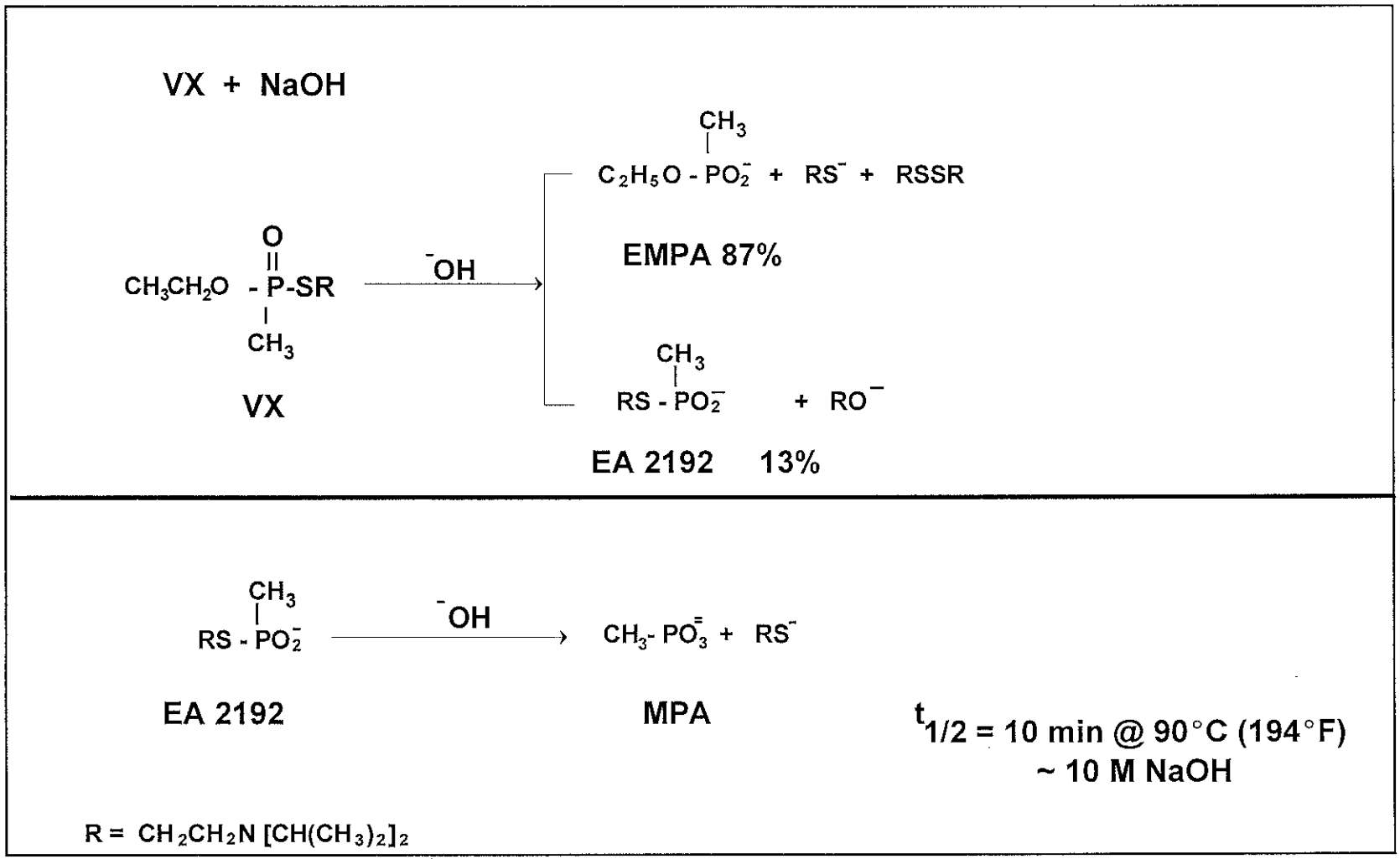
VX PROGRAM BACKGROUND

- Neutralization Followed Directly by Biodegradation Failed
  - Achieved < 50% TOC Removal (Goal was 90%)
  - Pretreatment Recommended to Soften Thiol Compound
  - 2000:1 Dilution Required and 12:1 C:P Required to Degrade Organophosphates
- Neutralization Followed by Stabilization/Solidification Failed
  - Organophosphorous Compounds Leached

PROCESS SUBMITTED FOR EVALUATION BY NRC

- VX Neutralization (Caustic Bleach) Followed by Shipment to Commercial TSDF
  - Neutralized VX Product (7.5 Tons) from Chamber and Mettler Runs at ERDEC have been Successfully sent to Off-Site Wastewater Treatment Plant
  - Each Batch was Non-Detect for VX at 20 ppb (> 99.99999 % DRE)
  - Plan to Investigate Eliminating Sodium Hypochlorite

CAUSTIC HYDROLYSIS OF VX



VX/NaOH REACTION AT 90°C (DATA FROM APG VX)

- Rapid Reaction Rate for VX - Moderate Reaction Rate for EA2192
- Exothermic (-35 kcal/mole)
- Products
  - Small Second Liquid Phase Present
  - Primarily EMPA, Ethanol, MPA, and Thiols
  - Viscosity 15-16 cps at 25°C
  - Toxicity ~ 587 mg/kg (Mouse IV) 40,000 Less Toxic than VX
  - VX Destruction to > 99.99999 and VX not Detected at Target Level of 20 ppb

Program Manager
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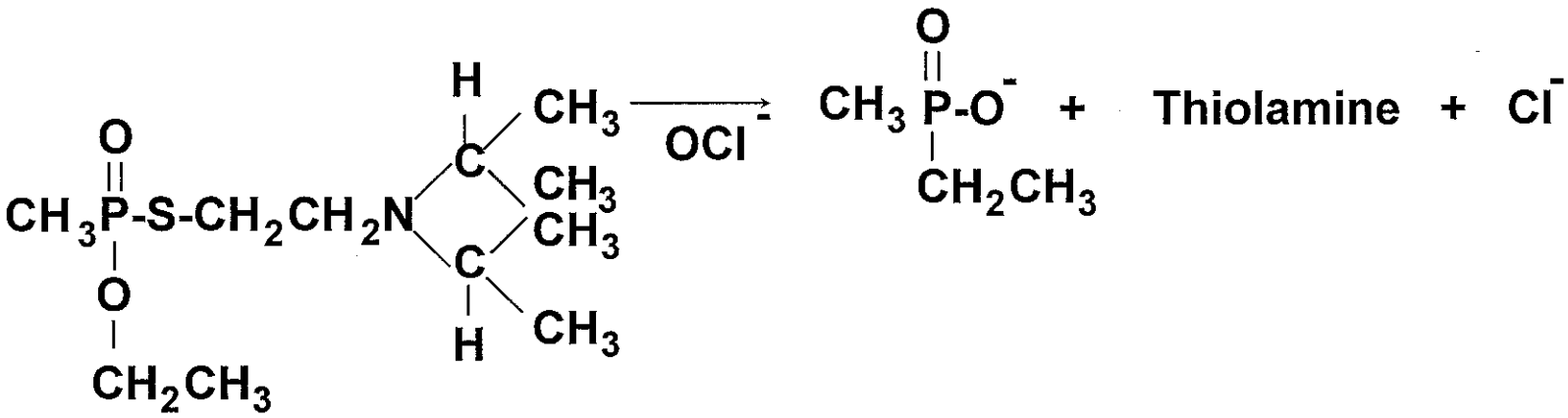
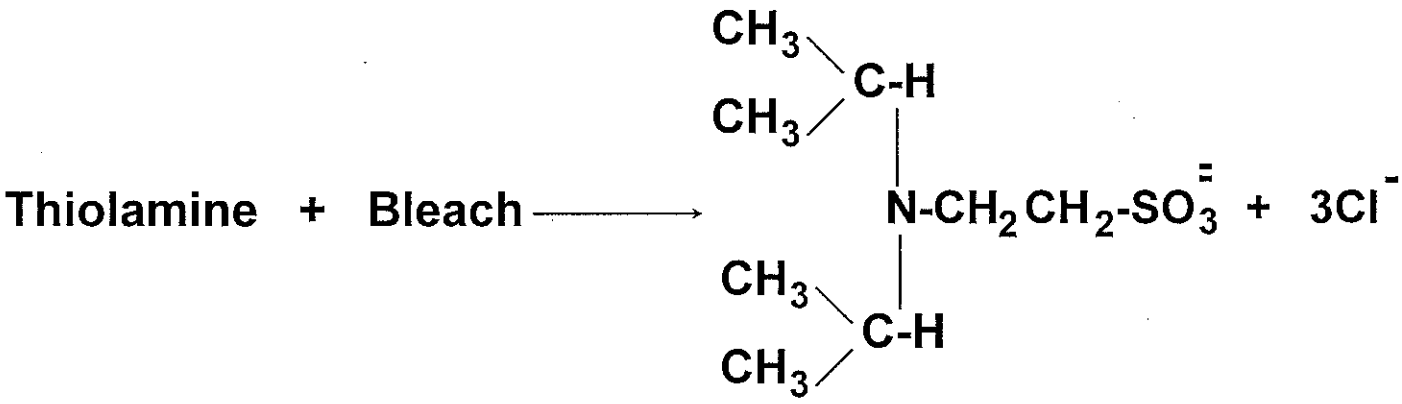
Demilitarization

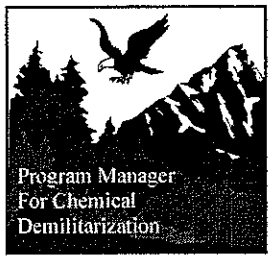
PRINCIPAL VX/BLEACH REACTIONS





PILOT PLANT
DESIGN OBJECTIVES

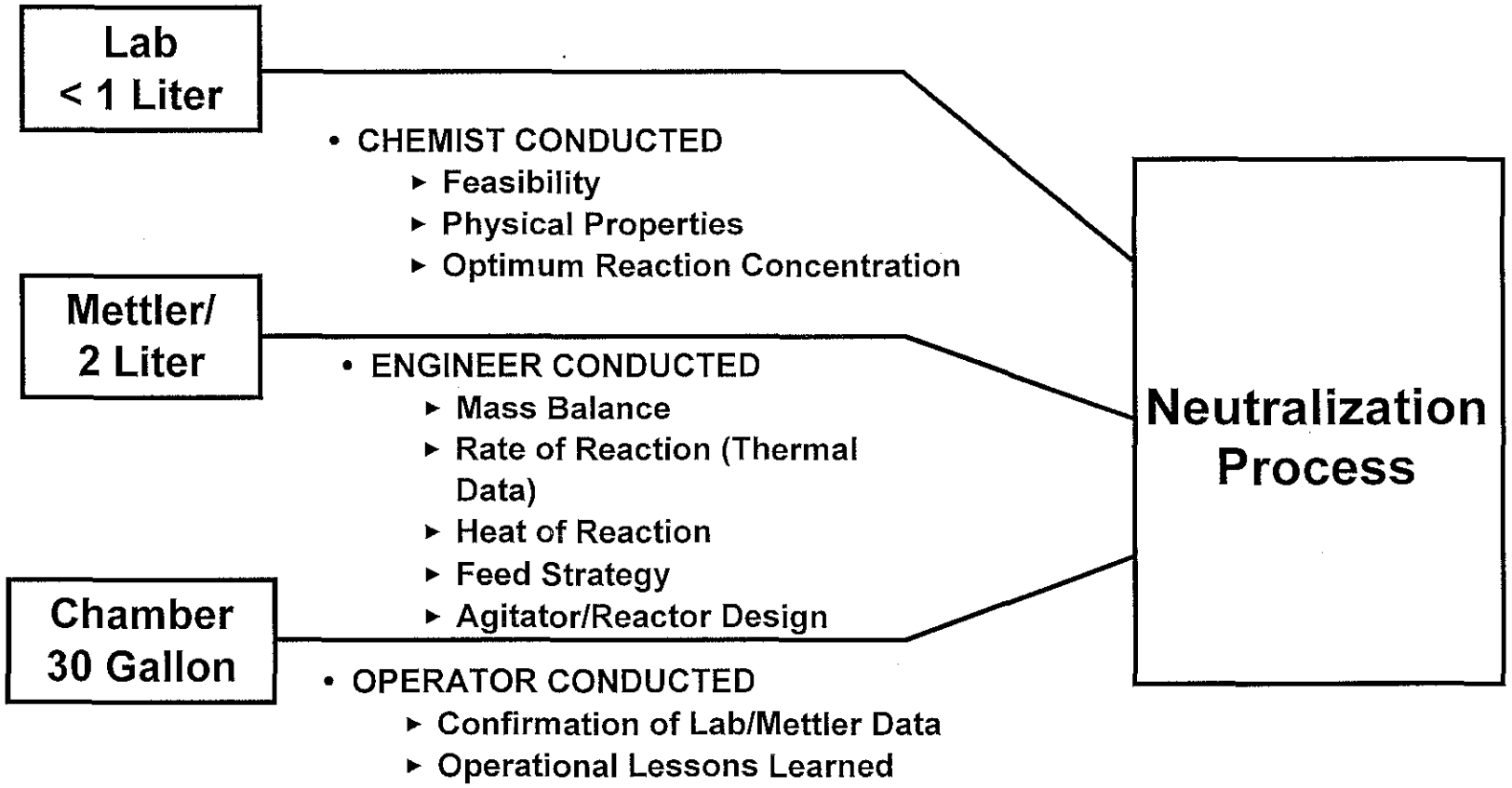
- Safety
  - Simple
  - Standard Equipment
  - Agent Containment
- Minimize Environmental Impacts
- Utilize Available and Proven Equipment
- Flexible Modular Application
- Design Basis for:
  - Safety, Performance, Schedule, and Cost Evaluation
  - Army Decision Process
  - RCRA Package
  - Acquisition Package



PILOT PLANT
DESIGN CRITERIA

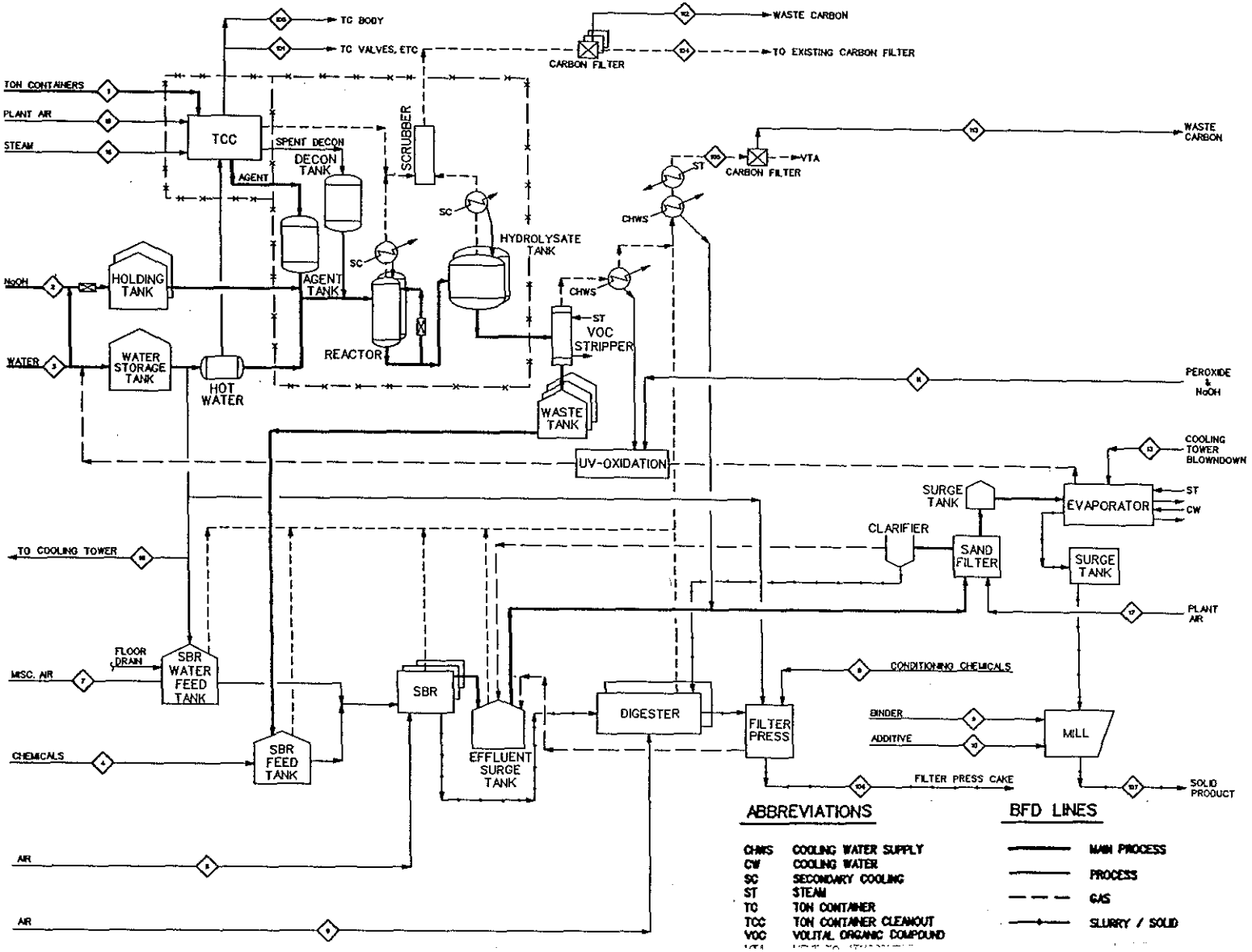
- Design Requirements set by Chemical Demilitarization Program
- Designed for No Liquid Process Effluent Discharge and Minimal Water Usage
- Hold Test and Release Prior to Discharge from Toxic Cubicle
- Commercial Equipment
- Pilot as Train of Full Scale

NEUTRALIZATION
BASIS FOR DESIGN



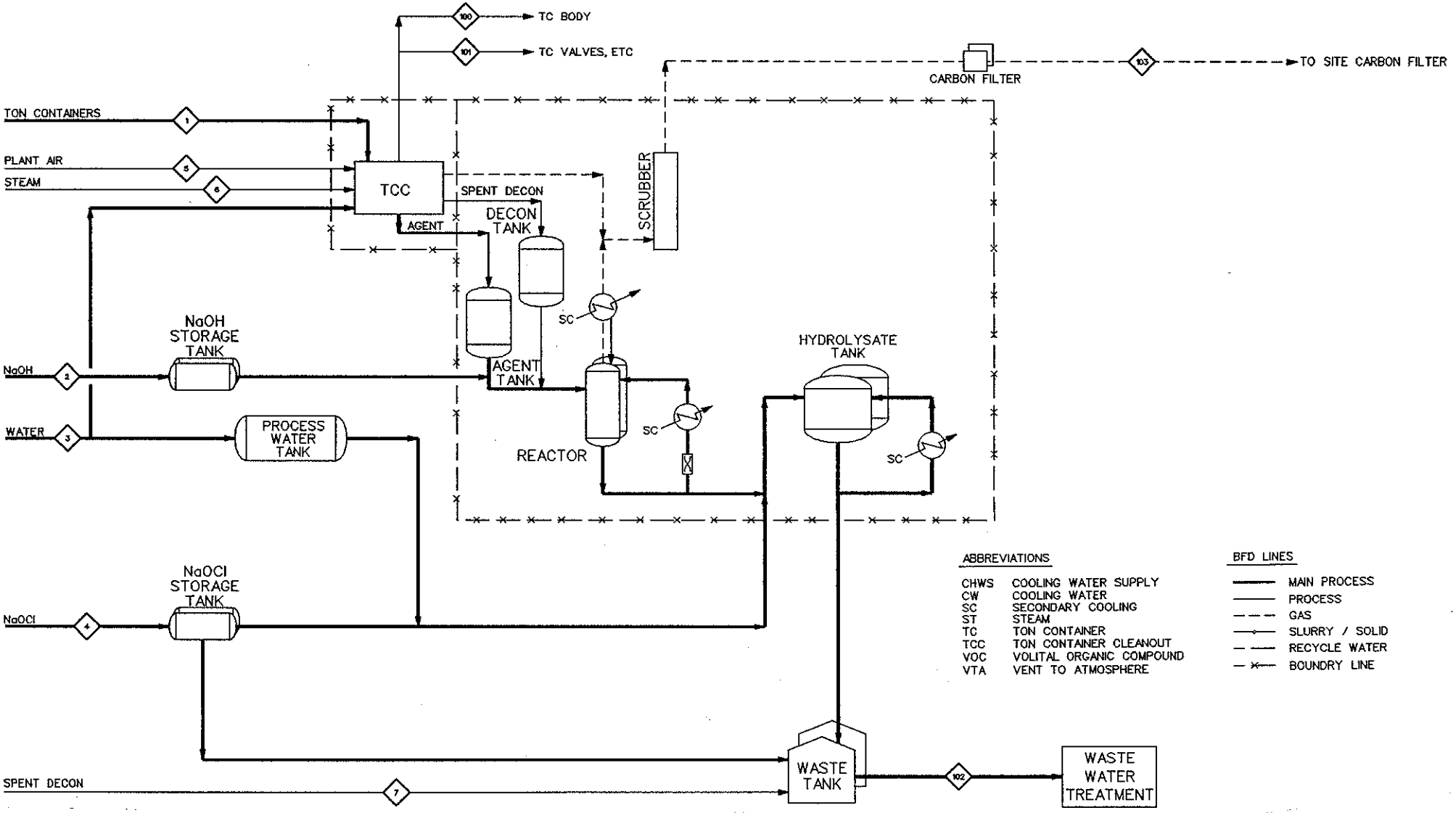
Program Manager For Chemical Demilitarization

MUSTARD NEUTRALIZATION WITH BIOTREATMENT



WA

VX NEUTRALIZATION FOLLOWED BY OFFSITE WASTEWATER TREATMENT



SUMMARY

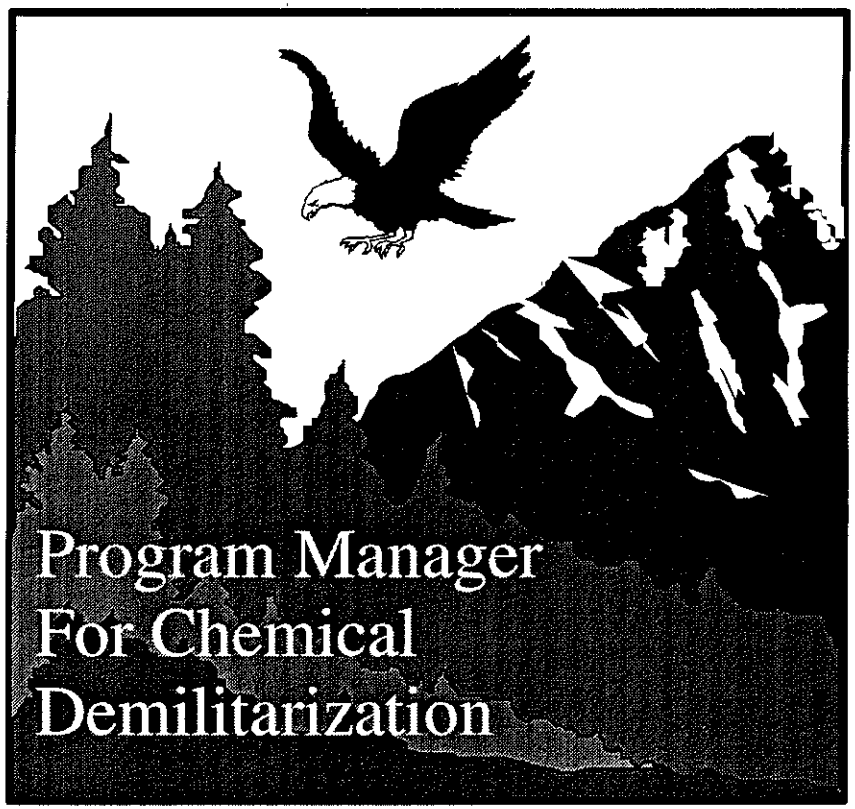
- Completed
  - Preliminary Process Design
  - Lab and Bench Results
  - Demonstrated Destruction Levels
    - < 200 ppb (HD)
    - < 20 ppb (VX)
  - Effluent Treatments Selected
    - Biodegradation - HD - APG
    - TSDF - VX- NECA
  - Site Selection

- In Progress
  - Permitting
  - Vendor Testing VX Effluents
  - Operational Testing
  - Design for RCRA Permit Application
  - Acquisition Package Design for Basis to Build Facility

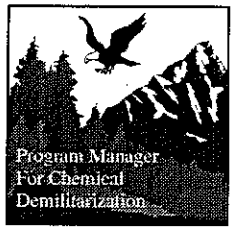
UMATILLA DEMILITARIZATION PROGRAM

16 May 1996

State of Oregon
Environmental Quality Commission
Work Session



Presented By:
COL James M. Coverstone
Deputy Program Manager for
Chemical Demilitarization



APPROACH TO DEMILITARIZATION

- Select Technology That Will Minimize Risk During Both Storage and Disposal Operations
- Proceed Expeditiously With Technology That Will Minimize Total Risk to Public at Each Site

Recommendations From National Research Council

MILESTONES FOR UMCDF

Start Construction	4Q FY96*
Start Systemization	3Q FY99
Initiate Stockpile Destruction Operations	3Q FY01
Complete Destruction of Umatilla Stockpile	4Q FY04

*This and All Subsequent Milestones Dependant on Approval of Environmental Permits

RISK MANAGEMENT PROGRAM

- Identification of Risk Contributors Coupled With Identification of Potential Mitigation:
  - Stockpile Assessment
  - Quantitative Risk Assessment
  - Health Risk Assessment
  - Vigorous Compliance and Oversight Efforts

- Risk Management Is Ongoing Process

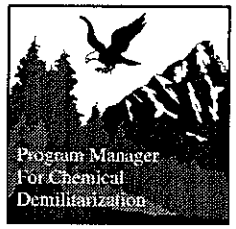
STOCKPILE ASSESSMENT

- Ensuring Stockpile Degradation Does Not Pose Risk to the Public Until It Is Destroyed Is Part of the Army Mission

- No Degradation-Related Risk to the Public From Non-Leaking Munitions in the Foreseeable Future

- Propellant Stability Issue With M55 Rockets Better Understood
  - ► Non-Leakers Are Safe Through at Least 2013
  - ► Leaker Rockets - Some Issues Remain Based Upon Testing of Propellant From Actual Overpacked Leaker Rockets From JI

- Efforts Are Underway to Better Understand and Quantify the Leaker Rocket Condition



UPDATED QUANTITATIVE RISK ASSESSMENT

- QRA Contained As Part of Final Programmatic Environmental Impact Statement Demonstrated That Continued Storage Posed Higher Risk Than Disposal Using Baseline Process

- Updating Previous QRA Using Latest Methodologies
  - ► Rigorous Seismic Assessment
  - ► Other External Events (For Instance, Lightning Strikes)
  - ► Probabilistic Weather
  - ► Latest Plant Knowledge

- Phase 1 (Public Risk Only) Is in Draft; Draft Assessment Confirms Previous QRA

- Draft Estimates Continued Storage As 4000-Fold More Risky to Public Than Disposal Using Baseline Process

HEALTH RISK ASSESSMENT

- Evaluates Possible Health Risks From Routine Operations
- HRA Considers:
  - Emission Sources
  - Substances of Concern
  - Emission Rates
  - Human Exposure Scenarios and Pathways
- HRA Assesses the Risk of Cancer and Noncancer Health Problems
- Facility Must Demonstrate Acceptability Prior to Issuance of Permit
- HRA Performed by Ecology and Environment for Oregon Department of Environmental Quality
- HRA to Be Validated With Actual Emission Data Following Agent Trial Burns

VIGOROUS COMPLIANCE AND OVERSIGHT

- Continuing Self Evaluation to Ensure Safety
  - ► Contractor Staff (Safety, Environmental and Quality)
  - ► On-site Army Staff and Headquarters Reviews

- Multiple Oversight Reviews
  - ► National Research Council
  - ► Department of Health and Human Services
  - ► Occupational Safety and Health Administration
  - ► U.S. Environmental Protection Agency
  - ► State of Oregon

ALTERNATIVE TECHNOLOGY USE AT UMATILLA?

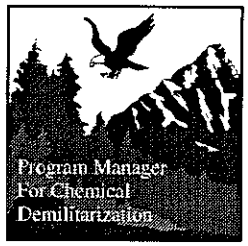
- No Technology Has Been Demonstrated for the Mix of Items Stored at Umatilla:
  - M55 Rockets
  - Projectile Body Cleaning

- Time Would Be Required to:
  - Perform Research
  - Design Facility to Incorporate Alternative
  - Gain Required Environmental Permits
  - Perform Technology-Specific Risk Assessment

- A Delay of 3-5 Years Would Not Be Unreasonable to Project

- Delays Equal Increased Public Risk - Fails Basic Requirement to Minimize Risk

Proceeding With Current Approach Is Prudent Risk Management



JACADS CAMPAIGN SUMMARY TO DATE

(As Of 13 May 1996)

Total Munitions Processed	**124,290**
Total Pounds of Agent Processed in the Liquid Incinerator	
GB Agent	**1,679,245**
VX Agent	**138,890**
HD Agent	**236,038**
Total Pounds All Agent	**2,054,173**
Total Munition Bodies Processed in the Metal Parts Furnace	**51,991**
Total Pounds of Energetic Materials Processed in the Deactivation Furnace System	**1,644,260**
Total Pounds of Dunnage Processed in the Dunnage Incinerator	**1,013,830**

EQC File

STATEMENT BY

Richard S. Magee, Sc.D., P.E., DEE

Chairman of the Committee on Review and Evaluation
of the Army Chemical Stockpile Disposal Program
National Research Council/National Academy of Sciences
and
Professor and Executive Director
Center for Environmental Engineering and Science
New Jersey Institute of Technology

before the

Environmental Quality Commission
of the
State of Oregon

May 16, 1996

Good afternoon, ladies and gentlemen. I would like to thank you for the opportunity to speak with you on behalf of the National Research Council (NRC) Committee on Review and Evaluation of the Army Chemical Stockpile Disposal Program, or Stockpile Committee, on the use of incineration and alternative technologies for the destruction of chemical agent and munitions. As its title indicates, the committee concentrates on providing the Army with technical advice and counsel on specific aspects of its Chemical Stockpile Disposal Program.

First, by way of background, I am Dr. Richard S. Magee, Professor and Executive Director of the Center for Environmental Engineering and Science at New Jersey Institute of Technology. Today, I am speaking in my capacity as the chairman of the Stockpile Committee, and I would like to point out that I am empowered to speak on these matters on behalf of the NRC only inasmuch as I reflect views, findings, conclusions, and recommendations that have been objectively prepared, independently peer reviewed, and formally reported in writing. The National Research Council is the operating arm of the National Academy of Sciences and National Academy of Engineering, and as such, contracts with government and other agencies to organize and perform independent studies. Most study committees, working on a single major topic, complete their work in 12-24 months, and then disband. Some committees, like the standing Stockpile Committee, which has been in existence since 1987, have a continuing mandate that may extend for years. The membership of such a committee is sufficiently broad to provide expertise over a range of engineering, scientific, and technical issues. In the case of the Stockpile Committee, it has always rotated and transformed its membership as old issues pass on and new issues arise. At the moment, the committee has 15 members, with approximately 52 years of combined experience on the committee, and the average age of the membership is about 54 years. In sum, I would like to emphasize that the Stockpile Committee is an organization that

has a commitment to excellence, the capability to reflect on issues wisely, and the experience to make sound judgments.

Following extensive evaluation of the U.S. Army's Chemical Stockpile Disposal Program's (CSDP) baseline incineration system between the years 1990 to 1994, and numerous alternative technologies to incineration proposed to the committee between 1992 and 1994, the Stockpile Committee, in February 1994, issued a comprehensive report, *Recommendations for the Disposal of Chemical Agents and Munitions.* In this report, the committee selected as its primary criterion in formulating its recommendations "the minimization of the cumulative adverse consequences from all relevant risks over the full duration of the disposal program," otherwise denoted as cumulative total risk. Upon considering the storage and disposal operations components of this total risk, the committee determined that the risk of continued storage outweighed the risk of any disposal operations. Specifically, it became clear that delays in the disposal program would increase cumulative total risk. Consequently, the committee found that the disposal program should proceed expeditiously, at a pace in keeping with reasonable and safe facility construction and operating schedules. This prompted the committee's primary recommendation for expeditious disposal.

Also in the *Recommendations* report, the Stockpile Committee found that the baseline incineration system had been demonstrated (at the Johnston Atoll Chemical Agent Disposal Facility, or JACADS) as a safe and effective disposal process for the chemical stockpile. The committee also found that the then current status of alternative technologies in 1994 ranged from those in commercial use (for applications other than agent destruction), to those based only on preliminary laboratory experiments. The most promising alternative technologies for agent

disposal involved neutralization followed by secondary treatment options. As a result, the committee recommended that the CSDP continue on schedule with the baseline system until such time as alternatives might be developed and proven safer, less costly, or more rapidly implementable. The committee also recommended that neutralization research be accelerated and expanded, and that the Army continue to monitor research developments in alternative technologies.

I will return to the subject of alternative technologies in a moment. But first, I would like to discuss the overall Chemical Stockpile Disposal Program and the baseline incineration system in some detail. In January 1993, the Stockpile Committee issued a letter report to the Assistant Secretary of the Army (Installations, Logistics and Environment), recommending specific actions to enhance the CSDP risk management process. The report included recommendations for site-specific risk assessments for facilities in the continental United States. The Program Manager for Chemical Demilitarization embarked on this effort by initiating a site-specific quantitative risk assessment (QRA) for the Tooele Chemical Agent Disposal Facility (TOCDF) at Tooele Army Depot in Utah, where approximately 45 percent of the total chemical stockpile is located. The TOCDF is the first full-scale chemical disposal facility to be built in the continental United States. The risk assessment was an extensive and expensive, but necessary undertaking by the Army. The Stockpile Committee has followed the effort very closely, right up to this present time.

In April 1994, the Stockpile Committee issued its report, *Review of Monitoring Activities within the Army Chemical Stockpile Disposal Program*, which basically found that "the monitoring system currently in use at JACADS [Johnston Atoll Chemical Agent Disposal System]

should be improved prior to employment at sites in the continental United States." The report made 15 recommendations to the Army, five general and ten specific. The specific recommendations addressed six issues involving plant-wide agent monitoring, and exhaust stack agent and agent destruction by-product monitoring, and four issues affecting the operation of the analytical laboratories supporting both agent and nonagent monitoring activities. The Army's reaction to the recommendations in the *Monitoring* report were extensive and comprehensive. This work has also been closely followed by the committee for more than four years.

In July 1993, the Stockpile Committee issued a brief letter report, *Evaluation of the Johnston Atoll Chemical Agent Disposal System Operational Verification Testing: Part I*, in which the committee recommended the initiation of systemization (operational testing) of the TOCDF as the first disposal facility scheduled to come on line in the continental United States, and recommended use of systemization to implement recommended improvements relating to safety, environmental performance, and plant efficiency. In its *Part II* report by the same name, the committee focused extensively on the issues of safety, performance, and efficiency, and on the changes and improvements that could and should be made prior to initiating destruction of agent and munitions at the TOCDF.

On safety, the committee noted some areas at JACADS where there were opportunities for improved safety performance. The committee believed that these could be investigated and evaluated during systemization at the TOCDF. As for environmental performance, there was never a detected emission of agent during normal operations at JACADS. However, there were several incidents of agent emission during shutdowns. Nonagent emissions were maintained within RCRA-permitted limits. Compliance testing on the pollution abatement system of the brine

reduction area and the dunnage furnace was not performed during operational verification testing (OVT) at JACADS, and there were some problems in hazardous waste management at that facility. Both the good and the not-so-good aspects of operations at JACADS were all carefully noted by the Stockpile Committee and, obviously, those on the negative side were noted as areas that should be dealt with during the systemization at the TOCDF. Regarding process performance, the committee believed that the baseline system had been adequately tested at the JACADS prototype facility, and that the process worked capably and safely, although it did not achieve all throughput goals. The throughput shortfall was not perceived by the committee as seriously impacting program life cycle costs or the disposal schedule.

The *OVT Part II* report thus contained significant recommendations regarding safety; needed testing and improvement activities; effective permitting activities; compliance with environmental regulations; and the management of safety. The Army's responses to these were numerous and significant. The full committee has visited the TOCDF four times, and many subgroups visited as well to assess the status of the Army's efforts.

In 1995, the Army requested that the Stockpile Committee review and assess the systemization of the TOCDF. This has been accomplished, and resulted in the production of the committee's March 1996 report, *Review of Systemization of the Tooele Chemical Agent Disposal Facility*. The report emphasizes issues raised in the five previous committee reports that I have just described, and states that the committee is generally satisfied with the progress made by the Army in preparing the TOCDF for the start of agent operations.

As I indicated earlier, with its *Recommendations* report in 1994, the Stockpile Committee concluded that the baseline system was adequate for disposal of the stockpile, that the storage risk

would persist until disposal was complete, and that the disposal program be carried out expeditiously. Though already conducting its own alternative technology research program into neutralization and neutralization followed by biodegradation, in mid-1995 the Army concluded that research developments had created an enhanced data base on the performance of other alternative technologies. This new information concerning these alternatives might be sufficient to warrant reexamination of specific alternatives for certain sites. Consequently, the Assistant Secretary of the Army for Research, Development and Acquisition informally explored with the NRC Stockpile Committee the examination of other alternative chemical disposal technologies. Both agreed that a new NRC study would be initiated to reexamine the status of a limited number of maturing alternative chemical disposal technologies (including the two neutralization-based processes on which the Army was then conducting research) for possible employment in the Chemical Stockpile Disposal Program.

In August 1995, the Army issued a call for alternative disposal technologies in the Commerce Business Daily (CBD) to determine if there were any technologies, other than the two already being evaluated by the Army in its Alternative Technology Program, that might be capable, within the CSDP schedule, of meeting chemical demilitarization requirements for the two sites where agent was stored only in ton containers (Aberdeen and Newport). The CBD announcement requested information from industry on any technology that was sufficiently developed to meet the needs of the CSDP. Following a preliminary 30-day screening, the Army in November 1995 selected three technologies for review and evaluation by the NRC—gas phase reduction, molten metal catalytic extraction, and electrochemical oxidation—in addition to the two neutralization processes already under study.

In parallel with the Army selection process, the NRC formed the Panel on Review and Evaluation of Alternative Chemical Disposal Technologies (AltTech Panel), and I was appointed chairman. From November 1995 to June of this year, the panel will be conducting an in-depth review and evaluation of the five selected technologies. To complete its report, the entire panel will meet 6 times; panel subcommittees will have conducted 14 technology site visits; and panel members will have met with regulators, Citizen Advisory Commissions and local citizens in Maryland and Indiana. These activities were designed to enable the panel to:

- establish criteria to assess and evaluate the selected alternative technologies
- assess first-hand the developmental status, engineering robustness and maturity, and operational complexity of the technologies under review
- gather alternative-technology permitting requirements
- solicit views and concerns of the Citizen Advisory Commissions and the general public on the five technologies
- assess technical aspects, strengths and weaknesses, and advantages and disadvantages of each technology
- make recommendations regarding which, if any, of these technologies merit full evaluation and presentation to the Defense Acquisition Board as candidates for pilot-plant demonstrations by the Army.

Public Law 102-484 identified safety as a critical factor in the selection of any technology for the Army's Alternative Technology Program. The Army's decision will be based, in part, on a comparison of the process safety risk for the baseline system and each alternative technology.

Consequently, the Army requested preliminary risk assessments of the proposed alternative technologies by an independent contractor (MITRE Corporation).

To sum up, the Stockpile Committee endorsed the baseline incineration system as a technology to accomplish the overall Chemical Stockpile Disposal Program effectively and expeditiously. However, the committee, by its recommendations regarding alternative technologies, left open the door for the possible employment of a technology other than incineration at selected sites depending on comparative factors of safety, performance, and implementation schedule. The forthcoming report of the AltTech Panel will make recommendations on whether the alternatives have reached a level of engineering maturity and efficiency to be considered for pilot demonstration by the Department of Defense at the Aberdeen and Newport sites. This report is scheduled to be published in late August.

Approved _____
Approved with Corrections _____

Minutes are not final until approved by the EQC

ENVIRONMENTAL QUALITY COMMISSION
Minutes of the Two Hundred and Fifty-First Meeting

April 12, 1996
Regular Meeting

The Environmental Quality Commission meeting was convened at 8:30 a.m. on Friday, April 12, 1996, at the Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, Oregon. The following members were present:

William Wessinger, Chair
Henry Lorenzen, Member
Linda McMahan, Member
Carol Whipple, Member

Commissioner Tony Van Vliet was not present.

Also present were Larry Knudsen, Assistant Attorney General, Oregon Department of Justice, Langdon Marsh, Director, DEQ, and other DEQ staff.

Note: Staff reports presented at this meeting, which contain the Department's recommendations, are on file in the Office of the Director, 811 S.W. Sixth Avenue, Portland, Oregon 97204. Written material submitted at this meeting is made a part of this record and is on file at the above address. These written materials are incorporated in the minutes of the meeting by reference.

Chair Wessinger called the meeting to order at 8:30 a.m.

A. Approval of Minutes

Commissioner McMahan moved approval of the meeting minutes for the February 23, 1996 regular meeting. Commissioner Whipple seconded the motion and it was unanimously approved.

B. Approval of tax credits

Mike Downs, Water Quality Division Administrator and Charles Bianchi, Water Quality Division, presented this item to the Commission. The Department

recommended the Commission approve certification for the tax credit applications listed below.

Application No.	Applicant	Description
TC 4422	Portland General Electric Company $10,292	A Hazardous Waste facility consisting of a self-contained storage unit for leaking PCB transformers and drums that contain used oil and other hazardous materials.
TC 4424	Portland General Electric Company $14,803	A Hazardous Waste facility consisting of a self-contained storage unit for leaking PCB transformers and drums that contain used oil and other hazardous materials.
TC 4524	Truax Harris Energy Company $215,553/92%	An Underground Storage Tank (UST) facility consisting of four doublewall fiberglass tanks and doublewall piping, spill containment basins, turbine leak detectors, sumps, an oil/water separator, automatic shutoff valves and Stage I vapor recovery equipment.
TC 4538	Robert W. Hays/Michael J. Moran $59,853/98%	A Storage Tank (UST/AST) facility consisting of epoxy lining for four aboveground storage tanks, an epoxy lined secondary containment dike, doublewall plastic piping, spill containment basins, sumps and a tank gauge system.
TC 4551	Blackman's 4-Way Grocery $137,633/87%	An Underground Storage Tank (UST) facility consisting of three doublewall fiberglass tanks and doublewall piping, spill containment basins, a tank gauge system, turbine leak detectors, monitoring wells, sumps, automatic shutoff valves and Stage I and II vapor recovery equipment.

In addition, the Department recommended the Commission approve a request by Ms. Cynthia Squires, the sole proprietor of Glide Auto Service, BP, to transfer the remaining value of tax credit certificate 2518 from Mr. Harold Young, the previous owner, to Ms. Cynthia Squires, the current owner and operator of the pollution control facility.

The Department also recommended approval of a request by Globe Metallurgical, Inc. to transfer the remaining values of tax credit certificates 1975 and 2384 from Dow Corning Corp. to Globe Metallurgical, Inc., the current owners and operator of the facilities covered by the certificates.

Commissioner Lorenzen moved approval of the tax credits and transfers as recommended by the Department. Commissioner Whipple seconded the motion and it was approved unanimously.

C. Action Item: National Marine Fisheries Service Request for Waiver to Total Dissolved Gas Standard

The Commission considered a request from the National Marine Fisheries Service (NMFS) for a variation to the state's total dissolved gas standard for the Columbia River to enable water to be spilled over hydroelectric projects to assist outmigrating threatened and endangered salmonid smolts. This item was deferred from the February 23, 1996 meeting. In the intervening period, Department staff were asked to provide a review of the full NMFS Expert Panel on Dissolved Gas and a public process within which the merits of spill could be openly debated.

Russell Harding, Manager of Standards and Assessments, Water Quality Division, appeared before the Commission. He presented three items related to spill. The first was a brief review of the spill over Bonneville Dam for Spring Creek Hatchery smolts. In his review, Harding summarized the situation as being one of high flows, high spill and high gas levels. These dissolved gas levels were reflected in physical symptoms found in migrating and resident fish as a result of NMFS's biological monitoring.

The second item was a review of the NMFS Expert Gas Panel Report. Dr. Chuck Coutant, chair of the Expert Panel joined Harding for this discussion. The Expert Panel's report was divided into three areas; monitoring, research and recommendations. While the report contained majority and minority reports on a number of issues, the Expert Panel agreed that the current biological monitoring program may not be yielding data that would assure that fish were being

protected during periods of dissolved gas above the 110 percent standard. Nonetheless, the Panel recommended continuation of monitoring subject to modifications for 1996. The Panel also recommended that research priorities for 1996 should focus on testing the seven critical assumptions underlying the monitoring program, and on developing an in-river sampling and monitoring program.

The third item presented to the Commission related to the public process, and included the staff's suggestions for a more open public process for debating the benefits of spill. Staff recommended two approaches. The first was the formulation of questions to be placed before the Northwest Power Planning Council/NMFS Independent Scientific Advisory Board. The second related to the hiring of a position within DEQ to coordinate with various agencies involved in spill, collect and analyze data and make recommendations to the Department and Commission relating to spill for next year.

The Commission then discussed the issue and Commissioner Lorenzen thanked Dr. Coutant for being available to answer questions. Approval of the variation to the dissolved gas standard and adoption of the findings contained in the draft Commission Order contained at Appendix F of the staff report was moved by Commissioner Lorenzen and seconded by Commissioner McMahan. A roll call vote was taken by Director Marsh and the motion passed unanimously.

D. Informational Item: Umatilla Army Depot Chemical Demilitarization: Hazardous Waste Issues and Emergency Response

Stephanie Hallock, Eastern Region Administrator, introduced this item to the Commission. The U.S. Army has applied for a hazardous waste treatment and storage permit to incinerate chemical agent munitions. Brett McKnight, Manager of Hazardous Waste and Cleanup, Eastern Region, briefed the Commission on the draft hazardous waste treatment permit that was released for public comment on April 5, 1996. Public hearings are scheduled for Pendleton, Portland, Hermiston and Kennewick, Washington , with the comment period for this permit scheduled to close June 17, 1996.

Mr. McKnight reviewed the three permit objectives for the chemical agent stockpile:

a. safely store, monitor and transport to the treatment facility
b. safely and effectively treat (demilitarize, incinerate, dispose)
c. adequately prepare and respond to unforeseen releases,

and noted the regulatory authorities for each objective.

Mr. McKnight discussed the findings the Commission must make before the permit is issued and the categories of criteria on which they must decide: location, design, best available technology, demonstrated need and no major adverse effects to a) public health and safety and b) environment of adjacent lands.

The Commission asked Mr. McKnight for further explanation about best available technology and the Risk Assessment Report. Director Marsh announced that the Commission would travel to Tooele, Utah on May 10, 1996, for a tour of the U.S. Army's Tooele Chemical Agent Disposal Facility.

E. Informational Item: Portland Area Ozone Maintenance Plan Status

Greg Green, Air Quality Division Administrator, and John Kowalczyk, Manager of Planning and Program Development, Air Quality Division, presented this item to the Commission. Mr. Kowalczyk noted that the Ozone Maintenance Plan is the culmination of over four years of staff effort and extensive public process. The proposed plan includes emission reduction strategies affecting all major categories of ozone producing substances.

The plan provides for maintenance of the ozone standard for ten years, and will allow the Environmental Protection Agency (EPA) to redesignate the Portland area to an attainment area for ozone. In addition, the plan is designed to assure protection of the public health, and will, if implemented, remove Clean Air Act impediments to industrial growth.

The plan will be released later this month for a final public comment period and hearing process, and the will be brought back to the Commission at the July, 1996, meeting for final decision.

F. Informational Item: Portland Area Carbon Monoxide Maintenance Plan Status

John Kowalczyk, Manager of Planning and Program Development with Air Quality Division, presented this item to the Commission. Mr. Kowalczyk presented an update of the Portland Area Carbon Monoxide Maintenance Plan, including the plan development process, key proposed strategy elements, issues of remaining controversy and an evaluation of strategy and policy alternatives. The information was provided as background for the Commission's consideration of the plan for adoption at the July, 1996, meeting.

Public Forum

John Charles with the Oregon Environmental Council addressed the Commission with concerns about the permitting process for the proposed Umatilla Army Depot incineration project. Mr. Charles said he thought the permit for building the incineration facility was sent out for comment prematurely, without sufficient research on the alternative and best available technologies.

Joe Troxel and Mark Brown with Greenpeace expressed concern that presentation of Agenda Item D: Informational Item: Umatilla Army Depot Chemical Demilitarization had taken place before the time published in a Department bulletin, and they missed the presentation. Chair Wessinger apologized for the miscommunication and gave them a brief review of the informational item presented earlier in the agenda. Chair Wessinger also assured Mr. Troxel and Mr. Brown that an audio tape of the meeting would be provided to them. In addition, Mr. Troxel indicated he and Greenpeace were concerned about the timeframe for the public comment period for the Umatilla permitting process, specifically that it was too short a time to provide all interested parties with the opportunity to study and respond to the draft permit.

John Replinger, a Portland homeowner, addressed the Commission regarding circumstances he encountered in the process of converting his home heating system from a heating oil tank to natural gas. The heating oil tank was decommissioned on site, but Mr. Replinger received conflicting information regarding the degree of soil contamination and the steps he needed to take to insure the tank was decommissioned correctly. He indicated he had made every effort to handle the process according to DEQ regulations, but the process had proved frustrating, time-consuming and expensive. The Commission directed the Department to follow up on Mr. Replinger's situation and asked that Director Marsh provide the Commission with more information on the home heating oil tank program within the next few months.

G. Commissioners' Reports

Chair Wessinger reported on a meeting he had recently with the chairs of other agency commissions, including ODOT, LCDC and Economic Development. The meeting's objective was to foster discussion of mutual concerns between the various state agencies.

Chair Wessinger introduced Melinda Eden, who was recently confirmed as a new EQC Commissioner, with an official start date of April 15, 1996. Ms. Eden is an attorney, rancher and farmer from Milton-Freewater.

Chair Wessinger announced his retirement from the Commission effective this meeting, and nominated Commissioner Lorenzen for the position of Chair. Commissioner McMahan seconded the motion and it was approved unanimously.

Note: The meeting was adjourned for lunch at 11:45 a.m. During this break, retiring Chair Wessinger was presented with a plaque honoring his many years of service to the Department and the State of Oregon. The meeting was reconvened at 1:15 p.m.

H. Informational Item: Budget Development

Lydia Taylor, Deputy Director, presented this item to the Commission. She indicated that during the budget development process for the 1997-1999 biennum, the agency will be required, as will all state agencies, to provide general fund program reduction alternatives of 10%. The Department is working on developing these budget options, as well as considering possible requests for additional resource and possible shifts of existing resources to highest priorities. The Department is also working with other natural resource agencies to explore the possibilities of joint efforts to develop budget packages concerning areas of mutual involvement.

I. Informational Item: Legislative Concepts

Carolyn Young, Assistant to the Director, presented a list and brief review of the legislative concepts the Department is considering for presentation to the 1997 Legislature. There are currently twenty-three concepts that have been submitted to the Governor's Office and the Department of Administrative Services for review. The concepts include program and policy initiatives, efficiencies and housekeeping rules, and proposed new and increased fees in the Department's Water Quality, Waste Management and Cleanup and Air Quality Divisions. Only those concepts approved by the Governor will move forward.

J. Director's Report

Director Marsh updated the Commission on a number of Department issues, and indicated he would travel to various communities in the Upper Willamette Valley and Southwest Oregon later in the month to meet with civic, business and environmental representatives. He reported that Governor Kitzhaber had issued notes of appreciation to a number of Department staff for their efforts during and after the February flood.

There was no further business and Chair Wessinger adjourned the meeting at 2:00 p.m.

Environmental Quality Commission

☐ Rule Adoption Item
X Action Item
☐ Information Item

Agenda Item B
May 17, 1996 Meeting

Title:
Approval of Tax Credit Applications

Summary:
New Applications - Two (2) tax credit applications with a total facility cost of $68,277 are recommended for approval as follows:

- Two (2) Field Burning related facilities recommended by the Department of Agriculture with a total facility cost of: $68,277

No applications with claimed facility costs exceeding $250,000 are included in this Report.

Department Recommendation:
Approve tax credit certificates for 2 applications as presented in Attachment A of the staff report.

Deny application #4219, Chevron Corporation, for the reasons presented in this report.

Approve the request for a transfer of the remaining value of tax credit certificates 2841, 3154, 3214, 3215 and 3314 to Dinihanian Manufacturing, Inc., the current owner and operator of the pollution control facilities from Vahan M. Dinihanian, the previous owner and sole proprietor of Vahan M. Dinihanian Recycling and Manufacturing.

Report Author | Division Administrator | Director

April 18, 1996

†Accommodations for disabilities are available upon request by contacting the Public Affairs Office at (503)229-5317(voice)/(503)229-6993(TDD).

State of Oregon
Department of Environmental Quality

Memorandum†

Date: May 17, 1996

To: Environmental Quality Commission

From: Langdon Marsh, Director

Subject: Agenda Item B, May 17, 1996 EQC Meeting

Approval of Tax Credit Applications

Statement of the Need for Action

This staff report presents the staff analysis of pollution control facilities tax credit applications and the Department's recommendation for Commission action on these applications. The following is a summary of the applications presented in this report:

Tax Credit Application Review Reports:

Application No.	Applicant	Description
TC 4596	McKee Farms $22,200 / 92%	An Air Pollution Control "field burning" facility consisting of a 1991 Freeman 3-tie baler, Model 370.
TC 4604	Carl F. Jensen dba Carl Jr. Farms $46,077	An Air Pollution Control "field burning" facility consisting of two Freeman HDY balers, Model 330, a John Deere Disk, Model 335, a Freightliner Truck (1975) and two Freightliner truck beds (1974).

Background and Discussion of Issues

There is no discussion of issues pertaining to the applications that are recommended for approval in this report. However, the following is a discussion of an application that is recommended for denial by the Department.

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†A large print copy of this report is available upon request.

Chevron Tax Credit #4219, Oxygenated Fuel Facility

On March 10, 1994, the Chevron Corporation applied for the certification of tax credit costs pertaining to an air pollution control facility located in Portland. The facility, consisting of a network of piping, pumps and meters, blends ethyl alcohol with gasoline to produce an oxygenated gasoline fuel. The use of oxygenated fuel by motor vehicles reduces carbon monoxide air pollution and is required in "control areas" such as the Portland Metropolitan Area.

The Department found the facility eligible for pollution control tax credit relief under the statutes and rules that govern the Program. However, ethyl alcohol, which is used in fuel blending, qualifies for a Federal excise tax credit of $0.54 for each gallon that is added to gasoline and the Department is proposing that this benefit be considered in calculating the return on investment from the facility.

The percentage of the certified facility cost that is allocable to pollution control is calculated using the methodology outlined in OAR 340-16-030. Under this methodology, the estimated "average cash flow" is calculated by subtracting annual operating expenses from gross annual income for the first five full years of the operation of the facility. This figure is divided by five to obtain the 5-year average. The result is then used in calculating the investment's return on investment (ROI).

Under this methodology either direct additions to gross income or decreases in operating expenses will increase the average annual cash flow in arriving at the return on investment for a claimed facility. An excise tax benefit increases the net income of an enterprise or facility by reducing tax expenses. Net income is a primary factor in determining the changes in cash flow and the financial position of a business enterprise.

Historically, the Program has considered both savings e.g., reductions in utility costs, and cost avoidance e.g., the avoidance of costs associated with transporting or treating waste in determining a facility's return on investment. Given that in this case the excise tax benefits are certain to increase net income and, therefore, cash flow, the Department believes it appropriate to consider the effect of this benefit in determining the return on investment for the claimed facility. This view may be disputed, of course.

The Department estimated the benefit generated by the facility using information that was submitted by the applicant firm to comply with DEQ regulations pertaining to the blending of oxygenated fuel within the state (OAR Chapter 340, Division 22, Rule 560). The applicant indicated that their corporate accounting structure does not allow them to determine or estimate the amount of excise tax benefit that is or may be generated by the Portland facility. The estimate of cash flow from excise tax relief, when applied to the methodology required by the Rules for calculating the percentage of a claimed facility that is allocable to pollution control, resulted in 0%

of the facility's cost being allocable to pollution control. Based upon this finding and that the applicant has provided no information to further substantiate its claim, the Department recommends denial of tax credit relief for the claimed facility on the basis that none of the cost of the facility is allocable to pollution control under the statutes and rules governing the Program.

The premise that excise tax credit benefits can be considered cash flow for the purpose of calculating the percentage of the cost of a facility that is allocable to pollution control is supported by written advice from the state Attorney General's Office. A letter that was sent to the applicant informing the firm of the Department's conclusions and recommendations is attached to the staff report.

The Commission should also be aware that significant costs that were claimed by the applicant were not supported by documentation and that an estimated 11% of the fuel that is blended at the facility is distributed and sold in the state of Washington. Therefore, were the Commission not to concur with the Department's recommendation that the claim should be denied on the basis of cost allocation, the application would require further processing and review by an accounting firm contracted by the Department.

Authority to Address the Issue

ORS 468.150 through 468.190 and OAR 340-16-005 through 340-16-050 (Pollution Control Facilities Tax Credit).

ORS 468.925 through 468.965 and OAR 340-17-010 through 340-17-055 (Reclaimed Plastic Product Tax Credit).

Alternatives and Evaluation

Summary of Any Prior Public Input Opportunity

The Department does not solicit public comment on individual tax credit applications during the staff application review process. Opportunity for public comment exists during the Commission meeting when the applications are considered for action.

Conclusions

- The recommendations for action on the attached applications are consistent with statutory provisions and administrative rules related to the pollution control facilities and reclaimed plastic product tax credit programs.

o Proposed May 17, 1996 Pollution Control Tax Credit Totals:

Certificates	Certified Costs*	Certified Allocable Costs**	No.
Air Quality	$ 0	$ 0	0
CFC	0	0	0
Field Burning	68,277	66,501	2
Noise	0	0	0
Hazardous Waste	0	0	0
Plastics	0	0	0
SW - Recycling	0	0	0
SW - Landfill	0	0	0
Water Quality	0	0	0
UST	0	0	0
TOTALS	$68,277	$66,501	2

o Calendar Year Totals Through April 12, 1996:

Certificates	Certified Costs*	Certified Allocable Costs**	No.
Air Quality	0	0	0
CFC	0	0	0
Field Burning	224,132	148,855	4
Noise	0	0	0
Hazardous Waste	25,095	25,095	2
Plastics	10,123	10,123	1
SW - Recycling	0	0	0
SW - Landfill	0	0	0
Water Quality	263,045	263,045	2
UST	413,039	376,706	3
TOTALS	$935,434	$823,824	12

*These amounts represent the total facility costs. The actual dollars that can be applied as credit is calculated by multiplying the total facility cost by the determined percent allocable and dividing by 2.

**These amounts represent the total eligible facility costs that are allocable to pollution control. To calculate the actual dollars that can be applied as credit, the certifiable allocable cost is multiplied by 50 percent.

Recommendation for Commission Action

A) The Department recommends that the Commission approve certification for the tax credit applications as presented in Attachment A of the Department Staff Report.

B) The Department recommends that the Commission deny application 4219, Chevron Corporation, for the reasons presented in this report.

C) The Department recommends approval of a request by Dinihanian Manufacturing, Inc. to transfer the remaining value of certificates 2841, 3154, 3214, 3215 and 3314 to that firm from Vahan M. Dinihanian, the previous owner and operator of the pollution control facilities. Documentation of the existence of new business entity in the form of a certificate of incorporation was provided was provided by the requestor.

Intended Followup Actions

Notify applicants of Environmental Quality Commission actions.

Attachments

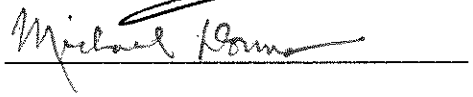
A. Pollution Control Tax Credit Application Review Reports.

Reference Documents (available upon request)

1. ORS 468.150 through 468.190.
2. OAR 340-16-005 through 340-16-050.
3. ORS 468.925 through 468.965.
4. OAR 340-17-010 through 340-17-055.

Approved:

Section: 

Division: 

Report Prepared By: Charles Bianchi

Phone: 229-6149

Date Prepared: May 2, 1996

Charles Bianchi
MAYEQC

State of Oregon
Department of Agriculture

TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

McKee Farms
22450 SW McKee Road
Amity, Oregon 97101

The applicant owns and operates a grass seed farm operation in Yamhill County, Oregon.

Application was made for tax credit for air pollution control equipment.

2. Description of Claimed Facility

The equipment described in this application is a 1991 Freeman 3-tie baler, model 370, located at 22450 SW McKee Road, Amity, Oregon. The equipment is owned by the applicant.

Claimed equipment cost: $22,200
(Accountant's Certification was provided.)

3. Description of Farm Operation Plan to Reduce Open Field Burning.

The applicant has 677 acres of perennial grass seed under cultivation. McKee Farms has decreased open field burning by approximately 80% since 1992. The applicants principal alternative to open field burning involves baling the bulk straw off the harvested fields and flail chopping the remaining residue and stubble.

The applicant has purchased the Freeman baler because the commercial press operators, who purchase the bales from the applicant, have moved to equipment that processes the larger 16" x 22" x 4' bale that his previous equipment could not provide.

4. Procedural Requirements

The equipment is governed by ORS 468.150 through 468.190, and by OAR Chapter 340, Division 16. The equipment has met all statutory deadlines in that:

Purchase of the equipment was substantially completed on July 1, 1995. The application was submitted on March 6, 1996; and the application for final certification was found to be complete on March 21, 1996. The application was filed within two years of substantial completion of the equipment.

5. Evaluation of Application

a. The equipment is eligible under ORS 468.150 because the equipment is an approved alternative method for field sanitation and straw utilization and disposal that reduces a

substantial quantity of air pollution. This reduction is accomplished by reduction of air contaminants, defined in ORS 468A.005; by reducing the maximum acreage to be open burned in the Willamette Valley as required in OAR 340-26-013; and, the facility's qualification as a "pollution control facility", defined in OAR 340-16-025(2)(f)A): "Equipment, facilities, and land for gathering, densifying, processing, handling, storing, transporting and incorporating grass straw or straw based products which will result in reduction of open field burning."

b. Eligible Cost Findings

In determining the percent of the pollution control equipment cost allocable to pollution control, the following factors from ORS 468.190 have been considered and analyzed as indicated:

1. The extent to which the equipment is used to recover and convert waste products into a salable or usable commodity.

   The equipment promotes the conversion of a waste product (straw) into a salable commodity by providing the means to remove the straw from the fields in a usable size.

2. The estimated annual percent return on the investment in the equipment.

   The actual cost of claimed equipment ($22,200) divided by the average annual cash flow ($2,000) equals a return on investment factor of 11.1. Using Table 1 of OAR 340-16-030 for a life of 10 years, the annual percent return on investment is 0. Using the annual percent return of 0% and the reference annual percent return of 4.7%, 100% is allocable to pollution control.

3. The alternative methods, equipment and costs for achieving the same pollution control objective.

   The method chosen is an accepted method for reduction of air pollution. The method is one of the least costly, most effective methods of reducing air pollution.

4. Any related savings or increase in costs which occur or may occur as a result of the purchase of the equipment.

   There is no savings or increase in costs as a result of the equipment.

5. Any other factors which are relevant in establishing the portion of the actual cost of the equipment properly allocable to the prevention, control or reduction of air pollution.

   Of the 737 acres baled annually, the baler is used on 60 acres of clover hay or eight percent of the total baling.

The actual cost of the equipment properly allocable to pollution control as determined by using these factors is 92%.

6. Summation

a. The equipment was constructed in accordance with all regulatory deadlines.

b. The equipment is eligible under ORS 468.150 as an approved alternative method for field sanitation and straw utilization and disposal that reduces a substantial quantity of air pollution as defined in ORS 468A.005

c. The equipment complies with DEQ statutes and rules.

d. The portion of the equipment that is properly allocable to pollution control is 92%.

7. The Department of Agriculture's Recommendation

Based upon these findings, it is recommended that a Pollution Control Facility Certificate bearing the cost of $22,200, with 92% allocated to pollution control, be issued for the equipment claimed in Tax Credit Application Number TC-4596.

Jim Britton, Manager
Smoke Management Program
Natural Resources Division
Oregon Department of Agriculture
(503) 986-4701
FAX: (503) 986-4730

JB:rc
March 22, 1996

State of Oregon
Department of Agriculture

TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

Carl F. Jensen
dba Carl Jr. Farms
3882 Brush Creek Drive NE
Silverton, Oregon 97381

The applicant owns and operates a grass seed farm operation in Marion County, Oregon.

Application was made for tax credit for air pollution control equipment.

2. Description of Claimed Facility

The equipment described in this application is located at 6532 Howell Prairie Road NE, Silverton, Oregon. The equipment is owned by the applicant.

(2)	Freeman HYD Balers, Model 330	$25,333
(1)	John Deere Disk, Model 335	6,500
(1)	Freightliner Truck (1975)	5,000
(2)	Freightliner Truck Beds (1974)	9,244

Claimed equipment cost: $46,077
(Accountant's Certification was provided.)

3. Description of Farm Operation Plan to Reduce Open Field Burning.

The applicant has 350 acres of perennial grass seed under cultivation. Prior to experimenting with alternatives to thermal sanitation, the applicant open field burned as many acres as the smoke management program and weather permitted.

Before purchasing this pollution control equipment, the applicant dealt with straw removal as an alternative by obtaining outside baling services but found that to be unreliable in timely removal and storage of the straw.

The applicant will now bale off all the acreage annually allowing the maintenance of open field burning elimination.

The disc was purchased as non-burning field treatment shortens the life of the perennial stands and increases the annual acreage requiring plowing, disking and harrowing.

4. Procedural Requirements

The equipment is governed by ORS 468.150 through 468.190, and by OAR Chapter 340, Division 16. The equipment has met all statutory deadlines in that:

Purchase of the equipment was substantially completed on June 1, 1995. The application was submitted on March 15, 1996; and the application for final certification was found to be complete on March 21, 1996. The application was filed within two years of substantial completion of the equipment.

5. Evaluation of Application

a. The equipment is eligible under ORS 468.150 because the equipment is an approved alternative method for field sanitation and straw utilization and disposal that reduces a substantial quantity of air pollution. This reduction is accomplished by reduction of air contaminants, defined in ORS 468A.005; by reducing the maximum acreage to be open burned in the Willamette Valley as required in OAR 340-26-013; and, the facility's qualification as a "pollution control facility", defined in OAR 340-16-025(2)(f) A): "Equipment, facilities, and land for gathering, densifying, processing, handling, storing, transporting and incorporating grass straw or straw based products which will result in reduction of open field burning."

b. Eligible Cost Findings

In determining the percent of the pollution control equipment cost allocable to pollution control, the following factors from ORS 468.190 have been considered and analyzed as indicated:

1. The extent to which the equipment is used to recover and convert waste products into a salable or usable commodity.

The equipment promotes the conversion of a waste product (straw) into a salable commodity by providing the means to remove the straw from the fields in a timely manner after harvest.

2. The estimated annual percent return on the investment in the equipment.

There is no annual percent return on the investment as applicant claims no gross annual income.

3. The alternative methods, equipment and costs for achieving the same pollution control objective.

The method chosen is an accepted method for reduction of air pollution. The method is one of the least costly, most effective methods of reducing air pollution.

4. Any related savings or increase in costs which occur or may occur as a result of the purchase of the equipment.

There is an increase in operating costs of $15,000 to annually maintain and operate the equipment. These costs were considered in the return on investment calculation.

5. Any other factors which are relevant in establishing the portion of the actual cost of the equipment properly allocable to the prevention, control or reduction of air pollution.

There are no other factors to consider in establishing the actual cost of the equipment properly allocable to prevention, control or reduction of air pollution.

The actual cost of the equipment properly allocable to pollution control as determined by using these factors is 100%.

6. Summation

a. The equipment was constructed in accordance with all regulatory deadlines.

b. The equipment is eligible under ORS 468.150 as an approved alternative method for field sanitation and straw utilization and disposal that reduces a substantial quantity of air pollution as defined in ORS 468A.005

c. The equipment complies with DEQ statutes and rules.

d. The portion of the equipment that is properly allocable to pollution control is 100%.

7. The Department of Agriculture's Recommendation

Based upon these findings, it is recommended that a Pollution Control Facility Certificate bearing the cost of $46,077, with 100% allocated to pollution control, be issued for the equipment claimed in Tax Credit Application Number TC-4604.

Jim Britton, Manager
Smoke Management Program
Natural Resources Division
Oregon Department of Agriculture
(503) 986-4701
FAX: (503) 986-4730

JB/rc
March 22, 1996

Application No. TC-4219

State of Oregon
Department of Environmental Quality

TAX RELIEF APPLICATION REVIEW REPORT

---

1. Applicant

Chevron Corporation
Chevron USA Products Company
2410 Camino Ramon
San Ramon, CA 94583

The applicant owns and operates a bulk petroleum blending terminal in Portland, Oregon.

Application was made for tax credit for an air pollution control facility.

2. Description of Facility

The claimed facility was constructed to oxygenate gasoline by the addition ethyl alcohol. The facility consists of ethyl alcohol piping, pumps and meters from the marine dock to the truck dock. An ethyl alcohol "slop" recovery system is also included.

Claimed Facility Cost: $1,706,459

Accountant's Certification was provided.

The applicant indicated the useful life of the facility is 20 years.

3. Procedural Requirements

The facility is governed by ORS 468.150 through 468.190, and by OAR Chapter 340, Division 16.

The facility met all statutory deadlines in that:

Construction of the facility was substantially completed on August 31, 1993 and placed into operation on September 1, 1993. The application for final certification was received by the Department on March 10, 1994.

4. Evaluation of Application

a. Rationale For Denial

The claimed facility has a principal purpose of pollution control because the facility was installed to comply with a requirement imposed by the Department of Environmental Quality to comply with oxygenated gasoline blending requirements. This is in accordance with OAR Chapter 340, Division 22, Rule 460. This rule requires a person who refines, blends, distributes or markets gasoline used for motor fuel in DEQ defined Control Areas between November 1 and February 29 to provide oxygenated gasoline. The intent of the rule is to reduce carbon monoxide air pollution from motor vehicles in Control Areas. The claimed facility consists of several hundred feet of piping, pumps and truck loading modifications.

The Department recommends the application be denied. Chapter 340, Division 22, Rule 030 (6d) states that if the applicant's return on investment is greater than reference return on investment then the portion of actual costs properly allocable to pollution control shall be zero. The estimated return on investment is 153% and the reference return on investment for 1993 is 5.5%. The applicant received economic benefit from the claimed facility in the form of Federal Excise Tax Credits for using ethyl alcohol as an oxygenate. The applicant was requested to provide to the amount of Federal Excise Tax Credit they had received under the Alcohol Fuels program. Their written response was that they did participate in the State and Federal Excise Tax credit program in 1994/95, but due to their corporate accounting system they were unable to determine the amount of economic benefit that was generated from the Portland facility.

In order to estimate the amount of the excise tax credit, the total number of gallons of ethyl alcohol that was blended with gasoline was obtained from DEQ records for the 1994/95 winter control period. These were submitted by the applicant to comply with OAR Chapter 340, Division 22, Rule 560. Also, according to Section 40 of the Internal Revenue Code (Public Law 101-508), ethyl alcohol that is used in fuel blending qualifies for a Federal Excise Tax credit $0.54 for each gallon that is added to gasoline. This information was used to determine the five year average annual cash flow that lead to the calculated 153% return on investment.

b. Eligible Cost Findings

In determining the percent of the pollution control facility cost allocable to pollution control, the following factors from ORS 468.190 have been considered and analyzed as indicated:

1) The extent to which the facility is used to recover and convert waste products into a salable or usable commodity.

   The facility does recover waste products into a salable or usable commodity. Approximately 20% of the claimed facility cost is for a system that collects and recovers ethyl alcohol from system drips and leaks.

   A portion of the waste product is converted into a salable or usable commodity consisting of ethyl alcohol.

2) The estimated annual percent return on the investment in the facility.

   The positive average annual cash flow is the result of the Federal Excise Tax Credit program. Dividing the average annual cash flow into the cost of the facility gives a return on investment factor of .65. Using the formula in Chapter 340, Division 16, Rule 030 (6c) with a useful life of 20 years, gives an annual return on investment of 153%. The 1993 reference rate of return is 5.5% (Chapter 340, Division 16 Table 2). Chapter 340, Division 22, Rule 030 (6d) states that if the applicants return on investment is greater than 1993 reference return on investment then the portion of actual costs properly allocable to pollution control shall be zero.

3) The alternative methods, equipment and costs for achieving the same pollution control objective.

   The addition of ethyl alcohol to gasoline is a technically recognized method of oxygenation.

4) Any related savings or increase in costs which occur or may occur as a result of the installation of the facility.

   The applicant receives economic benefit from the reduction of their Federal Excise Tax which occurs as a result of the claimed facility. The applicant did not list any additional costs to operation the claimed facility and they failed to provide this information when

requested. Based on the fact that the claimed facility is primarily comprised of piping and pumps, it would not appear that any incremental increase in operating cost would be large enough to significantly off set the amount of economic benefit.

5) Any other factors which are relevant in establishing the portion of the actual cost of the facility properly allocable to the prevention, control or reduction of air pollution.

There are no other factors to consider in establishing the actual cost of the facility properly allocable to prevention, control or reduction of pollution.

The actual cost of the facility properly allocable to pollution control as determined by using this factor or these factors is 0%.

5. Summation

a. The facility was constructed in accordance with all regulatory deadlines.

b. The facility is ineligible for final tax credit certification in that the return on investment exceeds the reference return on investment.

c. The facility complies with DEQ statutes.

d. The portion of the facility cost that is properly allocated to pollution control is 0%.

6. Director's Recommendation

Based upon these findings, it is recommended that the request for pollution control tax credit for the facility claimed in Tax Credit Application No. TC-4219 be denied.

Dennis E. Cartier
SJO Consulting Engineers, Inc.

April 9, 1996

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

March 5, 1996

Gary S. Hook
Assoc. Tax Counsel
225 Bush Street Room 1285
San Francisco, CA 94104

RE: Pollution Control Facility Tax Credit Application
TC-4219 for Terminal Upgrades to handle
oxygenated fuel at the Willbridge Terminal.

Dear Mr. Hook:

The facility claimed in TC-4219 shows a return on investment which results in 0% of the costs being allocable to pollution control. OAR 340-16-030 and the application forms for receiving a pollution control facility tax credit both describe the steps necessary to calculate the return on investment and percent allocable to pollution control. To determine the annual income of the facility the Department considered the volume of gas Chevron has reported, (as required in OAR 340-22-550), blended & distributed through the Willbridge terminal and the 54 cent per gallon of ethanol blended federal excise tax credit, (Internal Revenue Code Section 40, Alcohol Used as Fuel). The Department reviewed the information provided by Chevron on the distribution of fuel from the Willbridge Terminal for the period November 1, 1994 through February 28, 1995. Review of this fuel distribution information indicated the Federal Excise Tax Credit Chevron received for the fuel blended and distributed through Willbridge, for that time period alone, was in excess of the claimed facility cost of the oxygenated fuel project claimed in TC-4219.

The Department intends to forward a recommendation to the Environmental Quality Commission to issue an order denying certification of the terminal upgrades as a pollution control facility at the May 17, 1996 Commission meeting. This is in accordance with OAR 340-16-030 (3). If Chevron chooses to Withdraw the application please submit a written request by March 29, 1996. If you have any questions please contact me at (503) 229-5810.

Sincerely,

Brian Fields
Environmental Specialist
Air Quality Division

BF:e
LTR\AH75305.DOC

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993
DEQ-1

Vahan M. Dinihanian Holly Farms

Growers of Holly, Cut Flowers, Foliages & Dried Materials

15005 N.W. Cornell Rd. • Beaverton, OR 97006 • (503) 645-1546 • Fax (503) 645-0635

March 8, 1995

Rick Paul
Oregon Department of Environmental Quality
811 SW Sixth Ave
Portland, OR 97204-1390

COPY

Dear Rick:

Thank you for you letter regarding the change of name for our company. The change in name should be to: Dinihanian Manufacturing, Inc.

As per your request, the following are the Certificate numbers of each of our active tax credit:

Certificate Number	3214 ~~mobile~~
Certificate Number	3215 Pole Bldg
Certificate Number	3314 Molding Machine
Certificate Number	2841 Truck & Trailer
Certificate Number	3154 Grinder

Also find enclosed a copy of Dinihanian Manufacturing, Inc. incorporation documentation.

Thank you for your assistance.

Sincerely,

Lillian R. Logan

LL/mra

State of Oregon
Department of Environmental Quality

Certificate No. 2841
Date of Issue 4-23-92
Application No. T-3582

RECLAIMED PLASTIC TAX CREDIT CERTIFICATE

Issued To: Dinihanian Recycling & Manufacturing 15005 NW Cornell Rd. Beaverton, OR 97006 ATTN: Vahan Dinihanian	Location of Qualifying Business: 15005 NW Cornell Rd. Beaverton, OR 97006
As: ( ) Lessee (x) Owner	
Description of Investment: 1987 Mercedes single drive tractor (truck) 1982 dry van trailer 1983 dry van trailer	
Date of Investment: 12/17/91 - 2/6/92	Actual Cost of Investment: $9,850.00
Percent of actual cost properly allocable to collecting, transporting, or processing reclaimed plastic or to the manufacture of a reclaimed plastic product: 100%	

Based upon the information contained in the application referenced above, the Environmental Quality Commission certifies that the investment described herein was made for the purpose of the prevention, control and reduction of solid waste in Oregon and, in accordance with the requirements of ORS 468.935 and ORS 468.945, satisfies the intents and purposes of ORS Chapters 459, 468 and rules adopted thereunder.

Therefore, this Reclaimed Plastic Tax Credit Certificate is issued this date subject to compliance with the statutes of the State of Oregon, the rules of the Department of Environmental Quality and the following special conditions:

1. The qualifying business shall be continuously operated for the purpose of the collection, transport, or processing of reclaimed plastic or manufacture of a reclaimed plastic product as indicated above.

2. The Department of Environmental Quality shall be immediately notified of any proposed change in use of operation of the qualifying business and if, for any reason, the business ceases to operate for its intended reclaimed plastics investment purpose.

3. Any reports or monitoring data requested by the Department of Environmental Quality shall be promptly provided.

NOTE: Any portion of the facility described herein is not eligible to receive tax credit certification as an Energy Conservation Facility or a Pollution Control Facility under the provisions of Chapter 958, Oregon Law 1989, if the person issued the Certificate elects to take the tax credit relief under ORS 316.103 or 317.106.

Signed William W. Wessinger

Title William W. Wessinger, Chairman

Approved by the Environmental Quality Commission on the 23rd day of April, 1992.

JM:HSW
MY102920.A (4/92)

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECLAIMED PLASTIC TAX CREDIT CERTIFICATE

Certificate No: 3154
Date of Issue: 9/10/93
Application No: TC-3961

ISSUED TO:
Dinihanian Recycling and Manufacturing
15005 NW Cornell Road
Beaverton, Oregon 97006

ATTENTION: Vahan Dinihanian

LOCATION OF QUALIFYING FACILITY:
15005 NW Cornell Road
Beaverton, Oregon

AS: ( ) LESSEE (X) OWNER

DESCRIPTION OF INVESTMENT:

1620 HD5 2K 40 hp hook rotor plastic granulator

DATE OF INVESTMENT: 6/15/93 ACTUAL COST OF INVESTMENT: $10,618.00

PERCENT OF ACTUAL COST PROPERLY ALLOCABLE TO COLLECTING, TRANSPORTING, OR PROCESSING RECLAIMED PLASTIC OR TO THE MANUFACTURE OF A RECLAIMED PLASTIC PRODUCT: 100%

Based upon the information contained in the application referenced above, the Environmental Quality Commission certifies that the investment described herein was made for the purpose of the prevention, control and reduction of solid waste in Oregon, and, in accordance with the requirements of ORS 468.935 and ORS 468.945, satisfies the intents and purposes of ORS Chapters 459, 468 and rules adopted thereunder.

Therefore, this Reclaimed Plastic Tax Credit Certificate is issued this date subject to compliance with the statutes of the State of Oregon, the rules of the Department of Environmental Quality and the following special conditions:

1. The qualifying business shall be continuously operated for the purpose of the collection, transport, or processing of reclaimed plastic or manufacture of a reclaimed plastic product as indicated above.

2. The Department of Environmental Quality shall be immediately notified of any proposed change in use of operation of the qualifying business and if, for any reason, the business ceases to operate for its intended reclaimed plastics investment purpose.

3. Any reports or monitoring data requested by the Department of Environmental Quality shall be promptly provided.

NOTE: Any portion of the facility described herein is not eligible to receive tax credit certification as an Energy Conservation Facility or a Pollution Control Facility under the provisions of Chapter 958, Oregon Law 1989, if the person issued the Certificate elects to take the tax credit relief under ORS 316.103 or 317.106.

Signed: William W. Wessinger (William W. Wessinger, Chairman)

Approved by the Environmental Quality Commission on the 10th day of September, 1993.

Staff:Bree
(Z:\R\RPTCC 8/16/93)

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

POLLUTION CONTROL FACILITY CERTIFICATE

Certificate No: 3214
Date of Issue: 10/29/93
Application No: T-4088

ISSUED TO:
Vahan M. Dinihanian
15005 NW Cornell Road
Beaverton, Oregon 97006

ATTENTION: Vahan M. Dinihanian

LOCATION OF POLLUTION CONTROL FACILITY:
15005 NW Cornell Rd
Beaverton, Oregon

Washington County

AS: ( ) LESSEE (X) OWNER (X) INDIV ( ) PARTNER ( ) CORP ( ) NON-PROFIT ( ) CO-OP

DESCRIPTION OF POLLUTION CONTROL FACILITY:
Storage warehouse for recycled plastic.

TYPE OF POLLUTION CONTROL FACILITY:
( ) AIR ( ) NOISE ( ) WATER (X) SOLID WASTE ( ) HAZARDOUS WASTE ( ) USED OIL

DATE FACILITY COMPLETED: 6/01/92 PLACED INTO OPERATION: 6/01/92

ACTUAL COST OF POLLUTION CONTROL FACILITY: $39,541.00

PERCENT OF ACTUAL COST PROPERLY ALLOCABLE TO POLLUTION CONTROL: 96%

Based upon the information contained in the application referenced above, the Environmental Quality Commission certifies that the facility described herein was erected, constructed or installed in accordance with the requirements of subsection (1) of ORS 468.165, and is designed for, and is being operated or will operate to a substantial extent for the purpose of preventing, controlling or reducing air, water or noise pollution or solid waste, hazardous wastes or used oil, and that it is necessary to satisfy the intents and purposes of ORS Chapters 454, 459, 467 and 468 and rules adopted thereunder.

Therefore, this Pollution Control Facility Certificate is issued this date subject to compliance with the statutes of the State of Oregon, the regulations of the Department of Environmental Quality and the following special conditions:

1. The facility shall be continuously operated at maximum efficiency for the designed purpose of preventing, controlling, and reducing the type of pollution as indicated above.
2. The Department of Environmental Quality shall be immediately notified of any proposed change in use or method of operation of the facility and if, for any reason, the facility ceases to operate for its intended pollution control purpose.
3. Any reports or monitoring data requested by the Department of Environmental Quality shall be promptly provided.

NOTE: The facility described herein is not eligible to receive tax credit certification as an Energy Conservation Facility under the provisions of Chapter 512, Oregon Law 1979, if the person issued the Certificate elects to take the tax credit relief under ORS 316.097 or 317.072.

Signed: _____ (William W. Wessinger, Chairman)

Approved by the Environmental Quality Commission on the 29th day of November, 1993.

Staff: Bill Bree/HSW
PCFCERT.MSD (08/92)

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

POLLUTION CONTROL FACILITY CERTIFICATE

Certificate No: 3215
Date of Issue: 10/29/93
Application No: 4089

ISSUED TO:
Vahan M. Dinihanian.
15005 NW Cornell Road
Beaverton, Oregon 97006

ATTENTION:

LOCATION OF POLLUTION CONTROL FACILITY:
15005 NW Cornell Road
Beaverton, Oregon

Washington County

AS: ( ) LESSEE (X) OWNER (X) INDIV ( ) PARTNER ( ) CORP ( ) NON-PROFIT ( ) CO-OP

DESCRIPTION OF POLLUTION CONTROL FACILITY:
Storage warehouse for recycled plastic

TYPE OF POLLUTION CONTROL FACILITY:
( ) AIR ( ) NOISE ( ) WATER (X) SOLID WASTE ( ) HAZARDOUS WASTE ( ) USED OIL

DATE FACILITY COMPLETED: 8/31/92 PLACED INTO OPERATION: 8/31/92

ACTUAL COST OF POLLUTION CONTROL FACILITY: $20,613.00

PERCENT OF ACTUAL COST PROPERLY ALLOCABLE TO POLLUTION CONTROL: 96%

Based upon the information contained in the application referenced above, the Environmental Quality Commission certifies that the facility described herein was erected, constructed or installed in accordance with the requirements of subsection (1) of ORS 468.165, and is designed for, and is being operated or will operate to a substantial extent for the purpose of preventing, controlling or reducing air, water or noise pollution or solid waste, hazardous wastes or used oil, and that it is necessary to satisfy the intents and purposes of ORS Chapters 454, 459, 467 and 468 and rules adopted thereunder.

Therefore, this Pollution Control Facility Certificate is issued this date subject to compliance with the statutes of the State of Oregon, the regulations of the Department of Environmental Quality and the following special conditions:

1. The facility shall be continuously operated at maximum efficiency for the designed purpose of preventing, controlling, and reducing the type of pollution as indicated above.
2. The Department of Environmental Quality shall be immediately notified of any proposed change in use or method of operation of the facility and if, for any reason, the facility ceases to operate for its intended pollution control purpose.
3. Any reports or monitoring data requested by the Department of Environmental Quality shall be promptly provided.

NOTE: The facility described herein is not eligible to receive tax credit certification as an Energy Conservation Facility under the provisions of Chapter 512, Oregon Law 1979, if the person issued the Certificate elects to take the tax credit relief under ORS 316.097 or 317.072.

Signed: William W. Wessinger (William W. Wessinger, Chairman)

Approved by the Environmental Quality Commission on the 29th day of October, 1993.

Staff: Bree/HSW
CFCERT.MSD (08/92)

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

RECLAIMED PLASTIC TAX CREDIT CERTIFICATE

Certificate No: 3314
Date of Issue: 6/3/94
Application No: 4107

ISSUED TO:
Dinihanian Recycling & Manufacturing
15005 NW Cornell Road
Beaverton, Oregon 97006

ATTENTION: Vahan M. Dinihanian

LOCATION OF QUALIFYING FACILITY:
15005 NW Cornell Rd.
Beaverton

AS: ( ) LESSEE (X) OWNER

DESCRIPTION OF INVESTMENT:

Plastic injection molding machine Nissei #FS180S36ASE2

DATE OF INVESTMENT: 2/8/94 ACTUAL COST OF INVESTMENT: $110,000.00

PERCENT OF ACTUAL COST PROPERLY ALLOCABLE TO COLLECTING, TRANSPORTING, OR PROCESSING RECLAIMED PLASTIC OR TO THE MANUFACTURE OF A RECLAIMED PLASTIC PRODUCT: 100%

Based upon the information contained in the application referenced above, the Environmental Quality Commission certifies that the investment described herein was made for the purpose of the prevention, control and reduction of solid waste in Oregon, and, in accordance with the requirements of ORS 468.935 and ORS 468.945, satisfies the intents and purposes of ORS Chapters 459, 468 and rules adopted thereunder.

Therefore, this Reclaimed Plastic Tax Credit Certificate is issued this date subject to compliance with the statutes of the State of Oregon, the rules of the Department of Environmental Quality and the following special conditions:

1. The qualifying business shall be continuously operated for the purpose of the collection, transport, or processing of reclaimed plastic or manufacture of a reclaimed plastic product as indicated above.

2. The Department of Environmental Quality shall be immediately notified of any proposed change in use of operation of the qualifying business and if, for any reason, the business ceases to operate for its intended reclaimed plastics investment purpose.

3. Any reports or monitoring data requested by the Department of Environmental Quality shall be promptly provided.

NOTE: Any portion of the facility described herein is not eligible to receive tax credit certification as an Energy Conservation Facility or a Pollution Control Facility under the provisions of Chapter 958, Oregon Law 1989, if the person issued the Certificate elects to take the tax credit relief under ORS 316.103 or 317.106.

Signed: William W. Wessinger (William W. Wessinger, Chairman)

Approved by the Environmental Quality Commission on the 3rd day of June, 1994.

Staff:Bree
(Z:\R\RPTCC 8/16/93)

Environmental Quality Commission

☒ Rule Adoption Item
☐ Action Item
☐ Information Item

Agenda Item C
May 17, 1996 Meeting

Title:

Amendments to Solid Waste and Recycling Administrative Rules

Summary:

The amendments incorporate changes required by legislation passed by the 1995 Oregon Legislature. These changes include a fee decrease for solid waste used as alternative daily cover at landfills, modifications to rigid plastic container recycling rules, changes in approval of out-of-state recycling programs (for persons sending out-of-state waste into Oregon for disposal), and several technical corrections. The rule also makes permanent the rule amendments previously adopted by the Commission as temporary rule on November 17, 1995, adopting Federal rule changes allowing certain very small landfills in arid regions two additional years to meet Federal Subtitle D landfill requirements.

Department Recommendation:

It is recommended that the Commission adopt the rules modifying OAR 340 Divisions 11, 12, 23, 64, 90, 91, 93, 94, 96, 97 and 130 as presented in Attachment A of the Department Staff Report

Report Author | Division Administrator | Director

Accommodations for disabilities are available upon request by contacting the Public Affairs Office at (503)229-5317(voice)/(503)229-6993(TDD).

State of Oregon
Department of Environmental Quality Memorandum

Date: May 3, 1996

To: Environmental Quality Commission

From: Langdon Marsh

Subject: Agenda Item C, Amendments to Solid Waste and Recycling Administrative Rules, EQC Meeting May 17, 1996

Background

On February 8, 1996, the Director authorized the Waste Management and Cleanup Division to proceed to a rulemaking hearing on proposed rules which would incorporate changes required by legislation passed by the 1995 Oregon Legislature, as well as changes made necessary by changes in Federal regulations.

Pursuant to the authorization, hearing notice was published in the Secretary of State's Bulletin on March 1, 1996. The Hearing Notice and informational materials were mailed to the mailing list of those persons who have asked to be notified of rulemaking actions, and to a mailing list of persons known by the Department to be potentially affected by or interested in the proposed rulemaking action on February 22, 1996.

A Public Hearing was held at 1 p.m., March 26, 1996 at DEQ Headquarters in Portland with Jacquie Moon serving as Presiding Officer. Written comment was received through 5 p.m., March 29, 1996. The Presiding Officer's Report (Attachment C) summarizes the oral testimony presented at the hearing and lists all the written comments received. (A copy of the comments is available upon request.)

Department staff have evaluated the comments received (Attachment D). Based upon that evaluation, no modifications to the initial rulemaking proposal are being recommended by the Department. The Department is proposing one housekeeping modification to the rule as presented for public hearing, as well as a reposition of the paragraphs adopting a reduced fee for materials used for alternative daily landfill cover.

The following sections summarize the issues that this proposed rulemaking action is intended to address, the authority to address the issue, the process for development of the rulemaking proposal

including a summary of the rulemaking proposal presented for public hearing, a summary of the significant public comments, a summary of how the rule will work and how it is proposed to be implemented, and a recommendation for Commission action.

Issues this Proposed Rulemaking Action is Intended to Address

This rulemaking proposal incorporates changes in several parts of the Department's rules, the majority of them to implement changes in law passed by the 1995 Legislature.

I. Solid Waste Fee Decrease (HB 2009). Exempts solid waste used for alternative daily cover at landfills from the DEQ $0.81/ton solid waste disposal fee and the $0.13/ton Orphan Site Account fee.

II. Modifications to Requirements for Rigid Plastic Container Recycling (SB 949). Oregon's rigid plastic container law as passed in 1991 and amended in 1993 requires product or container manufacturers of any "rigid plastic containers" to ensure that the containers meet one of the following options: a) are recycled at a 25 percent rate; b) are reused; or c) are made of 25 percent recycled content. 1995 SB 949 makes the following changes:

- Exempts rigid plastic containers (RPCs) containing food from compliance with the rigid plastic container law (rigid plastic bottles holding "drinkable liquids" are still required to comply).
- If the rigid plastic container recycling rate remains at or above 25 percent, product and container manufacturers are relieved from all recordkeeping requirements.
- Enforcement of the plastic recycling laws is delayed until after January 1, 1998.
- Provides a one-time one-year exemption from enforcement if the aggregate rigid plastic container recycling rate falls below 25 percent.
- Reduces maximum civil penalty for noncompliance from $10,000 to $1,000/day.

III. Changes in Approval of Out-of-State Recycling Programs (SB 1089). Requires a landfill operator to notify DEQ before an Oregon landfill may receive waste from out of state; allows two years for a landfill operator to submit information to DEQ demonstrating that the out-of-state jurisdiction or person generating the waste has a recycling or waste reduction program complying with Oregon requirements.

IV. Miscellaneous Changes and Technical Corrections:

1. Allows cities until January 1, 1998 to implement additional recycling program elements if the wasteshed in which they are located does not meet its 1995 recovery rate (SB 1089).
2. Adopts Federal changes allowing certain very small landfills in arid regions two additional years to meet Federal Subtitle D landfill requirements. Makes permanent the rule amendments previously adopted as temporary rule on November 17, 1995.
3. Other miscellaneous changes and technical corrections to correct erroneous references in a number of rule divisions.

Note: The body of this Memo uses the above numbering system to refer to the various parts of this rulemaking.

Relationship to Federal and Adjacent State Rules

I. Solid Waste Fee Decrease (HB 2009)

a. *Federal.* There are no Federal requirements for per-ton solid waste disposal fees.

b. *Adjacent states.* Washington. Both residential and commercial solid waste collection services pay a 3.1% tax on gross revenue which goes into a public works trust fund. Wastes not subject to garbage collection do not pay the tax; in most cases wastes used for alternative daily cover would not use a garbage collection service. Manufacturers, wholesalers and retailers of specified products (e.g. food and beverage industries) are also subject to a .015 percent Litter Control Tax on gross proceeds.

California. Landfill operators pay a state $1.34 per-ton solid waste disposal fee. Currently the fee is waived for materials used for alternative daily cover if such materials meet guidance criteria adopted by the California Integrated Waste Management Board.

Idaho. Does not collect a per-ton solid waste disposal fee.

Nevada. Does not collect a per-ton solid waste disposal fee.

II. Rigid Plastic Container Law (SB 949)

a. *Federal.* At this time there are no federal packaging standards applying specifically to rigid plastic containers. However, federal regulations apply to packaging of various categories of consumer products. See Attachment B-4 for a listing and discussion of those regulations.

In the sense that no federal regulations exist which specifically apply to rigid plastic containers (disregarding their contents), Oregon law is more stringent. However, the federal regulations cited govern areas not covered by the Oregon Rigid Plastic Container Law, and in that sense Oregon law is less stringent.

b. *Adjacent States.* Washington. Washington does not have any packaging laws for rigid plastic containers.

Idaho. Idaho does not have any packaging laws for rigid plastic containers.

Nevada. Nevada does not have any packaging laws for rigid plastic containers.

California. In 1991, California passed the Rigid Plastic Packaging Container Act. California regulations are in general similar to Oregon's law, although several key aspects differ

significantly. In 1995 the California law was amended to extend indefinitely a previously limited exemption for products subject to US Department of Transportation Title 49 regulations or the United Nations Transport of Dangerous Goods Code. Their previous exemption had been slated to sunset on December 31, 1995. Products regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) are exempt. Packages containing food or cosmetics are not exempt from the California law, but do not have to meet requirements until January 1, 1997. Manufacturers using such packages must also report to the State by December 1, 1995 demonstrating they are taking all feasible actions to comply.

Although some aspects of Oregon law and regulations are more stringent than California law and regulations, the changes in SB 949 are all less stringent than comparable California regulations.

III. Out-of-State Recycling Certification (SB 1089)

a. *Federal.* There are no federal requirements concerning recycling programs.

b. *Adjacent states.* Washington. Requires states exporting waste to Washington for disposal to have waste reduction and recycling programs comparable to those required for the State of Washington. The programs for the exporting state as a whole are considered, as Washington has a state recycling goal but no local (county) goals. The Department of Ecology (DOE) is required to review those programs. DOE is allowed by the legislation to establish a fee for this review, but they have not set one. The landfill operator must notify DOE before accepting out-of-state waste. The landfill must report quarterly to DOE on the amount of out-of-state waste received by state, type of waste and source of waste.

California. No requirements for certification of recycling programs for out-of-state waste being disposed of in California.

Idaho. No requirements.

Nevada. No requirements.

IV. Miscellaneous Changes and Technical Corrections:

1. *Additional time to implement recycling program elements.* Not applicable. This applies to a small part of Oregon's opportunity to recycle program.

2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

a. *Federal.* On October 2, 1995 the US Environmental Protection Agency (EPA) adopted a two-year delay for very small landfills to comply with federal Subtitle D municipal solid waste landfill management requirements. EPA did this to allow more time to develop specific requirements for these small landfills that are feasible while still protecting the

environment and human health. The EQC has previously adopted the federal Subtitle D landfill requirements by reference, and has adopted the federal two-year delay as a temporary rule. Permanent adoption of the delay would make state rule conform to federal regulations.

b. *Adjacent States.* Washington. Has not adopted the Subtitle D date extension. Most small landfills have closed.

California. Has not specifically adopted the Subtitle D date extension. Considers that they have sufficient flexibility in current rule to implement the extension.

Idaho. Idaho statute declares state law to correspond to federal regulations, so the date extension did not need to be specifically adopted to be effective in Idaho.

Nevada. Has adopted the Subtitle D implementation date delay.

Authority to Address the Issue

The Department has the statutory authority to address this situation under ORS 459.045, 459.995, 459A.025, 459A.650 through .685 and 468.020. See also Environmental Protection Agency rule published in 60 FR 52337-52342.

Process for Development of the Rulemaking Proposal

The Solid Waste Advisory Committee (SWAC) reviewed drafts of the proposed rule changes at their fall and winter 1995-96 meetings. The Department incorporated the SWAC's comments into the proposed rule amendments, which are supported by the SWAC. The SWAC previously supported adoption of the temporary rule delaying Subtitle D effective dates for very small landfills.

Summary of Rulemaking Proposal Presented for Public Hearing and Discussion of Significant Issues Involved.

I. Solid Waste Fee Decrease: Exempts solid waste used for alternative daily cover at landfills from the $0.81 per-ton solid waste disposal fee and the $0.13 per-ton Orphan Site Account fee. Materials (such as auto fluff) used at alternative daily cover would continue to pay a $.30/ton permit compliance fee.

II. Modifications to Requirements for Rigid Plastic Container Recycling:

- Exempts rigid plastic containers containing food from compliance with the rigid plastic container law (although "drinkable liquids" in rigid plastic bottles are still required to comply).
- Allows certain exemptions and delays in enforcement by DEQ.
- Reduces the maximum civil penalty for non-compliance from $10,000 to $1,000 a day.

III. Changes in Approval of Out-of-State Recycling Programs:

- Requires landfill operator to notify DEQ before Oregon landfill may receive waste from out of state.
- Allows two years for landfill operator to submit information to DEQ showing that the out-of-state jurisdiction has a recycling program which complies with Oregon requirements.
- Requires landfill operator to track and report amounts of such out-of-state waste until recycling or waste reduction program compliance is demonstrated to DEQ.

IV. Miscellaneous Changes and Technical Corrections:

1. Allows cities until January 1, 1998 to implement additional recycling program elements if the wasteshed in which they are located does not meet its 1995 recovery rate.
2. Adopts Federal changes allowing very small landfills in arid regions two additional years to meet Subtitle D landfill requirements.
3. Other miscellaneous and technical corrections update the reference date for adoption of federal Subtitle D regulations, and correct erroneous references in a number of rule divisions.

Summary of Significant Public Comment and Changes Proposed in Response

Comments: A representative of a company engaged in thermal desorption of contaminated soil made the following comments concerning item I, Solid Waste Fee Decrease:

1. Petroleum-contaminated soils are regularly being used as daily cover for landfills; this practice does not need to be encouraged through a fee decrease.

2. Petroleum-contaminated soils release pollutants such as volatile organic compounds (VOCs) into the air when used as daily landfill cover. This use may be inconsistent with the Clean Air Act Titles I and V (and possibly Title III), and should be excluded by rule.

Response:

1. The proposed rule allows the fee decrease for any material (including petroleum-contaminated soils) "used as daily cover at a landfill in place of virgin soil..." The proposed rule also specifies general conditions for when the fee decrease would be allowed.

The Department has been administratively allowing the reduced fee for petroleum-contaminated soils (PCS) used as daily cover since this issue arose in October 1994. The Department has always maintained that further consideration was needed of whether PCS used as cover should qualify for the reduced fee. Both the SWAC and landfill operators using PCS as daily cover were notified in the past that this issue would receive further deliberation. SWAC will be considering the Department's position that PCS should be subject to the full solid waste disposal fee even if used as daily cover. This issue may be the subject of future solid waste rulemaking.

2. The Department's rules for cleanup materials contaminated with hazardous substances, which are mainly PCS (OAR 340-93-170), establish a management hierarchy for those materials. The preferred management option is use of "technologies where cross media effects are well controlled, such as thermal desorption." Landfill disposal is lower on the management hierarchy. However, persons needing to manage PCS often choose between on-site treatment (often by aeration involving turning and tilling) in accordance with DEQ's Cleanup programs, and landfill disposal. Either option, both legal, results in the release of about the same amount of VOCs to the atmosphere.

The Department's Air Quality Program is analyzing the amount of VOC emissions from landfills that use PCS as daily cover. Generally, an air contaminant discharge permit (ACDP) will be required if emissions exceed 10 tons of VOCs per year, and a Title V permit may be required if the potential to emit VOCs exceeds 100 tons per year. Should a particular landfill require a permit due to the use of PCS as daily cover, the Air Quality Program will ensure that all applicable regulations apply. See Attachment D, Department's Evaluation of Public Comment, for further discussion.

No changes are recommended to the rule as proposed.

Summary of How the Proposed Rule Will Work and How it Will be Implemented

I. Solid Waste Fee Decrease: Affected landfill operators have been paying reduced fees (a total of $0.30/ton) on materials used for approved alternative daily cover since October 1, 1994. The rule will formalize this policy.

II. Modifications to Requirements for Rigid Plastic Container Recycling: Product and container manufacturers of rigid plastic containers used to contain food have been exempt from all requirements since the effective date of the new law (September 9, 1995). Other affected product and container manufacturers are relieved of recordkeeping requirements as long as the rigid plastic container recycling rate for compliance purposes remains over 25 percent. This is the case for 1996. DEQ may not enforce requirements of the law until after January 1, 1998, but affected product and container manufacturers must still comply during that time.

III. Changes in Approval of Out-of-State Recycling Programs: Landfill operators who will receive certain amounts of solid waste generated outside of Oregon after September 9, 1995 must notify the Department before receiving the waste. They must also keep track of that waste in solid waste quarterly reports submitted to the Department.

IV. Miscellaneous Changes:

1. *Additional time to implement recycling program elements.* The Department calculates annual recovery rates for each wasteshed. The recovery rates for 1995 will be calculated by the fall of 1996. DEQ regional solid waste technical assistance staff will work with any wasteshed which does not meet its 1995 target rate to explore ways of increasing the wasteshed's recovery rate by January 1, 1998.

2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* Very small landfills meeting federal criteria may operate until October 9, 1997 before they must meet federal design and operation requirements such as financial assurance for closure and post-closure.

Recommendation for Commission Action

It is recommended that the Commission adopt the rules and rule amendments regarding solid waste and recycling as presented in Attachment A of the Department Staff Report.

Attachments

A. Rule Amendments Proposed for Adoption
B. Supporting Procedural Documentation:
   1. Legal Notice of Hearing
   2. Fiscal and Economic Impact Statement
   3. Land Use Evaluation Statement
   4. Questions to be Answered to Reveal Potential Justification for Differing from Federal Requirements
   5. Cover Memorandum from Public Notice
C. Presiding Officer's Report on Public Hearing
D. Department's Evaluation of Public Comment
E. Advisory Committee Membership
F. Rule Implementation Plan

Reference Documents (available upon request)

Written Comments Received (listed in Attachment C)
Oregon Revised Statutes Chapters 459 and 468
OAR 340 Divisions 90 through 97
Environmental Protection Agency rule amendment (60 FR 52334 - 52342)
40 CFR Part 258 (Subtitle D standards)

Approved:

Section: Deanna Mueller-Crispin

Division: Mary Wahl

Report Prepared By: D. Mueller-Crispin

Phone: 229-5808

Date Prepared: May 3, 1996

ATTACHMENT A

SOLID WASTE RULES: RULE AMENDMENTS PROPOSED FOR ADOPTION

I. Proposed Amendments: Fee Decrease (HB 2009)

SOLID WASTE MANAGEMENT RULES
Chapter 340 Division 97
5/3/96

Proposed additions shown in ***redline***;
Proposed deletions shown in ~~strikeout.~~
[...] indicates that portions of the rule not proposed to be amended have been omitted from this text.

SOLID WASTE PERMIT AND DISPOSAL FEES

OAR 340-97-110

[...]

(3) Out-of-state solid waste. Each disposal site or regional disposal site receiving solid waste generated out-of-state shall pay a per-ton solid waste disposal fee as specified in OAR 340-97-120([~~6~~]*5*) [~~*or a surcharge as specified in OAR 340-97-120(7)*~~].

[...]

(7) Calculation of tonnages. Permittees are responsible for accurate calculation of solid waste tonnages. For purposes of determining appropriate fees under OAR 340-97-120(3) through ~~(7)~~ *(5)*, annual tonnage of solid waste received shall be calculated as follows:

[...]

(11) Submittal schedule.

(a) The solid waste permit compliance fee shall be billed by the Department to the holder of the following permits: transfer station, material recovery facility and closed solid waste disposal site. The fee period shall be the state's fiscal year (July 1 through June 30), and the fee is due annually by the date indicated on the invoice. Any "year of closure" pro-rated fee shall be billed to the permittee of a closed site together with the site's first regular billing as a closed site;

(b) For holders of solid waste disposal site permits other than those in subsection (9)(a) of this rule, beginning on July 1, 1994 the solid waste permit compliance fee and the 1991 Recycling Act permit fee, if applicable, are not billed to the permittee by the Department. These fees shall be self-reported by the permittee to the Department, pursuant to sections (5) and (6) of this rule. The fee period shall be either the calendar quarter or the calendar year, and the fees are due to the Department as follows:

(A) For municipal solid waste disposal sites (including incinerators, energy recovery

facilities and composting facilities), construction and demolition landfills: on the same schedule as specified in subsection (11)(c) of this rule. The July 31, 1994 submittal for solid waste disposal sites receiving less than 1,000 tons of solid waste a year shall be for the half-year fee period of July 31, 1994 through December 31, 1994, and shall be for half of the amount stated in OAR 340-97-120(3)(a)(A);

(B) For industrial solid waste disposal sites, sludge or land application disposal sites and solid waste treatment facilities:

(i) For sites receiving over 20,000 tons of waste a year: quarterly, on the 30th day of the month following the end of the calendar quarter; or

(ii) For sites receiving less than 20,000 tons of waste a year: annually, on the 31st day of January beginning on January 31, 1995. A July 31, 1994 submittal shall be paid for the half-year fee period of July 1, 1994 through December 31, 1994, and shall be for half of the amount stated in OAR 340-97-120(3)(a)(A) or based on the tonnage received from January 1 through June 30, 1994, whichever is more;

(iii) A site which has received less than 20,000 tons of waste in past years but exceeds that amount in a given year, will in general be granted a one-year delay from the Department before the site is required to begin submitting permit fees on a quarterly basis. If the site appears likely to continue to exceed the 20,000 annual ton limit, then the Department will require the site to report tonnages and submit applicable permit fees on a quarterly basis.

(c) The per-ton solid waste disposal fees on domestic ~~and out-of-state~~ solid waste and the Orphan Site Account fee are not billed by the Department. They are due on the following schedule:

(A) Quarterly, on the 30th day of the month following the end of the calendar quarter; or

(B) Annually, on the 31st day of January beginning in 1995, for holders of solid waste disposal site permits for sites receiving less than 1,000 tons of solid waste a year. The January 1995 submittal for the per-ton solid waste disposal fee and Orphan Site Account fee shall cover waste received from July 1 through December 31, 1994.

~~(d) The surcharge on disposal of solid waste generated out of state is not billed by the Department. It is due on the same schedule as the per ton solid waste disposal fees above.~~

(d)~~(e)~~ The fees on Oregon solid waste disposed of out of state are due to the Department quarterly on the 30th day of the month following the end of the calendar quarter, or on the schedule specified in OAR 340-97-120(5)(e)(C). The fees shall be submitted together with a form approved by the Department, which shall include the amount of solid waste, type, county of origin of the solid waste, and state to which the solid waste is being transported for final disposal.

PERMIT FEE SCHEDULE

OAR 340-97-120

(1) For purposes of OAR Chapter 340, Division 97:

(a) A "new facility" means a facility at a location not previously used or permitted, and does not include an expansion to an existing permitted site;

(b) An "off-site industrial facility" means all industrial solid waste disposal sites other than a "captive industrial disposal site";

(c) A "captive industrial facility" means an industrial solid waste disposal site where the permittee is the owner and operator of the site and is the generator of all the solid waste received at the site.

(2) Application Processing Fee. An application processing fee shall be submitted with each application for a new facility, including application for preliminary approval pursuant to OAR 340-93-090. The amount of the fee shall depend on the type of facility and the required action as follows:

(a) A new municipal solid waste landfill facility, ***construction and demolition landfill,*** incinerator, energy recovery facility, composting facility for mixed solid waste, solid waste treatment facility, off-site industrial facility or sludge disposal facility:

(A) Designed to receive over 7,500 tons of solid waste per year: $10,000;

(B) Designed to receive less than 7,500 tons of solid waste per year: $5,000;

(b) A new captive industrial facility (other than a transfer station or material recovery facility): $1,000;

(c) A new transfer station or material recovery facility:

(A) Receiving over 50,000 tons of solid waste per year: $500;

(B) Receiving between 10,000 and 50,000 tons of solid waste per year: $200;

(C) Receiving less than 10,000 tons of solid waste per year: $100;

(d) Letter Authorization (pursuant to OAR 340-93-060):

(A) New site: $500;

(B) Renewal: $500;

(e) Permit Exemption Determination (pursuant to OAR 340-93-080(2)): $500~~;~~.

~~(f) Before June 30, 1994: Hazardous substance authorization (Any permit or plan review application which seeks new or significant modification in authorization to landfill cleanup~~

~~materials contaminated by hazardous substances). A permittee who applies to increase his or her hazardous substance authorization from one category to a higher category shall pay the difference in fees between the two categories:~~

~~(A) Authorization to receive 100,000 tons or more of designated cleanup material per year $50,000;~~

~~(B) Authorization to receive at least 50,000 but less than 100,000 tons of designated cleanup material per year $25,000;~~

~~(C) Authorization to receive at least 25,000 but less than 50,000 tons of designated cleanup material per year $12,500;~~

~~(D) Authorization to receive at least 10,000 but less than 25,000 tons of designated cleanup material per year $ 5,000;~~

~~(E) Authorization to receive at least 5,000 but less than 10,000 tons of designated cleanup material per year $ 1,000;~~

~~(F) Authorization to receive at least 1,000 but less than 5,000 tons of designated cleanup material per year $ 250.~~

(3) Solid Waste Permit Compliance Fee. The Commission establishes the following fee schedule including base per-ton rates to be used to determine the solid waste permit compliance fee beginning with fiscal year 1993. The per-ton rates are based on the estimated solid waste to be received at all permitted solid waste disposal sites and on the Department's Legislatively Approved Budget. The Department will review annually the amount of revenue generated by this fee schedule. To determine the solid waste permit compliance fee, the Department may use the base per-ton rates, or any lower rates if the rates would generate more revenue than provided in the Department's Legislatively Approved Budget. Any increase in the base rates must be fixed by rule by the Commission. (In any case where a facility fits into more than one category, the permittee shall pay only the highest fee):

(a) All facilities accepting solid waste except transfer stations and material recovery facilities:

(A) $200, if the facility receives less than 1,000 tons of solid waste a year; or

(B) A solid waste permit compliance fee based on the total amount of solid waste received at the facility in the previous calendar quarter or year, as applicable, at the following rate:

(i) All municipal landfills, demolition landfills, off-site industrial facilities, sludge disposal facilities, incinerators and solid waste treatment facilities: $.21 per ton;

(ii) Captive industrial facilities: $.21 per ton;

(iii) Energy recovery facilities: $.13 per ton;

(iv) Composting facilities receiving mixed solid waste: $.10 per ton.

(C) If a disposal site (other than a municipal solid waste facility) is not required by the Department to monitor and report volumes of solid waste collected, the solid waste permit compliance fee may be based on the estimated tonnage received in the previous quarter or year.

(b) Transfer stations and material recovery facilities:

(A) Facilities accepting over 50,000 tons of solid waste per year: $1,000;

(B) Facilities accepting between 10,000 and 50,000 tons of solid waste per year: $500;

(C) Facilities accepting less than 10,000 tons of solid waste per year: $50.

(c) Closed Disposal Sites:

(A) Year of closure. If a land disposal site stops receiving waste before April 1 of the fiscal year in which the site permanently ceases active operations, the Department shall determine a pro-rated permit compliance fee for those quarters of the fiscal year not covered by the permit compliance fee paid on solid waste received at the site. The pro-rated fee for the quarters the site was closed shall be based on the calculation in paragraph (B) of this subsection.

(B) Each land disposal site which closes after July 1, 1984:. . . . . $150, or the average tonnage of solid waste received in the three most active years of site operation multiplied by $.025 per ton, whichever is greater; but the maximum permit compliance fee shall not exceed $2,500.

(4) 1991 Recycling Act permit fee:

(a) A 1991 Recycling Act permit fee shall be submitted by each solid waste permittee which received solid waste in the previous calendar quarter or year, as applicable, except transfer stations, material recovery facilities and captive industrial facilities. The Commission establishes the 1991 Recycling Act permit fee as $.09 per ton for each ton of solid waste received in the subject calendar quarter or year;

(b) The $.09 per-ton rate is based on the estimated solid waste received at all permitted solid waste disposal sites subject to this fee and on the Department's Legislatively Approved Budget. The Department will review annually the amount of revenue generated by this rate. To determine the 1991 Recycling Act permit fee, the Department may use this rate, or any lower rate if the rate would generate more revenue than provided in the Department's Legislatively Approved Budget. Any increase in the rate must be fixed by rule by the Commission;

(c) This fee is in addition to any other permit fee and per-ton fee which may be assessed by the Department.

(5) Per-ton solid waste disposal fees on domestic solid waste. Each solid waste disposal site that receives domestic solid waste (except transfer stations, material recovery facilities, solid waste treatment facilities and composting facilities), and each person transporting solid waste out of Oregon for disposal at a disposal site that receives domestic solid waste except as excluded under OAR 340-97-110(4)(c), shall submit to the Department of Environmental Quality the following

fees for each ton of domestic solid waste received at the disposal site:

(a) A per-ton fee of 50 cents;

(b) An additional per-ton fee of 31 cents;

(c) Beginning January 1, 1993, an additional per-ton fee of 13 cents for the Orphan Site Account.

(d) Submittal schedule:

(A) These per-ton fees shall be submitted to the Department quarterly. Quarterly remittals shall be due on the 30th day of the month following the end of the calendar quarter;

(B) Disposal sites receiving less than 1,000 tons of solid waste per year shall submit the fees annually on July 31, beginning in 1994, and on January 31, beginning in 1995. The January 1995 submittal for the per-ton solid waste disposal fee and Orphan Site Account fee shall cover waste received from July 1 through December 31, 1994. If the disposal site is not required by the Department to monitor and report volumes of solid waste collected, the fees shall be accompanied by an estimate of the population served by the disposal site;

(C) For solid waste transported out of state for disposal, the per-ton fees shall be paid to the Department quarterly. Quarterly remittals shall be due on the 30th day of the month following the end of the calendar quarter in which the disposal occurred. If the transportation is not on-going, the fee shall be paid to the Department within 60 days after the disposal occurs.

(e) As used in this rule and in OAR 340-97-110, the term "domestic solid waste" does not include~~:~~

~~(A)~~ Source separated recyclable material, or material recovered at the disposal site~~; or~~

~~[(B) Domestic solid waste which is not generated within this state.]~~

(f) Solid waste that is used as daily cover at a landfill in place of virgin soil shall not be subject to the per-ton solid waste fees in this section, provided that:

(i) The amount of solid waste used as daily cover does not exceed the amount needed to provide the equivalent of six inches of soil used as daily cover;

(ii) If disposed of in Oregon, the solid waste is not being used on a trial basis, but instead has received final approval from the Department for use as daily cover; and

(iii) If disposed of in a landfill outside of Oregon, the solid waste has received final approval from the appropriate state or local regulatory agency that regulates the landfill.

(g) ~~(f)~~ For solid waste delivered to disposal facilities owned or operated by a metropolitan service district, the fees established in this section shall be levied on the district, not on the disposal site.

[~~(6) Per ton solid waste disposal fee on solid waste generated out of state. Each solid waste disposal site or regional disposal site that receives solid waste generated out of state shall submit to the Department a per ton solid waste disposal fee. The per ton solid waste disposal fee shall be the sum of the per ton fees established for domestic solid waste in subsections (5)(a), (b) and (c) of this rule:~~

~~(a) The per ton fee solid waste disposal fee shall become effective on the dates specified in section (5) of this rule and shall apply to all solid waste received after July 1, 1991;~~

~~(b) This per ton solid waste disposal fee shall apply to each ton of out of state solid waste received at the disposal site, but shall not include source separated recyclable materials, or material recovered at the disposal site;~~

~~(c) Submittal schedule: This per ton solid waste disposal fee shall be submitted to the Department quarterly. Quarterly remittals shall be due on the 30th day of the month following the end of the calendar quarter. Disposal sites receiving less than 1,000 tons of solid waste per year shall submit the fees annually on July 31, beginning in 1994, and on January 31, beginning in 1995;~~

~~(d) This per ton solid waste disposal fee on out of state solid waste shall be collected at the first disposal facility in Oregon receiving the waste, including but not limited to a solid waste land disposal site, transfer station or incinerator, and remitted directly to the Department on the schedule specified in this rule;~~

~~(e) If, after final appeal, the surcharge established in section (7) of this rule is held to be valid and the state is able to collect the surcharge, the per ton fee on solid waste generated out of state established in this section shall no longer apply, except for any per ton fee established pursuant to ORS 459.236, and the person responsible for payment of the surcharge may deduct from the amount due any fees paid to the Department on solid waste generated out of state under section (6) of this rule. The amount paid for any per ton fee established pursuant to ORS 459.236 shall not be included in the amount to be deducted from the amount of surcharge due.~~]

[~~(7) Surcharge on disposal of solid waste generated out of state. Each solid waste disposal site or regional solid waste disposal site that receives solid waste generated out of state shall submit to the Department of Environmental Quality a per ton surcharge of $2.25. This surcharge shall apply to each ton of out of state solid waste received at the disposal site:~~

~~(a) This per ton surcharge shall apply to all solid waste received after January 1, 1991;~~

~~(b) Submittal schedule: This per ton surcharge shall be submitted to the Department quarterly. Quarterly remittals shall be due on the 30th day of the month following the end of the calendar quarter. Disposal sites receiving less than 1,000 tons of solid waste per year shall submit the fees annually on July 1, beginning in 1991, and on January 31, beginning in 1995;~~

~~(c) This surcharge shall be in addition to any other fee charged for disposal of solid waste~~

~~*at the site;*~~

~~*(d) This surcharge on out of state solid waste shall be collected at the first disposal facility in Oregon receiving the waste, including but not limited to a solid waste land disposal site, transfer station or incinerator, and remitted directly to the Department on the schedule specified in this rule.*~~]

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II. Proposed Amendments: Rigid Plastic Containers (SB 949)

RIGID PLASTIC CONTAINER RULES
Chapter 340 Division 90
4/15/96

OAR 340-90-320 DEFINITIONS

As used in OAR 340-90-310 through 430 ***and in OAR 340-12-042*** unless otherwise specified:

[...]

(19) "Reduced ***container"*** ~~package"~~ means a rigid plastic container which has a container/product ratio which is at least ten percent less than the container/product ratio for the same product by the same product manufacturer five years earlier, as provided in OAR 340-90-330(5).

(20) "Replacement product" means a product which is used to refill a rigid plastic container. Replacement product must be the same as or similar to the original product in the container.

(21) "Reused container" means either a refillable or reusable container which is refilled by the product manufacturer or reused by the consumer and is used at least five times with the same or a similar product.

(22) "Rigid plastic bottle" means a container that has a mouth narrower than its base.

OAR 340-90-340 EXEMPT RIGID PLASTIC CONTAINERS

(1) Rigid plastic containers which meet one of the sets of criteria in sections (2) through ~~(6)~~ *(7)* of this rule are exempt from the requirements of OAR 340-90-350 through -370.

[...]

(7) The container contains food.

(a) A container shall be considered to "contain food" if it contains an article used, or intended to be used, for food, ice, confection or condiment, whether simple or compound, or any part or ingredient thereof or in the preparation thereof, and for human consumption.

(b) A container shall not be considered to "contain food" if it contains a drinkable liquid and is a rigid plastic bottle.

OAR 340-90-350 COMPLIANCE STANDARDS

(1) Except as provided in OAR 340-90-340, by January 1, 1995 any rigid plastic container sold, offered for sale, or used in association with the sale or offer for sale of products in Oregon shall comply with one of the following:

(a) Have at least 25 percent recycled content;

(b) Be made of plastic that is being recycled in Oregon at a rate of at least 25 percent by meeting one of the following criteria:

(A) It is a rigid plastic container and rigid plastic containers, in the aggregate, are being recycled in Oregon at a rate of at least 25 percent by January 1, 1995;

(B) It is a specified type of rigid plastic container and that specified type of rigid plastic container, in the aggregate, is being recycled in Oregon at a rate of at least 25 percent by January 1, 1995; or

(C) It is a product-associated container and that class of containers, in the aggregate, is being recycled in Oregon at a rate of at least 25 percent by January 1, 1995.

(c) Be used at least five times for the same or a substantially similar use.

(2) Individual rigid plastic containers sold in Oregon after January 1, 1995 but manufactured by a container manufacturer or filled by a product manufacturer prior to January 1, 1995 are not required to meet the compliance standards listed above. A product manufacturer must be able to document that the containers were filled prior to January 1, 1995.

(3) For any calendar year for which the Department determines that the aggregate recycling rate for compliance purposes is at least 25 percent, all product and container manufacturers shall be deemed to be in compliance with OAR 340-90-340, 340-90-350, 340-90-400 and 340-90-410 without any further action on their part.

OAR 340-90-380 RECYCLING RATE CALCULATION

(1) The recycling rate for rigid plastic containers shall be calculated as one of the following:

(a) Aggregate or specified resin type recycling rate for compliance purposes;

(b) Calendar year aggregate recycling rate;

(c) Specified-type rate; or

(d) Product-associated rate.

(2) Recycling rate for compliance purposes.

(a) Aggregate recycling rate for compliance purposes.

(A) The Department shall determine a recycling rate for rigid plastic containers, in the aggregate, for compliance purposes by ~~January 1, 1995 and each year thereafter.~~ *December 31 of each year. The aggregate recycling rate for compliance purposes shall apply to the following calendar year.*

(B) The aggregate recycling rate for compliance purposes shall be based in part on the most recent calendar year recycling rate and in part on other information which reflects or indicates the level of rigid plastic container recycling. When determining the recycling rate for compliance purposes for years prior to the calculation of the calendar year

recycling rate, the Department will use the best available recycling rate information in lieu of a calendar year recycling rate.

(b) Specified resin type recycling rate for compliance purposes.

(A) ***If the aggregate recycling rate in paragraph(2)(a)(A) of this rule is determined to be less than 25 percent, t***~~T~~he Department shall determine a specified resin type recycling rate for compliance purposes for rigid plastic containers made from each of the plastic resin types identified in ORS 459A.680 ~~by January 1, 1995 and each year thereafter~~. ***The specified resin type recycling rate for compliance purposes shall apply to the calendar year for which the aggregate recycling rate in paragraph(2)(a)(A) of this rule was determined.***

(B) The specified resin type recycling rate for compliance purposes shall be based in part on the most recent calendar year recycling rate and in part on other information which reflects or indicates the level of rigid plastic container recycling. When determining the recycling rate for compliance purposes for years prior to the calculation of the calendar year recycling rate, the Department will use the best available recycling rate information in lieu of a calendar year recycling rate.

(3) Calendar year aggregate recycling rate.

(a) The calendar year aggregate recycling rate for rigid plastic containers shall be calculated by the Department and includes all rigid plastic containers including those exempted by OAR 340-90-340 (2), (4), (5), ~~and~~ (6) ***or (7)*** from meeting compliance standards.

(b) The calendar year recycling rate for rigid plastic containers in the aggregate shall be determined as a percentage by dividing the aggregate numerator by the aggregate denominator. The numbers in both the numerator and denominator of this calculation shall be collected and/or adjusted to represent the same calendar year.

(c) The elements of the formula to calculate the calendar year aggregate recycling rate for post-consumer rigid plastic containers in Oregon are:

(A) The aggregate numerator, expressed in tons.

(i) The numerator shall be calculated as the total weight of post-consumer rigid plastic containers recycled in Oregon.

(ii) In addition to the Department's census of material recovery rates, the Department may use as the basis for determining the total weight of post-consumer rigid plastic containers recycled in Oregon an annual recycling census of all parties directly involved in brokering, processing, or recycling post-consumer rigid plastic containers from Oregon. Monthly forms may be provided by the Department for record keeping purposes only. Census respondents will be asked to calculate and submit:

(I) The total amount of post-consumer rigid plastic received from Oregon sources which is rigid plastic containers as defined in OAR 340-90-330;

(II) The percentage of (I) that is lost due to removal of contaminated, non-plastic, and non-recyclable material; and

(III) Any other information the Department may require to accurately determine the recycling tonnages.

(iii) Procedures to conduct the census shall be designed and implemented relating to:

(I) Developing and maintaining a comprehensive list of handlers and reclaimers;

(II) Obtaining data from handlers and reclaimers, including the use of monthly and annual record keeping and reporting forms;

(III) Reconciling variances in reported data;

(IV) Maintaining quality control in data collection and analysis; and

(V) Adjusting data to produce estimates of the amount of plastic from post-consumer rigid plastic containers by controlling for contamination, including moisture, organic matter and other non-plastic materials.

(iv) The Department shall publish a report on the findings of the census, methodologies used and information regarding potential errors.

(B) The aggregate denominator, expressed in tons.

(i) The denominator shall be calculated as the sum of the total weight of post-consumer rigid plastic containers recycled in Oregon (the numerator) plus the total weight of post-consumer rigid plastic containers disposed of in Oregon. The total weight of post-consumer rigid plastic containers disposed of in Oregon shall be calculated by multiplying the estimated percent of municipal solid waste which is post-consumer rigid plastic containers times total tons of municipal solid waste disposed ***of*** in Oregon.

(ii) The total tons of municipal solid waste disposed ***of*** in Oregon is derived from information collected under the provisions of ORS 459A.010 (4)(d) ***and 459A.050 (3) and (4)***.

(iii) A composition study of solid waste disposed of in Oregon shall be used as the basis for estimating the percent of disposed solid waste which is post-consumer rigid plastic containers. Adjustments to a previous composition study may be used as a substitute for a new composition study.

Note: Stated as a formula, this is:

$$\frac{\text{Aggregate Numerator}}{\text{Aggregate Denominator}} \times 100 = \text{Calendar Year Aggregate Recycling Rate}$$

(d) The calendar year aggregate rigid plastic container recycling rate will be determined by the Department annually on a calendar year basis beginning with 1995 and published in a report which includes a discussion of potential errors associated with calculation of the total tons of municipal solid waste disposed of in Oregon, information on the recycling and disposal data collection and analysis methodologies and margin of error for the percent composition of rigid plastic containers.

(4) Specified-type recycling rate. The recycling rate for a specified type of rigid plastic container as calculated by the Department shall be determined as a percentage by dividing the specified type numerator by the specified type denominator. The numbers in both the numerator and denominator of this calculation shall be collected and/or adjusted to represent the same calendar year.

(a) The elements of the formula to calculate the specified type recycling rate for rigid plastic containers in Oregon are:

(A) The specified type of post-consumer rigid plastic container numerator shall be calculated as the total of the specific type of post-consumer rigid plastic containers recycled in Oregon, expressed in tons.

(B) The specified type of post-consumer rigid plastic container denominator, expressed in tons.

(i) The denominator shall be calculated by one of the following methods:

(I) As the sum of the weight of the specified type of post-consumer rigid plastic containers recycled in Oregon plus the total weight of the specified type of rigid plastic containers disposed of in Oregon; or

(II) The total weight of the specified type of post-consumer rigid plastic containers sold in Oregon.

(ii) If the weight of the specified type of post-consumer rigid plastic containers disposed of is used to calculate the denominator, a composition study of solid waste disposed of in Oregon shall be used as the basis for determining the weight disposed of.

Note: Stated as a formula, this is:

$$\frac{\text{Specified Type Numerator}}{\text{Specified Type Denominator}} \times 100 = \text{Specified Type Recycling Rate}$$

(b) Any person calculating the recycling rate of a specified type of post-consumer rigid plastic container may rely upon disposal or recycling data generated by the Department. Persons using other data to calculate a recycling rate must be able to document that such data were generated by a methodology acceptable to the Department and are verifiable.

(c) Adjustment to data collected by the recycling ~~survey~~ ***census*** and composition study identified in paragraphs (3)(c)(A)(ii) and (3)(c)(B)(ii) ***and (iii)*** of this rule respectively shall be made only by use of a methodology acceptable to the Department.

(d) Data collected on a national basis may be used to determine the post-consumer rigid plastic container recycling rate in Oregon if it can be shown how these data are either typical of or can be adjusted to accurately represent conditions in Oregon.

(5) Product-associated recycling rate. The recycling rate for a product-associated rigid plastic container as calculated by the Department shall be determined as a percentage by dividing the product-associated numerator by the product-associated denominator. The numbers in both the numerator and denominator of this calculation shall be collected and/or adjusted to represent the same calendar year.

(a) The elements of the formula to calculate the product-associated recycling rate for rigid plastic containers in Oregon are:

(A) The numerator shall be calculated as the total weight of product-associated post-consumer rigid plastic containers recycled in Oregon, expressed in tons.

(B) The product-associated post-consumer rigid plastic container denominator, expressed in tons. The denominator shall be the total weight of the product-associated rigid plastic containers sold in Oregon.

Note: Stated as a formula, this is:

$$\frac{\text{Product-associated Numerator}}{\text{Product-associated Denominator}} \times 100 = \text{Product-associated Recycling Rate}$$

(6) ~~In cases where the Department calculates the aggregate recycling rate for compliance purposes for post-consumer rigid plastic containers, a~~ *A* product manufacturer or container manufacturer shall rely on the Department's ~~rate~~ calculation *of the aggregate recycling rate for compliance purposes for post-consumer rigid plastic containers to* ~~when claiming that a container or containers~~ comply with OAR 340-90-350(1)(b)(A). In cases where the Department calculates the recycling rate for specified types of or product-associated post-consumer rigid plastic containers, a product manufacturer or container manufacturer may rely on the Department's rate calculation when claiming that a container or containers comply with OAR 340-90-350(1)(b)(B) or (1)(b)(C).

(7) In cases where a manufacturer calculates the recycling rate for specified types of or product-associated post-consumer rigid plastic containers, a product manufacturer may rely upon disposal or recycling data generated by the Department, where available. Manufacturers using other data to calculate a recycling rate must be able to document that such data were generated by a methodology acceptable to the Department and are verifiable.

(8) Calculation of a recycling rate shall include only those outputs from processing rigid plastic containers which are recycled into new products. When a processing technology results in a combination of outputs, some of which are recycled into new products and others of which are fuel products, or energy recovery, the recycling rate shall not include any portion of the output which is a fuel product, is used to produce fuel products, or is otherwise used for energy recovery.

OAR 340-90-400 RESPONSIBILITIES OF A PRODUCT MANUFACTURER

(1) *(a)* A product manufacturer shall be able to document that a rigid plastic container or containers are in compliance with either the requirements of OAR 340-90-350 or with one of the exemptions set out in OAR 340-90-340.

(b) For any calendar year for which the Department determines that the aggregate recycling rate for compliance purposes is at least 25 percent, a product manufactureris not required to keep the records otherwise required by this rule.

(2) A product manufacturer's documentation that a rigid plastic container or containers are in compliance with the provisions of OAR 340-90-350 shall include, at a minimum, the following information:

(a) Recycled content. For each container which is in compliance with OAR 340-90-350(1)(a):

(A) A description of the container, including its resin type, and product; and

(B) A copy of the container manufacturer's Certificate of Compliance from each manufacturer who supplied that container.

(b) Aggregate recycling rate. ***The aggregate recycling rate for compliance purposes established by the Department shall serve as the only acceptable documentation that a product manufacturer's containers comply with OAR 340-90-350(1)(b)(A).*** ~~For containers which are in compliance with the aggregate recycling rate requirement, OAR 340-90-350(1)(b)(A), a product manufacturer shall rely upon the rigid plastic container aggregate recycling rate for compliance purposes established by the Department as the sole documentation necessary to show that a rigid plastic container complies with this requirement.~~

(c) Other recycling rates. For containers which are in compliance with the specified type container recycling rate requirement, OAR 340-90-350(1)(b)(B) or the product-associated container recycling rate requirement, OAR 340-90-350(1)(b)(C):

(A) A description of the container and product;

(B) Identification of the specified-type or product-associated criteria;

(C) Documentation of the recycling rate for the type of container pursuant to OAR 340-90-380(4) or (5);

(D) Where the Department or the container manufacturer has calculated a recycling rate for a specified type or product-associated rigid plastic container, the product manufacturer may rely upon that rate to show that the container complies with the recycling rate requirements.

(d) Reuse and refill. For containers which are in compliance with the reuse requirements, OAR 340-90-350(1)(c):

(A) A description of the container and product; and

(B) Documentation of the number of times the containers are refilled or reused.

(i) The number of times a refillable container is reused is determined by review of the product manufacturer's records which show the following information for a uniform period of time:

(I) The number of returned containers actually refilled;

(II) The number of new containers added to the total number of containers used in the product manufacturer's refillable container program; and

(III) The total number of containers filled as first-use containers.

(ii) The number of times a reusable container is reused is determined by review of the product manufacturer's records which show the following information for a uniform period of time:

(I) The amount of product sold in the original container or the number of original containers sold; and

(II) The amount of replacement product sold or the number of refill units of replacement product sold.

(iii) A container shall be considered to be used at least five times if it is part of a refillable system or reusable container system which has an average refill or reuse rate for that container of at least four.

(3) A product manufacturer's records which document that a rigid plastic container or containers are exempt from the requirements of OAR 340-90-350 through -370 shall include the following information:

(a) Drugs, medical devices, medical food, and infant formula. For containers which are exempt under the provisions of OAR 340-90-340 (2):

(A) A description which clearly identifies the container;

(B) An identification of which of the four product types will be placed in the container;

(C) For drugs:

(i) An FDA letter of approval;

(ii) Documentation of consistency between the over-the-counter drug claims and FDA requirements, e.g. appropriate references to the FDA Final Monograph or Tentative Final Monograph under which the drug is marke*t*ed; or

(iii) Other definitive evidence that the product meets the FDA definition of a drug.

[...]

(e) Food containers. For containers which are exempt under the provisions of OAR 340-90-340(7):

(A) Documentation that the container contains an article used, or intended to be used, for food, ice, confection or condiment, whether simple or compound, or any part or ingredient thereof or in the preparation thereof, and is for human consumption; and

(B) If the container is a rigid plastic bottle, documentation that the container does not contain a drinkable liquid.

[...]

OAR 340-90-410 RESPONSIBILITIES OF A CONTAINER MANUFACTURER

(1) *(a)* A container manufacturer shall be able to document that a rigid plastic container or containers are in compliance with the requirements of OAR 340-90-350(1)(a), (1)(b)(A), or (1)(b)(B). ~~These records shall include, at a minimum, the following information:~~

(b) For any calendar year for which the Department determines that the aggregate recycling rate for compliance purposes is at least 25 percent, a container manufacturer is not required to keep the

records otherwise required by this rule.

(2) A containermanufacturer'sdocumentationthata rigid plastic containeror contalnersare in compliance with the provisions of OAR 340-90-350(1)(a), (1)(b)(A) or (1)(b)(B) shall include, at a minimum, the following information:

(a) Recycled content. For each container which is in compliance with OAR 340-90-350(1)(a):

(A) A description of the container including its resin type;

(B) Documentation of the recycled content of the type of container including:

(i) The total weight of plastic used to manufacture that type of rigid plastic container during the time period when the container was made; and

(ii) The weight of recycled material used to manufacture that type of rigid plastic container during the same time period, within a one-year period, as determined by the container manufacturer.

(b) Aggregate recycling rate. ***The aggregate recycling rate for compliance purposes established by the Department shall serve as the only acceptable documentation that a containermanufacturer's containers comply with OAR 340-90-350(1)(b)(A).*** ~~For containers which are in compliance with the aggregate recycling rate requirement, OAR 340-90-350(1)(b)(A), a container manufacturer shall rely upon the rigid plastic container aggregate recycling rate for compliance purposes established by the Department as the sole documentation necessary to show that a rigid plastic container complies with this requirement, OAR 340-90-350(1)(b)(A).~~

(c) Specified-type recycling rate. For containers which are in compliance with the specified-type recycling rate requirement, OAR 340-90-350(1)(b)(B):

(A) A description of the container;

(B) Identification of the specified type;

(C) Documentation of the recycling rate for the type of container pursuant to OAR 340-90-380(4); and

(D) Where the Department has calculated a recycling rate for a specified type of container, the container manufacturer may rely upon the Department's rate to show that the container complies with the rate requirements.

(3)~~(2)~~ Container manufacturer's Certificate of Compliance.

(a) A container manufacturer shall make a Certificate of Compliance available to:

(A) Any product manufacturer who uses containers from that container manufacturer and makes products in those containers available for sale in Oregon; and

(B) The Department, upon request, only if not otherwise available from the product manufacturer.

(b) A container manufacturer's Certificate of Compliance shall contain the following information:

(A) The container manufacturer's

(i) Name,

(ii) Address, and

(iii) Name, title, address and phone number of an official representative;

(B) Description of the container or containers for which compliance or exemption is claimed; and

(C) A description of the container manufacturer's records documenting compliance.

(c) If after review of the container manufacturer's Certificate of Compliance the Department determines that the information provided in the Certificate is not adequate to document that a container or containers are in compliance with OAR 340-90-350 through 370, the Department may:

(A) Request that the product manufacturer provide all or part of the documentation described in a Certificate of Compliance, other records, or additional information kept by the container manufacturer which is the basis for those records and any other information deemed necessary to determine compliance with the law. Within 15 days of this request, the product manufacturer shall notify the Department whether it will provide the requested information or if the Department shall request it directly from the container manufacturer. If the product manufacturer notifies the Department it will satisfy the request, the records or other material requested shall be provided to the Department within 45 days of the date of the product manufacturer's notification.

The Department, at its discretion, may audit the container manufacturer directly for purposes of determining compliance with these rules.

(B) If the product manufacturer cannot provide adequate documentation or other information requested by the Department within the time frame in (A) above, then the Department may request such information directly from the container manufacturer.

(d) A container manufacturer shall provide information requested by the Department in accordance with the following procedure and time schedule:

(A) The container manufacturer shall provide a Certificate of Compliance to the Department within 60 days of the date of receipt of a Department request for the Certificate.

(B) If the Department finds the Certificate to be incomplete, the Department may request the missing materials from the official company representative. The container manufacturer shall provide missing materials from a Certificate of Compliance to the Department within 30 days of the date of receipt of a Department request for the Certificate.

(C) After it has reviewed the Certificate of Compliance, the Department may request that the container manufacturer provide all or part of the documentation described in a Certificate of Compliance, other records, or additional information kept by the container

manufacturer which is the basis for those records and any other information deemed necessary to determine compliance with the law. The container manufacturer shall provide the records or other material requested to the Department within 45 days of the date of receipt of a request for the records.

(4)~~(3)~~ (a) A container manufacturer may request an extension of the time period to submit materials requested by the Department. Such a request for extension must be in writing and be received by the Department prior to the due date of the Department's original request. The request for extension shall:

(A) Provide the container manufacturer's name and address;

(B) Provide the name, title, address, and phone number of an official company representative;

(C) State a specific length for the requested extension, not to exceed 60 days; and

(D) Show good reason for the extension.

(b) Based upon the information provided in the request for extension, the Department may grant the extension, deny the extension, or grant an extension for a lesser period of time.

(5)~~(4)~~ Records which document compliance with the requirements of OAR 340-90-350 or exemption under the provisions of OAR 340-90-340 shall be maintained and available for audit by the Department for a period of at least three years after the year for which compliance is documented.

(6)~~(5)~~ Failure of a container manufacturer to provide the following shall be considered a violation of these rules:

(a) A Certificate of Compliance to a product manufacturer; or

(b) A Certificate of Compliance or additional materials to the Department as requested and within the schedule set out in this rule.

OAR 340-90-430 VIOLATIONS

(1) Violations of these rules shall be punishable as provided in ORS Chapter 459.955(1)(a) and pursuant to OAR 340-12-042 and -065.

(2) The Department shall not enforce the provisions of ORS 459A.650 to 459A.660 during the first full calendar year after the Department determines for the first time that the aggregate recycling rate for compliance purposes is less than 25 percent.

(3) The Department shall not enforce the provisions of ORS 459A.650 to 459A.660 until January 1, 1998. After that time the Department shall take enforcement action for violations of ORS 459A.650 to 459A.660 occurring on or after January 1, 1998.

Civil Penalty Schedule Matrices

340-12-042 In addition to any liability, duty, or other penalty provided by law, the Director may assess a civil penalty for any violation pertaining to the Commission's or Department's statutes, rules, permits or orders by service of a written notice of assessment of civil penalty upon the Respondent. Except for civil penalties assessed under OAR 340-12-048 and 340-12-049, the amount of any civil penalty shall be determined through the use of the following matrices in conjunction with the formula contained in OAR 340-12-045:

(1) $10,000 Matrix

<——— Magnitude of Violation

Class of Violation	**Major**	**Moderate**	**Minor**
Class I	$6000	$3000	$1000
Class II	$2000	$1000	$500
Class III	$500	$250	$100

(a) No civil penalty issued by the Director pursuant to this matrix shall be less than fifty dollars ($50) or more than ten thousand dollars ($10,000) for each day of each violation. This matrix shall apply to the following

(b) Any violation related to air quality statutes, rules, permits or orders, except for the selected open burning violations listed in section (3) below;

(c) Any violation related to ORS 164.785 and water quality statutes, rules, permits or orders, violations of ORS Chapter 454 and on-site sewage disposal rules by a person performing sewage disposal services;

(d) Any violation related to underground storage tanks statutes, rules, permits or orders, except for failure to pay a fee due and owing under ORS 466.785 and 466.795;

(e) Any violation related to hazardous waste management statutes, rules, permits or orders, except for violations of ORS 466.890 related to damage to wildlife;

(f) Any violation related to oil and hazardous material spill and release statutes, rules, or orders, except for negligent or intentional oil spills;

(g) Any violation related to polychlorinated biphenyls management and disposal statutes;

(h) Any violation of ORS Chapter 465 or environmental cleanup rules or orders;

(i) Any violation of ORS Chapter 467 or any violation related to noise control rules or orders;

(j) Any violation of ORS Chapter 459 or any violation related to solid waste statutes, rules, permits, or orders~~, except any violation by a city, county or metropolitan service district of failing to provide the opportunity to recycle as required by law; and~~;

(k) Any violation of ORS Chapter 459A, except as provided in section (4) of this rule and except any violation by a city, county or metropolitan service district of failing to provide the opportunity to recycle as required by law; and

(2) In addition to any other penalty provided by law, any person causing an oil spill through an intentional or negligent act shall incur a civil penalty of not less than one hundred dollars ($100) or more than twenty thousand dollars ($20,000). The amount of the penalty shall be determined by doubling the values contained in the matrix in section (1) of this rule in conjunction with the formula contained in *OAR* 340-12-045.

(3) $2,500 Matrix

<——— Magnitude of Violation

Class of Violation	Major	Moderate	Minor
Class I	$2500	$1000	$500
Class II	$750	$500	$200
Class III	$250	$100	$50

(a) No civil penalty issued by the Director pursuant to this matrix shall be less than $50. The total civil penalty may exceed $2,500 for each day of each violation, but shall not exceed $10,000 for each day of each violation.

(b) This matrix shall be applied to any violation related to on-site sewage statutes, rules, permits, or orders, other than violations by a person performing sewage disposal services; and for violations of the Department's Division 23 open burning rules, excluding all industrial open burning violations, and violations of OAR 340-23-042(2) where the volume of the prohibited materials burned is greater than or equal to twenty-five cubic yards. In cases of the open burning of tires, this matrix shall apply only if the number of tires burned is less than fifteen. The matrix set forth in section (1) of this rule shall be applied to the open burning violations excluded from this section.

(4) $1,000 Matrix

<——— Magnitude of Violation

Class of Violation	*Major*	*Moderate*	*Minor*
Class I	*$1,000*	*$750*	*$500*
Class II	*$750*	*$500*	*$250*
Class III	*$250*	*$150*	*$50*

(a) No civil penalty issued by the Director pursuantto this matrix shall be less than $50 or more than $1,000 for each day of each violation.

(b) This matrix shall apply to any violation of laws, rules or orders relating to rigid plastic containers; except for violation of the labeling requirements under OAR 459A.675 through 459A.685 which shall be subject to the matrix set forth in section (1) of this rule.

(5)~~(4)~~ $500 Matrix

<——— Magnitude of Violation

Class of Violation	**Major**	**Moderate**	**Minor**
Class I	$400	$300	$200
Class II	$300	$200	$100
Class III	$200	$100	$50

(a) No civil penalty issued by the Director pursuant to this matrix shall be less than fifty dollars ($50) or more than five hundred dollars ($500) for each day of each violation. This matrix shall apply to the following types of violations:

(b) Any violation of laws, rules, orders or permits relating to woodstoves, except violations relating to the sale of new woodstoves;

(c) Any violation by a city, county or metropolitan service district of failing to provide the opportunity to recycle as required by law; and

(d) Any violation of ORS 468B.480 and 468B.485 and rules adopted thereunder relating to the financial assurance requirements for ships transporting hazardous materials and oil.

III. Proposed Amendments: Out of State Certification (SB 1089)

WASTE REDUCTION PROGRAM AND RECYCLING CERTIFICATION
Chapter 340 Division 91
4/15/96

340-91-020 APPLICABILITY FOR WASTE REDUCTION PROGRAMS AND RECYCLING CERTIFICATION

(1) Waste Reduction Programs: A waste reduction program approved by the Department under OAR 340-91-080 shall be required before:

(a) Issuance of a ***disposal site*** permit ~~for a landfill~~ under ORS 459.047 through 459.055 and ***ORS 459.205 through 459.273*** for ***a disposal site*** ~~landfills~~ expected to accept more than 75,000 tons of waste per year from any person;

(b) Issuance of Pollution Control Bond Fund monies to ***a*** local government pursuant to ORS 468.220; or

(c) ***A disposal site accepts*** ~~Aeceptanee of~~ more than 75,000 tons per year of wastes from any person ~~by a landfill established after October 3, 1979~~.

(2) Recycling Certification: For a person not required to implement a waste reduction program under ORS 459.055, or not otherwise exempt under OAR 340-91-030(6), certification under OAR 340-90-030 shall be required before waste from the person may be accepted for disposal by a disposal site.

(3) Certification of a local government unit constitutes certification for all persons within that local government unit.

(4) For persons other than local governments in a jurisdiction that ~~have~~ ***has*** not been certified, a recycling certification is required for ***residential, institutional***~~domestic~~ and commercial waste.

340-91-030 STANDARDS FOR RECYCLING CERTIFICATION

(1) ***Opportunity to recycle.*** For purposes of ~~section~~ ***OAR*** 340-91-010 to 090, the opportunity to recycle ***means that:***

(a) ***F***~~F~~or any person other than a local government unit, ~~means that~~the opportunity to recycle is available locally or that the person has a program in place which provides the opportunity to reduce the waste disposed ***of*** by the person through reduction, reuse and recycling.

(b) ***F***~~The opportunity to recycle for~~ local government units, ~~means~~ the requirements of OAR 340-90-020, 030, 040 and 050 have been met, or the disposal site permittee on behalf of the local government unit has requested and received approval for an alternative method under OAR ~~340-90-035.~~***340-90-080.***

(c) For waste originating outside Oregon, there is a program for recycling in place which either:

(A) Has achieved a recovery rate equivalent to that achieved in a comparable county in Oregon; or

(B) Is equivalent to the opportunity to recycle as required in subsection (1)(a) or (b) of this rule, except that a local government unit shall not be required to meet the recovery rate in OAR 340-90-050.

(2) Except as otherwise provided in section (6) of this rule, *a* disposal site may not accept any solid waste generated from persons either within or outside the State of Oregon unless the Department has certified that:

*(a) T*he recycling programs offered to or by the person provide an opportunity to recycle; *or*

(b) If the person is ~~and that for~~ a local government unit, *the recycling program* meets the requirements of ORS 459A.005 to 459A.085 and 459.250.

(3) A person shall be considered certified if the person has not been decertified under OAR 340-91-040 and if:

(a) The permittee of the disposal site has submitted or caused to be submitted an initial recycling report containing the information required in OAR 340-91-050, and the Department has approved or conditionally approved the report; or

(b) The Department has approved or conditionally approved an initial recycling report submitted under OAR 340-90-100.

(4) The date of certification shall be considered to be the date that the initial recycling report was first approved, or conditionally approved, by the Department.

(5) For each initial recycling report submitted to fulfill the requirements of section (3) of this rule, the Department shall respond by 60 days after receipt of a completed initial recycling report by either certifying that the opportunity to recycle is provided or by indicating what deficiencies exist in providing the opportunity to recycle. If the Department does not respond within this time limit, the local government unit shall not be considered to be certified under OAR 340-91-030.

(6) A disposal site may accept wastes for disposal that are generated from a person outside the State of Oregon without certification required under section (2) of this rule, if:

(a) *T*he person is implementing a waste reduction program under ORS 459.055 and OAR 340-91-070 that is approved by the Department; or

(b) For out-of-state waste first received from a solid waste generator after September 9, 1995, the disposal site operator receiving the waste has notified the Department in writing before receiving the first shipment of waste pursuant to OAR 340-91-035 and, within two years of first receiving the waste, submits information to the Department making the demonstration(s) required by OAR 340-91-035 (4); or

(c) T~~(b)~~ the disposal site accepts no more than 1,000 tons per year of wastes generated within any single local government unit. This 1,000 ton per year exemption shall apply separately to each incorporated city or town or similar local government unit, and to the unincorporated area of each county or similar local government unit, but not to other smaller geographic units referred to in section (7) of this rule; or

~~(c)~~*(d)* The disposal site accepts a separate industrial waste from a person other than a local

government. *For purposes of OAR 340 Division 91, petroleum-contaminatedsoils are considered "industrialwaste."*

(7) For the purposes of OAR 340-91-100 to 110, the term "local government unit" shall include smaller geographic units such as individual franchise or contract areas if a disposal site requests that the Department certify the recycling programs in the smaller geographic unit. The Department will certify the recycling programs in the smaller geographic unit if it determines that the opportunity to recycle is provided to all residents and businesses within the unit, as provided in section (1) of this rule, and that the boundaries of the unit were not drawn for the purpose of excluding potential recycling opportunities or otherwise reducing recycling requirements.

Proposed New Rule:

OAR 340-91-035 NOTIFICATION OF INTENT TO RECEIVE OUT-OF-STATE WASTE AND COMPLIANCE "DEMONSTRATION"

(1) A disposal site operator shall notify the Department before accepting a single shipment or the first of multiple shipments of solid waste from a source outside Oregon anticipated to exceed the following amounts of solid waste:

(a) Solid waste (other than separate industrial waste) generated within any single local government unit if the site operator anticipates receiving more than 1,000 tons per year of such wastes.

(b) Separate industrial waste from a person other than a local government if the site operator anticipates receiving more than 75,000 tons per year of such waste.

(2) For separate industrial waste received from a person other than a local government when a site operator does not originally anticipate receiving more than 75,000 tons in a calendar year:

(a) The site operator shall notify the Department when the landfill has received 60,000 tons of any separate industrial waste in a calendar year. The notification shall be received by the Department within one week of when the cumulative total of that waste for the year reached 60,000 tons.

(b) If a site operator later adjusts the estimated tonnage to be over 75,000 tons for any calendar year, the site operator shall notify the Department as soon as the permittee receives information that that threshold is likely to be exceeded. The site operator shall in any case notify the Department before the cumulative amount of the separate industrial waste received by the site first exceeds 75,000 tons in any calendar year.

(3) The notification required by sections (1) and (2) of this rule shall:

(a) Be in writing. Facsimile transmittalis acceptable if it is addressed to a person designated by the Department.

(b) Be received by the Department before the first shipment of solid waste from that source is received at the disposal site, except as provided in section (2) of this rule. Receipt of the notification by the Department on the day the waste is first received is acceptable.

(c) Contain the following information:

(A) Name and address of the disposal site.

(B) Name and telephone number of the contact person at the disposal site

(C) Name and address of, or identifying number and state of origin of, the generator of the solid waste.

(D) If the generator is not a unit of local government, the name of the person responsible for solid waste management in the area from which the solid waste originates.

(E) Type and description of waste.

(F) Anticipated annual tonnage to be received of each type of waste.

(G) Expected date on which the first shipment of waste will be received. For waste subject to subsection (2)(a) of this rule, this date need not be provided. For waste subject to subsection (2)(b) of this rule, the date when waste was first received at the site shall be given.

(H) Any other information required by the Department relative to certification of a recycling program or approval of a waste reduction program.

(4) Within two years of the date when waste subject to the notification requirements in section (1) or (2)(b) of this rule is first received at a site, the site operator shall submit information to the Department to demonstrate that:

(a) For persons from whom more than 1,000 tons but fewer than 75,000 tons of waste are anticipated to be received annually, the person responsible for solid waste management in the area of origin has implemented a program which provides the opportunity to recycle pursuant to OAR 340-91-030 (1) and 340-91-060; or

(b) For persons from whom more than 75,000 tons of solid waste are anticipated to be received annually, a waste reduction program is being implemented pursuant to ORS 459.055 (3) and OAR 340-91-070.

(5) The site operator shall be responsible for tracking the two-year time period within which information must be submitted to the Department to demonstrate compliance with section (4) of this rule. The "date when waste is first received at the site" shall apply to the first calendar year in which the waste received exceeds the 1,000-ton or the 75,000-ton threshold, and shall be the date in that year when the first shipment of the subject waste is received by the disposal site.

(6) Reporting. A site operator shall report to the Department in the site's quarterly operations report, as follows:

(a) For out-of-state waste received from a person for the first time after September 9, 1995 and subject to the demonstration(s) in section (4) of this rule:

(A) The person and/or urbanized area from which the waste originates, and its tonnage for the reporting period. For separate industrial wastes an identification number and state of origin may be used for identification purposes; and

(B) The date when the waste is first received at the site from each affected person. This requirement shall not apply after the Department has approved the applicable recycling or waste reduction program.

(b) If a site receives separate industrial waste or other special waste in amounts which are

anticipated to be less that 75,000 tons a year from a person or persons located outside of Oregon; the total tonnage, by state of origin, of such waste received during the reporting period, beginning with the July-September 1996 quarter.

340-91-050 *INITIAL* REPORTS REQUIRED FOR RECYCLING CERTIFICATION

(1) The disposal site permittee shall report, on forms provided by the Department, the quantity of material received from each certified person, located outside of the immediate service area of the disposal site.

(2) *Initial* Local Government Reports: Before a disposal site can accept waste from a local government unit not previously certified under OAR ~~340-91-040~~ *340-91-030*, an initial recycling report consisting of the following information for the local government unit must be submitted for the Department's approval on forms provided by the Department:

(a) The materials which are recyclable material at each disposal site and within each city of 4,000 or more population or unincorporated urbanized area.

(b) A listing of recycling program elements, as described in OAR 340-90-040, that demonstrates that the local government unit is providing the opportunity to recycle.

(c) Proposed and approved alternative methods for providing the opportunity to recycle which are to be used within the local government unit.

(d) Proposed or existing methods for providing a recycling public education and promotion program, including copies of materials that are to be or are being used as part of the program.

(e) For disposal sites and for cities of more than 4,000 people and for unincorporated urbanized areas located within the local government unit, copies of any ordinance, franchise, permit, or other document that insures that the opportunity to recycle will be provided, *if requested by the Department*.

(f) The geographic boundaries of *the* urbanized area or proposed boundaries of *the* urbanized ~~areas as set forth in OAR 340-91-060 (2)~~.

(g) Other information or attachments necessary to describe the proposed program for providing the opportunity to recycle.

(3) In order to maintain certification for local government units, an annual recycling report that includes the information required in OAR 340-90-100 (2) must be submitted each year. The ~~annual~~ recycling report shall be due on February 28th of each year following certification. If these recycling reports are not submitted, the local government unit shall be subject to decertification as specified in OAR 340-91-040.

(4) The disposal site permittee shall be responsible for submitting, or causing to be submitted, all of the information required by sections (2)~~,~~ and (3) of this rule.

(5) *Initial* Reports for Persons other than Local Government Units

Before a disposal site can accept waste from a person other than a local government unit not previously certified under OAR 340-91-030, an initial recycling report consisting of the following information must be submitted to the Department on forms provided by the Department:

(a) The type of business and the local government unit(s) with jurisdiction over the location of the business;

(b) A description of the mode of transportation to be used to ship waste to the selected disposal site;

(c) A list of waste being disposed *of* by waste stream component, the estimated tonnage by waste stream component for current calendar year, preceding calendar year and the projected tonnages for the next calendar year. Indication of any activity or change to the business or waste generation activity which will increase or decrease waste disposal weights;

(d) The generation point of waste being disposed *of* and indicate*ation* if multiple facilities are consolidating waste prior to shipment for disposal;

(e) A description of the *regional and* local programs available which provide the opportunity to recycle.;

(f) Any existing or planned program opportunities which reduce, reuse, recycle and/or compost material before disposal. Include types and quantities of material that are or will be diverted from landfilling and what percent of the waste generation that represents;.

340-91-060 EQUIVALENTS FOR OUT OF STATE PERSONS - RECYCLING CERTIFICATION

This rule specifies how a site operator shall demonstrate to the Department that the opportunity to recycle is being implemented for waste originating outside Oregon.

(1) For a Local Government Unit*: a site operator shall provide the information required in subsection (a) of this section and in either subsection (b) or (d) of this section. The site operator shall provide this information to the Department no later than two years after notification to the Department of initial receipt of waste from the person.*

~~(1) For certification purposes, the recycling requirements that apply in Oregon to areas within the urban growth boundaries of cities of 4,000 or more population or within the urban growth boundary of a metropolitan service district shall also apply to urbanized areas outside of Oregon that are certified or are to be certified under OAR 340-91-040. These requirements are the same as those described in OAR 340-90-020, 030, 040 and 050.~~

(a) The geographic boundaries of the urbanized area or proposed boundaries of the urbanized area.

(A)~~(2)~~ Unless *the site operator* ~~otherwise~~ proposed*s otherwise* in an initial recycling report and ~~approved by~~ the Department *approves*, the urbanized area of the local government unit shall be considered to include all of the area within the incorporated limits of cities or towns of 4,000 or more population within the local government unit, plus all area that is designated as an urbanized areas by the Federal Highway Administration if that Federal Highway Administration urbanized area contains an incorporated city, town, or other municipality having 4,000 or more population.

(B) The ~~person or persons submitting the initial recycling report~~ *site operator* may propose a different boundary for the urbanized area of the local government unit. The Department shall accept the proposed urbanized area boundary if the Department finds that this boundary includes all parts of the local government

unit that have substantially the same character, with respect to minimum population density and commercial and industrial density, as urbanized areas within the State of Oregon.

(b) ***For purposes of certification under OAR 340-91-030, the recycling requirements that apply in Oregon to areas within the urban growth boundaries of cities of 4,000 or more population or within the urban growth boundary of a metropolitan service district shall also apply to urbanized areas outside of Oregon. These requirements are the same as those described in OAR 340-90-020, 030 and 040, or 050.***

(c)~~(3)~~ For the purposes of certification under OAR 340-90-030 *(1)(c)*, a ~~disposal~~ site ***operator*** may ***on behalf of an out-of-state waste generator*** apply for an alternative method that involves removing recyclable material from mixed solid waste. Any such application may include one or more local government units, and shall include information on the method to be used for separating recyclable material and the percentage of the waste stream and quantity of material that is to be separated and recycled. The Department shall approve the alternative method if it finds that the alternative method will result in as much material, of as high a value in terms of resource and energy conservation, being separated from mixed waste and recycled as would have been recycled and conserved ~~had~~ ***under*** the general method for providing the opportunity to recycle set forth in OAR 340-90-020, 030~~,~~ ***and*** 040 ~~and 050~~.

(d)~~(4)~~ ***To demonstrate compliance with OAR 340-91-030 (2)(a) for a*** ~~A~~ disposal site accepting waste from local government units outside of the state of Oregon, ***the site operator*** shall provide a statement of an equivalent recovery rate, as described in OAR 340-90-050, and justification for the selection of the appropriate recovery rate for that jurisdiction. The demonstration shall include at a minimum information on population density, distance to recycling markets for each recyclable material, and other waste composition information and demographic information necessary to justify the selected recovery rate.

(2)~~(5)~~ Persons other than Local Government Unit: A disposal site accepting waste from persons, other than local government units, from outside the state of Oregon shall provide information on the composition and quantity of waste to be disposed ***of*** and a description of the opportunities available in the region and locally for recycling. The information shall include an initial recycling report as outlined in OAR 340-91-050 (5).

OAR 340-91-070 STANDARDS FOR WASTE REDUCTION PROGRAMS

(1) ~~At minimum, t~~***T***he ~~following~~ information ***in section (2) of this rule*** must be submitted before the Department will approve a waste reduction program from any person~~.~~***, whether the waste is generated within or outside Oregon. In addition, the information required by sections (3), (4), (5) or (6), as applicable, must be submitted.***

(2) Information required from all persons:

~~(a) an initial recycling report containing the information and meeting the criteria set forth in OAR 340-91-050(1) for recycling certification;~~

(a) The geographic boundaries of the urbanized area or proposed boundaries of the urbanized areas. For waste originating outside the State of Oregon, the geographic boundaries shall be defined as specified in OAR 340-91-060 (1)(a);

(b) Information on the volume and composition of waste generated in the area, and the volume and composition of waste proposed to be disposed of at an Oregon disposal site;

(c)~~(b)~~ ~~a~~*A* list and description of the programs, techniques, requirements, and activities that comprise the waste reduction program;

~~(c) a list and description of the resources committed to the waste reduction program, including funding level, source of funds, staff, and other governmental resources plus, if necessary to demonstrate that the program will be implemented, the private resources to be used to implement the program.~~

(d) ~~a~~*A* timetable indicating the starting date and duration for each activity or portion of the waste reduction program;

(e) Information that demonstrates the commitment by the person to use techniques such as source reduction, reuse, recycling and resource recovery to reduce the volume of waste that would otherwise be disposed of in a landfill;

~~(e) information on the volume and composition of waste generated in the area, and the volume and composition of waste proposed to be landfilled in Oregon landfills;~~

~~(f) a copy of any contract or agreement to dispose of waste in an Oregon landfill;~~

(f)~~(g)~~ ~~a~~*A* list and description of information ~~to be reported to the Department, in addition to the information required under OAR 340-91-050,~~ that is sufficient to demonstrate continued implementation of the waste reduction program; *and*

~~(h) the information required in OAR 340-91-050; and~~

(g)~~(i)~~ ~~a~~*A*ny other documents or information that may be necessary to fully describe the waste reduction program and to demonstrate the legal, technical, and economic feasibility of the program.

(3)~~(2)~~ Local Government Unit Standards: To be approved by the Department, a waste reduction program for local government units shall also*:* ~~fulfill the following requirements:~~

(a) *B*~~b~~e designed to meet all waste reduction standards and goals adopted by the Commission;

(b) *I*include an opportunity to recycle that meets or exceeds the requirements of OAR 340-90-020, 030, 040, 050 and 459.250, *as demonstrated by submitting to the Department an initial recycling report containing the information and meeting the criteria set forth in OAR 340-91-050(1) and (2) for recycling certification*;

(c) *A*~~a~~ddress waste reduction for each separate waste stream generated within the local government unit that is to be sent to affected Oregon disposal sites, including but not limited to:

(A) household waste,

(B) commercial waste,

(C) industrial waste,

(D) yard debris,

(E) demolition material, and

(F) hazardous material;

(d) *M*~~m~~eet all criteria set forth in ORS 459.055; ~~and~~

(e) *C*~~c~~ontinue for as long as a waste reduction program is required under OAR 340-91-020~~.~~; *and*

(f) *I*~~i~~nclude a copy of each ordinance or similar enforceable legal document that sets forth the elements of the waste reduction program, and that demonstrates the commitment by the local government unit to reduce the volume of waste that would otherwise be disposed of in a landfill through techniques such as source reduction, recycling, reuse and resource recovery~~;~~.

(4)~~(3)~~ For local government units that produce less than 75,000 tons of waste per year that are requesting financial assistance for development or planning for solid waste facilities under ORS 468.220, the local government unit shall consider proven methods of waste reduction for inclusion in a waste reduction program. In reviewing the waste reduction program, the Department shall take into account:

(a) *T*~~t~~he type and volume of wastes produced;

(b) *T*~~t~~he density and other appropriate characteristics of the population and commercial activity within the local government unit; and

(c) *T*~~t~~he distance of the local government unit from recycling markets.

(5)~~(4)~~ Persons other than Local Government Units: To be approved by the Department, a waste reduction program for any persons other than *a* local government unit shall *also:* ~~provide information on composition and quality of waste to be disposed and a description of recycling opportunities available both in the region and locally; and fulfill the following requirements:~~

(a) *Fulfill the r*~~R~~equirements of OAR 340-91-050(5) ~~and~~;

(b) *D*~~d~~escribe *the* existing office recycling program; if none exist*s, describe* ~~a description of~~ the proposed program and startup date;

(c) *D*~~d~~escribe existing industrial process solid waste reduction program; if none exist*s, describe* ~~a description of~~ the proposed program and startup date;

(d) *D*~~d~~escribe use of post-consumer materials in manufacturing processes including the tons per year of recovered material consumed;

(e) *D*~~d~~escribe any composting efforts taking place for waste reduction;

(f) *D*~~d~~escribe procurement policy with regard to the purchase of products made with recycled content; if none exist*s, describe* ~~a description of~~ the proposed program and startup date; *and*

(g) *D*~~d~~escribe techniques used to promote waste reduction and recycling to employees; if none exist, *describe* ~~a description of~~ the proposed program and startup date~~;~~.

(6) Waste Originating Outside Oregon: To be approved by the Department, a waste reduction program for waste originating outside Oregon shall also provide information which demonstrates either:

(a) A recovery rate for the urbanized area in which the waste originated equivalent to that achieved in a comparable local government unit in Oregon as described in OAR -340-91-060 (1)(d), and justification for the selection by the site operator of the appropriate recovery rate for that jurisdiction. The demonstration shall include at a minimum information on population density, distance to recycling markets for each recyclable material, and other waste composition information and demographic information necessary to justify the selected recovery rate; or

(b) A recycling program equivalent to the opportunity to recycle and its component program elements as required in section (3) or (5) of this rule, as applicable.

340-91-080 SUBMITTALS, APPROVAL, AND AMENDMENTS FOR WASTE REDUCTION PROGRAMS

(1) For persons within the State of Oregon, information required for approval of waste reduction programs *pursuant to OAR 340-91-070* shall be submitted by the person *before waste from that person may be accepted by the disposal site*.

(2) For persons outside the State of Oregon, information required for approval of waste reduction programs *pursuant to OAR 340-91-070* shall be submitted~~, or caused to be submitted,~~ by the disposal site *operator* ~~permittee proposed to~~ accept*ing* waste from the person. *The site operator shall submit this information to the Department no later than two years after the date when waste is first received from the person at the site, pursuant to OAR 340-91-035(4).*

(3) Where the waste proposed to be disposed *of* comes from more than one jurisdiction, information submitted for approval shall cover all affected jurisdictions.

(4) The Department shall review the material submitted in accordance with this rule, and shall approve the waste reduction program within 60 days of completed submittal if sufficient evidence is provided that the criteria set forth in ORS 459.055, as further defined in OAR 340-91-070, are met.

(5) If the Department does not approve the waste reduction programs, the Department shall notify the disposal site *operator* ~~that is to receive the waste~~ and, *for persons within the State of Oregon,* the persons who participated in preparing the submittal material, based on written findings. The procedure for review of this decision or correction of deficiencies shall be the same as the procedure for decertification and recertification set forth in OAR ~~340-91-100.~~ *340-91-040.*

(6) In order to demonstrate continued implementation of the waste reduction program, by February *28* of each year, information required in OAR 340-90-100 and any solid waste management plan specifications as well as information ~~described in the submittal pursuant to in subparagraph (4)(h) of this rule~~ *in OAR 340-91-070 (2)* must be submitted for the preceding calendar year.

(7) If a person amends a waste reduction program, any changes in the information previously reported under this rule shall be reported to the Department. The Department shall approve the amended program provided that the criteria set forth in ORS 459.055 as further defined in OAR 340-91-070 are met.

Proposed Rule Repeal:

~~**340-91-090 EQUIVALENTS FOR OUT OF STATE JURISDICTIONS WASTE REDUCTION PROGRAMS**~~

~~(1) Unless otherwise proposed in a recycling report and approved by the Department, the urbanized~~

~~area of the local government unit shall be considered to include all of the area within the incorporated limits of cities or towns of 4,000 or more population within the local government unit, plus all area that is designated as an urbanized area by the Federal Highway Administration if that Federal Highway Administration urbanized area contains an incorporated city, town, or other municipality having 4,000 or more population. The person or persons submitting the initial recycling report may propose a different boundary for the urbanized area of the local government unit. The Department shall accept the proposed urbanized area boundary if the Department finds that this boundary includes all parts of the local government unit that have substantially the same character, with respect to minimum population density and commercial and industrial density, as urbanized areas within the State of Oregon.~~

~~(2) A disposal site accepting waste from local government units outside of the state of Oregon shall provide a statement of an equivalent recovery rate, as described in OAR 340-90-050, and justification for the selection of the appropriate recovery rate for that jurisdiction. The demonstration shall include at a minimum information on population density, distance to recycling markets for each recyclable material, and other waste composition information and demographic information necessary to justify the selected recovery rate.~~

~~(3) A disposal site accepting waste from persons, other than local government units, from outside the state of Oregon shall provide information on the composition and quantity of waste to be disposed and a description of the opportunities available in the region and locally for recycling. The description shall also include a statement of any efforts made by the person desiring to dispose of the waste in planning and implementing waste reduction measures.~~

IV. Proposed Rule Amendments: Miscellaneous & Technical Corrections

4/15/96

Proposed additions shown in ***redline***;
Proposed deletions shown in ~~strikeout.~~
[...] indicates that portions of the rule not proposed to be amended have been omitted from this text.

1. Additional time to implement recycling program elements (SB 1089):

RECYCLING AND WASTE REDUCTION
Chapter 340 Division 90

OAR 340-90-040 LOCAL GOVERNMENT RECYCLING PROGRAM ELEMENTS

[...]

(3) Program elements.

[...]

(g) Establish depots for recycling collection of all principal recyclable materials listed in OAR 340-90-070, and where feasible, additional materials. This program shall provide at least one (1) recycling depot in addition to the depot(s), if any, required by OAR ***340***-90-030(1) and shall result in at least one (1) conveniently located depot for every 25,000 population. The expanded program shall include promotion and education that maximizes the use of the expanded depot program. The depots shall operate as follows:

(A) Have regular and convenient hours for residential generators of solid waste; and

(B) Open on the weekend days; and

(C) ***Be*** ~~E~~*e*stablished in location(s) such that it is convenient for residential generators of solid waste to use the depot(s).

(h) Establish collection rates for residential solid waste from single family residences and single residential units in complexes of less than five units, that encourage~~s source reduction of waste~~ ***waste prevention,*** reuse and recycling. The rates at a minimum, shall include the following elements:

[...]

(6) If a wasteshed fails to achieve the recovery rate set forth in OAR 340-90-050, any city with a population of 4,000 or more, or a county responsible for the area between the city limits and the urban growth boundary of such city shall implement, not later than ~~July 1, 1996~~ ***January1, 1998,*** two additional program elements selected from section (3) of this rule.

(7) If a wasteshed achieves the recovery rate in OAR 340-90-050 for calendaryear 1996, section (6) of this rule shall not apply.

2. Additional time for small landfills to meet Federal Subtitle D requirements:

SOLID WASTE: MUNICIPAL SOLID WASTE LANDFILLS
Chapter 340 Division 94

340-94-001 APPLICABILITY

(1) OAR Chapter 340, Division 94 applies to municipal solid waste landfills and their appurtenances such as leachate management facilities, and to ash monofills.

(2) The criteria adopted in OAR 340-94-010 apply to all municipal solid waste landfills which receive waste on or after October 9, 1993, unless the landfill meets the following requirements for a later effective date:

(a) For existing municipal solid waste landfills or lateral expansions of municipal solid waste landfills that meet the conditions of 40 CFR, §258.1(e)(2) ("small landfills"): the criteria apply if the landfill receives waste on or after April 9, 1994;

(b) For new, existing or lateral expansions of municipal solid waste landfills that meet the conditions in 40 CFR, §258.1(f)(1) ("very small landfills serving certain small communities"): the criteria apply if the landfill receives waste on or after October 9, [~~1995~~]*1997*.

(3) Municipal solid waste landfills that receive waste after October 9, 1991 but stop receiving waste before a date certain, and which complete installation of a final cover as specified in 40 CFR, §258.60(a) by another date certain, are exempt from the other criteria adopted in OAR 340-94-010. The dates are as follows:

(a) All municipal solid waste landfills (unless the landfill meets the conditions under subsections (3)(b) or (3)(c) of this rule): no waste received after October 9, 1993, and installation of final cover completed by October 9, 1994;

(b) A "small landfill" meeting the criteria in 40 CFR, §258.1(e)(2): no waste received after April 9, 1994 and installation of final cover completed by October 9, 1994;

(c) A "very small landfill serving certain small communities" meeting the criteria in 40 CFR, §258.1(f)(1): no waste received after October 9, [~~1995~~]*1997* and installation of final cover completed by October 9, [~~1996~~]*1998*.

[...]

340-94-010 ADOPTION OF UNITED STATES ENVIRONMENTAL PROTECTION AGENCY MUNICIPAL SOLID WASTE REGULATIONS

(1) Except as otherwise modified or specified by OAR Chapter 340, Divisions 93 through 97, the criteria for municipal solid waste landfills, prescribed by the United States Environmental Protection Agency in Title 40, CFR, Part 258, and any amendments or technical corrections promulgated thereto as of *January 1, 1996* ~~October 1, 1993~~ are adopted by reference and prescribed by the Commission to be observed by all persons who receive municipal solid waste and who are subject to ORS 459.005 through 459.405 and 459A.

(2) Wherever there may be a discrepancy between requirements in 40 CFR, Part 258 as adopted by

the Commission and OAR Chapter 340 Divisions 93 through 97, the more protective standard shall apply.

340-94-140 FINANCIAL ASSURANCE CRITERIA

If a municipal solid waste landfill is subject to 40 CFR, Part 258 as provided in 40 CFR, §258.1, the owner or operator shall comply with financial assurance criteria in 40 CFR, Part 258, Subpart G. All municipal solid waste permittees shall also comply with this rule.

(1) Financial Assurance Required. The owner or operator of a municipal solid waste landfill shall maintain a financial assurance plan with detailed written cost estimates of the amount of financial assurance that is necessary and shall provide evidence of financial assurance for the costs of:

(a) Closure of the municipal solid waste landfill;

(b) Post-closure maintenance of the municipal solid waste landfill; and

(c) Any corrective action required by the Department to be taken at the municipal solid waste landfill, pursuant to OAR 340-94-080(3).

(2) Exemptions. The Department may exempt from the financial assurance requirements existing municipal solid waste landfills which stopped receiving waste before October 9, 1993 (or which stopped receiving waste before April 9, 1994, if a "small landfill" meeting criteria in 40 CFR, §258.1(e)(2)), and completed installation of final cover by October 9, 1994. The Department may also exempt from the financial assurance requirements an existing "very small landfill serving certain small communities" meeting criteria in 40 CFR, §258.1(f)(1), if such a landfill stops receiving waste before October 9, ~~[1995]~~*1997* and completes installation of final cover by October 9, ~~[1996]~~*1998*.

[...]

3. Miscellaneous and Technical Corrections:

SOLID WASTE MANAGEMENT RULES
SOLID WASTE: GENERAL PROVISIONS
Chapter 340 Division 93

OAR 340-93-030 DEFINITIONS (Add the following definition:)

[...]

(6) "Asphalt paving" means asphalt which, has been applied to the land to form a street, road, path, parking lot, highway, or similar paved surface and which is weathered, consolidated, and does not contain visual evidence of fresh oil.

[...]

OAR 340-93-170 CLEANUP MATERIALS CONTAMINATED WITH HAZARDOUS SUBSTANCES

[...]

(4) Procedures:

~~(a)~~ A landfill owner or operator who wants to receive cleanup materials contaminated with hazardous substances shall apply to the Department for Hazardous Substance Authorization, including a Special Waste Management Plan for the materials to be received~~;~~.

~~(b) The applicant shall pay a Hazardous Substances Authorization fee as specified in OAR 340-97-120.~~

SOLID WASTE: SPECIAL RULES FOR SELECTED SOLID WASTE DISPOSAL SITES
Chapter 340 Division 96

340-96-020 SPECIAL RULES PERTAINING TO COMPOSTING FACILITIES

(1) Applicability. This rule applies to all composting facilities, except as exempted in OAR 340-93-050(2)[~~*(c) and*~~](d) *and (e)*. Composting facilities are disposal sites as defined by ORS Chapter 459, and are also subject to the requirements of OAR Chapter 340, Divisions 93, 95 and 97 as applicable.

[...]

RULES OF PRACTICE AND PROCEDURE
Chapter 340 Division 11

340-11-007 PUBLIC NOTICE AND INFORMATIONAL HEARINGS

(1) If the Department proposes to issue or renew with increased discharges, a permit under OAR 340-20-130, 340-20-155, 340-45-033, 340-[~~*61-020*~~]*93-050*, or 340-106-001, a public notice containing information regarding the proposed permit will be prepared by the Department and will be forwarded to the applicant or other interested person at the discretion of the Department for comment. Each public notice shall, at a minimum, for that permit, contain:

[...]

ENFORCEMENT PROCEDURE AND CIVIL PENALTIES
Chapter 340 Division 12

340-12-065 SOLID WASTE MANAGEMENT CLASSIFICATION OF VIOLATIONS

[...]

(1) Class One:

[...]

(p) Accepting, handling, treating or disposing of clean-up materials contaminated by hazardous substances by a landfill in violation of the facility permit and plans as approved by the Department or the provisions of OAR 340-[~~*61-060*~~] *93-170(3)*;

[...]

RULES FOR OPEN BURNING
Chapter 340 Division 23

340-23-042

[...]

(6) No person shall cause or allow to be initiated or maintained any open burning at any solid waste disposal site unless authorized by a Solid Waste Permit issued pursuant to OAR 340-[~~*61-005 through 340-61-085*~~]*93-050*.

SOLID WASTE MANAGEMENT: WASTE TIRES
Chapter 340 Division 64

340-64-022 FINANCIAL ASSURANCE

[...]

(2) The Department will accept as financial assurance only those instruments listed in and complying with requirements in OAR 340-~~[61-034(3)(c)(A) through (G)]~~***94-145*** or 340-71-600([~~5~~] ***4***)(a) through (c).

[...]

340-64-050 MODIFICATION OF SOLID WASTE DISPOSAL SITE PERMIT REQUIRED

[...]

(6) Modification of an existing solid waste permit to allow waste tire storage does not require submission of a solid waste permit filing fee or application processing fee under OAR 340-~~[61-115]~~***97-110***.

340-64-055 WASTE TIRE CARRIER PERMIT REQUIRED

[...]

(11) The application for a waste tire carrier permit shall also include a bond in the sum of $5,000 in favor of the State of Oregon. In lieu of the bond, the applicant may submit financial assurance acceptable to the Department. The Department will accept as financial assurance only those instruments listed in and complying with requirements in OAR 340-~~[61-034(3)(c)(A) through (G) and]~~***94-145 or*** 340-71-600([~~5~~] ***4***)(a) through (c).

[...]

ENVIRONMENTAL HAZARD NOTICES
Chapter 340 Division 130

340-130-005

[...]

(17) "Solid Waste" has the meaning contained in OAR 340-~~[61-010(41)]~~***93-030***.

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ATTACHMENT B-1

NOTICE OF PROPOSED RULEMAKING HEARING

Department of Environmental Quality

OAR Chapter 340 Divisions 11, 12, 23, 64, 90, 91, 94, 96, 97 and 130

DATE:	**TIME:**	**LOCATION:**
March 26, 1996	1 p.m.	Conference Room 3A, Department of Environmental Quality Headquarters, 811 SW 6th Avenue, Portland, Oregon

HEARINGS OFFICER(s): Jacquie Moon

STATUTORY AUTHORITY: ORS 459.045, 459.995, 459A.025, 459A.650 through .685 and 468.020
or **OTHER AUTHORITY:** Environmental Protection Agency rule published in 60 FR 52337-52342

STATUTES IMPLEMENTED: 1995 HB 2009; 1995 SB 949; 1995 SB 1089

ADOPT: OAR 340-91-035

AMEND: OAR 340-11-007; 340-12-042, 340-12-065; 340-23-042; 340-64-022, 340-64-050, 340-64-055; 340-90-040, 340-90-320, 340-90-340, 340-90-350, 340-90-380, 340-90-400, 340-90-410, 340-90-430; 340-91-020, 340-91-030, 340-91-050, 340-91-060, 340-91-070, 340-91-080; 340-93-030; 340-94-001, 340-94-010, 340-94-140; 340-96-020; 340-97-110, 340-97-120; and 340-130-005

REPEAL: OAR 340-91-090

RENUMBER: (prior approval from Secretary of State REQUIRED)

AMEND & RENUMBER:

☒ This hearing notice is the initial notice given for this rulemaking action.
☐ This hearing was requested by interested persons after a previous rulemaking notice.
☒ Auxiliary aids for persons with disabilities are available upon advance request.

SUMMARY:

The proposed rules implement changes required by 1995 Legislation: exempts solid waste used for alternative daily cover at landfills from the DEQ $0.81 per-ton solid waste disposal fee and the $0.13 per-ton Orphan Site Account fee. Exempts rigid plastic containers containing food from compliance with the rigid plastic container law (rigid plastic bottles holding "drinkable liquids" are still required to comply); allows certain exemptions and delays in enforcement of the rigid plastic container law; reduces maximum civil penalty for noncompliance with the rigid plastic container law from $10,000 to $1,000 per day. Requires landfill operator to notify DEQ before Oregon landfill may receive waste from out of state; allows two years for landfill operator to submit information to DEQ demonstrating that the out-of-state jurisdiction sending the waste has a recycling program complying with Oregon requirements. Adopts federal changes allowing certain very small municipal solid waste landfills two additional years to meet federal RCRA Subtitle D requirements. Makes other minor changes and technical corrections.

LAST DATE FOR COMMENT: March 29, 1996

AGENCY RULES COORDINATOR:	Susan M. Greco, (503) 229-5213
AGENCY CONTACT FOR THIS PROPOSAL:	Deanna Mueller-Crispin
ADDRESS:	811 S. W. 6th Avenue Portland, Oregon 97204
TELEPHONE:	(503) 229-5808/1-800-452-4011

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments will also be considered if received by the date indicated above.

_____ _____

Signature Date

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ATTACHMENT B-2

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rulemaking Proposal
for
Amendments, Solid Waste and Recycling Rules

Fiscal and Economic Impact Statement

Introduction

This rulemaking proposal incorporates changes in several parts of the Department's rules, the majority of them to implement changes in law passed by the 1995 Legislature. Fiscal and economic impacts of each of these areas are discussed for each category of affected person.

I. Solid Waste Fee Decrease. Exempts solid waste used for alternative daily cover at landfills from the DEQ $0.81/ton solid waste disposal fee and the $0.13/ton Orphan Site Account fee. The proposed rule amendments have no fiscal impact beyond the fiscal impact of the 1995 legislative changes themselves.

II. Modifications to Requirements for Rigid Plastic Container Recycling. Oregon's rigid plastic container law as passed in 1991 and amended in 1993 requires product or container manufacturers of any "rigid plastic containers" to ensure that the containers meet one of the following options: a) are recycled at a 25 percent rate; b) are reused; c) are made of 25 percent recycled content; or are d) a "reduced" container. All manufacturers of rigid plastic containers and product manufacturers using rigid plastic containers were in compliance with the law during calendar year 1995 and will be in compliance during calendar year 1996 because the Department of Environmental Quality calculated that the rigid plastic container recycling rates for compliance purposes for 1995 and for 1996 exceed 25 percent, meeting option a). 1995 SB 949 makes the following changes:

- Exempts rigid plastic containers (RPCs) containing food from compliance with the rigid plastic container law (rigid plastic bottles holding "drinkable liquids" are still required to comply).
- If the rigid plastic container recycling rate remains at or above 25 percent, product and container manufacturers are relieved from all recordkeeping requirements.
- Enforcement of the plastic recycling laws is delayed until after January 1, 1998.
- Provides a one-time one-year exemption from enforcement if the aggregate rigid plastic container recycling rate falls below 25 percent.

- Reduces maximum civil penalty for noncompliance from $10,000 to $1,000/day.

The proposed rule amendments have no fiscal impact beyond the fiscal impact of the 1995 legislative changes themselves.

III. Changes in Approval of Out-of-State Recycling Programs. Requires landfill operator to notify DEQ before Oregon landfill may receive waste from out of state; allows two years for landfill operator to submit information to DEQ demonstrating that the out-of-state jurisdiction or person generating the waste has a recycling or waste reduction program complying with Oregon requirements.

IV. Miscellaneous Changes and Technical Corrections:

1. Allows cities until January 1, 1998 to implement additional recycling program elements if the wasteshed in which they are located does not meet its 1995 material recovery rate.
2. Adopts Federal changes allowing certain very small landfills in arid regions two additional years to meet Subtitle D landfill requirements.
3. Housekeeping and technical corrections.

General Public

I. Solid Waste Fee Decrease

The fee decrease reduces DEQ per-ton tipping fees from $1.24 to $0.30 on disposal of wastes approved for use as alternative daily cover at landfills. Most such wastes are anticipated to be process wastes generated by industry, and petroleum-contaminated soils (PCS) (see chart under **Assumptions** below). Some of the PCS (5 to 10 percent, or 3,000 to 6,000 tons in FY 95-97) might originate from the general public, causing an estimated fee reduction of $2,820 to $5,640 to the general public during that two-year period.

II. Modifications to Requirements for Rigid Plastic Container Recycling.

The general public is not directly affected. Two indirect positive effects could occur:

- The continued availability of rigid plastic containers for food items (including take-out food), possibly avoiding higher costs of food containers made of other materials (e.g. paper, glass). Unless exempted from the law, manufacturers would switch packaging materials if they could find no suitable compliance options for the RPCs they use. Additional avoided costs could range from none to $0.08 per container.[1] If containers made of other materials were substituted for half of the RPCs used for food, this could have affected an estimated 50 to 80 million containers annually (under a "worst-case scenario" where a manufacturer could not use a container with recycled content, one made from a resin being recycled at a 25% rate, or a reduced container AND the rigid plastic container recycling rate for compliance purposes dipped below 25 percent and thus was not an available compliance option either).

[1] See Attachment B4, Fiscal and Economic Impact Statement, DEQ staff report for Proposed Rules for Adoption to Implement Rigid Plastic Container Law, October 11, 1994.

- Avoidance of any increased costs incurred by container or product manufacturers of food products in complying with the various options (such as developing RPCs with recycled content which also comply with FDA regulations). Any such costs would likely have been passed on to the public, and could amount to an increase of 1 to 5 cents per package.
- On the other hand, there could be fewer opportunities for the public to recycle plastic food containers since manufacturers using them are now exempt from the law removing their incentive to support plastic recycling programs.

III. Changes in Approval of Out-of-State Recycling Programs
No fiscal impact. Does not directly affect Oregon citizens.

IV. Miscellaneous Changes:
1. *Additional time to implement recycling program elements.* Implementing additional recycling program elements such as collection of yard debris could cause a rate increase in local recycling collection services. The monthly amount would depend on the type and frequency of service implemented (yard debris collection, for example, might cost an additional $1.50 to $3.00 per household per month). On the other hand, increased recycling opportunities would not be available to the public for an additional two years.
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* The fiscal impact on citizens of small communities could be substantial on a per capita basis if full federal Subtitle D requirements, including groundwater monitoring, had to be implemented immediately. Additionally, some small communities have yet to determine the best option for managing their solid waste if federal regulations push closure of the local landfill. Abrupt landfill closure without an identified alternative could cause economic dislocation for local residents.

Small Business

I. Solid Waste Fee Decrease
Same comments as for **General Public** above. Much of the PCS used as alternative daily cover (75 to 85 percent, or 47,000 to 53,000 tons in FY 95-97) is expected to originate from small businesses such as service stations, causing an estimated fee reduction of $44,180 to $49,820 to small businesses in that two-year period. From 60 to 180 small businesses might be affected.

II. Modifications to Requirements for Rigid Plastic Container Recycling.
Small businesses affected include Oregon's RPC container manufacturers (although data are not available on how many of these are "small" businesses, they include 10-12 firms, all but three of which have fewer than 150 employees) and other out-of-state container manufacturers whose containers are used for products sold in Oregon; point-of-sale packagers in the foodservice and other industries; grocery stores; delicatessens; and small product manufacturers using RPCs (e.g. food processors, nurseries). Small businesses are affected in several ways:

Food container exemption. It is estimated that "food" is contained in approximately 13 million (low estimate) to 17 million pounds (high estimate)[1] of the rigid plastic containers used annually in Oregon by all businesses, both small and large. This represents about 18 to 23.5 percent of all rigid plastic containers sold in Oregon. These containers were previously subject to the law but are now exempt. As a result manufacturers of these products will not have to instigate any changes in the rigid plastic containers they use. They will be subject only to very minimal recordkeeping costs to document that their products are exempt (i.e. are "food"). The Department has not estimated the number of individual product or container manufacturers affected by this exemption, although there are likely several thousands (3,000 foodservice establishments alone) using RPCs. Depending on the compliance option chosen by the individual manufacturer, the exemption could represent a very major cost savings for a manufacturer. On the other hand, all rigid plastic containers sold in Oregon have achieved compliance during the first two years of the program through the rigid plastic container aggregate recycling rate, without individual businesses having to invest any funds to achieve compliance through the other options listed in the introductory section above.

Recordkeeping relief. The provision granting relief from keeping records if the aggregate rigid plastic container recycling rate remains at or above 25 percent will provide cost savings to product and container manufacturers relying on other options for compliance. Current DEQ rules already provide for very minimal recordkeeping for businesses relying on the recycling rate for compliance.

Enforcement delays. SB 949 extends the date when DEQ may begin enforcement of the law by two years, to 1/1/98. However the regulated community is not exempted from compliance during that time, so the enforcement delay does not bring any cost savings associated with a delay in implementation. The only potential cost "savings" would be that a non-complying product or container manufacturer would avoid any civil penalty which might otherwise have been imposed as a consequence of DEQ investigation and enforcement during those two years. The same is true of the one-year non-enforcement period which goes into effect the first time the rigid plastic container recycling rate falls below 25 percent.

Reduction in maximum civil penalty. The fiscal impact of the reduction in the daily maximum civil penalty from $10,000 to $1,000 a day could be substantial for a product or container manufacturer who did not comply with the law. Impact on an individual business would depend on the severity and length of the violation, but would range from $50 (one day Class III "minor" violation) to several thousands of dollars for a major, prolonged violation.

Overall, the fiscal impact of the proposed rules is positive for product and container manufacturers. The magnitude of the impact on the regulated community using rigid plastic containers for food products ranges from negligible (if a manufacturer intended to rely entirely on the aggregate rigid plastic container recycling rate for compliance) to very considerable (up to several millions of dollars) if the manufacturer intended to produce or obtain rigid plastic containers using recycled content or to

[1] 1995 numbers. This estimate is net of "drinkable liquids" in rigid plastic bottles, which are still subject to the law.

develop reduced containers. The impact on non-food manufacturers is minor and includes the recordkeeping, enforcement and civil penalty reduction effects.

There could be a negative economic impact on small businesses involved in collecting and/or processing recycled rigid plastic containers. Some of these businesses have received financial assistance from the plastic industry for equipment to facilitate plastics recycling. With the exemption of food containers (and the attainment of a 33 percent RPC aggregate recycling rate for compliance purposes for 1996), the industry may be less motivated to provide additional funds to recycling businesses for plastics recycling programs. There may also be fewer RPCs available for recycling as fewer plastic food containers may enter the recycling stream.

III. Changes in Approval of Out-of-State Recycling Programs

Affects operators of landfills who want to receive solid waste from new out-of-state sources. A number of Oregon landfills are small businesses. Makes the landfill operator responsible for notifying the Department before the waste is received (same day notification is acceptable), keeping records and reporting on type and amount of out-of-state waste received, and submitting information to the Department within two years to demonstrate that the out-of-state jurisdiction or other person (such as an industrial firm) generating the waste has a recycling or waste reduction program meeting Oregon standards. The only part of these requirements having incremental fiscal impact is the recordkeeping requirement; the other requirements are in existing law. The proposed rules require the landfill operator to track the two-year time period, to notify the Department when receipt of a separate industrial waste has reached 60,000 tons in any one calendar year, and to report the total industrial wastes received by state. This would require some one-time administrative changes in the landfill operator's internal tracking system, and a few additional items on existing quarterly reports. The Department estimates that these minor changes could be made by existing administrative staff, and would not be overly burdensome.

Allowing a two-year time period for the landfill operator to demonstrate compliance of the recycling program to the Department gives the operator greater ability to respond quickly to market opportunities. This competitive advantage creates positive, but unpredictable, economic benefits for the landfill operator.

IV. Miscellaneous Changes:

1. *Additional time to implement recycling program elements.* Small businesses would be affected in the same manner as the general public. They might avoid additional garbage collection costs created by additional recycling opportunities. Some small businesses are garbage haulers or recyclers. They might lose potential additional revenue which would be created by adding more recycling program elements.
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* Some very small landfills are operated by private businesses. They might not be able to raise the capital needed to immediately implement federal groundwater monitoring requirements, and

thus be out of compliance with federal and state regulations and subject to a maximum $10,000/day civil penalty. Even if they were able to make the capital investment, it might be difficult for them to pass on their costs in the form of tipping fees to the public using the facility. They might be forced to go out of business, with a premature landfill closure possibly creating environmental problems that would fall on the State to remedy.

Large Business

I. Solid Waste Fee Decrease

Most of the waste used as alternative daily cover is anticipated to be industrial process waste (see chart under **Assumptions** below). All of this industrial process waste is assumed to come from large businesses. Most large businesses have completed any required PCS cleanups, so none of the PCS used for alternative daily cover is assumed to originate from industry (large businesses). Total material from large businesses used as alternative daily cover during FY 95-97 is anticipated to be 237,804 tons causing an estimated fee reduction of $223,536 to large businesses in that two-year period.

II. Modifications to Requirements for Rigid Plastic Container Recycling.

Affected businesses include manufacturers of rigid plastic containers; product manufacturers using RPCs; and retail stores (who may also be point-of-sale packagers).

Large businesses are affected in the same way as small businesses.

III. Changes in Approval of Out-of-State Recycling Programs

Some Oregon landfills are large businesses. These large landfills would be affected in the same way as small landfills.

IV. Miscellaneous Changes:

1. *Additional time to implement recycling program elements.* Large businesses would be affected in the same way as small businesses.
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* No very small landfills are operated by large businesses. However if very small landfills were to have to close immediately because of their inability to comply with federal regulations, regional landfills operated by large businesses might receive their waste. Thus the delay could cause a loss of potential business and revenue for them. The effect is minor, since a total of less than 40,000 tons a year of solid waste is probably disposed of at all these very small landfills combined.

Local Governments

I. Solid Waste Fee Decrease

Same comments as for **General Public** above. Some of the PCS (10 to 15 percent, or 6,000 to 9,000 tons in FY 95-97) might originate from local governments, causing an estimated fee reduction of $5,640 to $8,460 to local governments during that two-year period.

II. Modifications to Requirements for Rigid Plastic Container Recycling.

As consumers of RPCs, local governments would be affected in the same ways as the general public. As providers of solid waste services, many local governments have added RPCs to their recycling programs. Some local governments (as well as private recyclers) have been the beneficiaries of financial assistance from the plastics industry for equipment to facilitate plastics recycling. See also comment at end of "Small Business" section.

III. Changes in Approval of Out-of-State Recycling Programs

Some local governments operate landfills. If a local government-operated landfill wanted to accept waste from out-of-state, it would be affected in the same way as a small or large business operating a landfill.

IV. Miscellaneous Changes:

1. *Additional time to implement recycling program elements.* Cities of 4,000 population or more must provide or cause to be provided two additional recycling program activities if the wasteshed recovery rate is not met. Often these services are franchised or contracted out, but sometimes a city provides the services directly. Development and implementation of additional recycling activities may cost several hundreds or even thousands of dollars. The jurisdiction may need to use scarce general funds to pay for these activities. These expenditures are now delayed for two years for cities in wastesheds (counties) not meeting their mandated recovery rate.
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* Some local governments operate very small landfills. They would be affected in the same way as small businesses.

State Agencies

I. Solid Waste Fee Decrease

DEQ: Lost revenues due to decrease in tipping fees are anticipated to be $282,592 for the current biennium, and $485,930 for the 97-99 biennium.

No impact on FTE needed to administer the decreased fee.

Other state agencies. No state agencies are expected to generate wastes subject to the fee decrease from being used as alternative daily cover.

II. Modifications to Requirements for Rigid Plastic Container Recycling.

DEQ. SB 949 requires the Department to determine annually a rigid plastic container recycling rate for compliance purposes. Legislative hearings are required if the rate drops below 25 percent, and the Department is required to report on the reasons for the lowered rate. The Department is also required to prepare a report for the 1997 Oregon Legislature on alternatives to the plastics law. The Department must also provide assistance to RPC users and to the public on the changes to the law. A requirement to determine a RPC recycling rate for compliance purposes is currently in DEQ rule, although not previously in statute. Evaluation and application of these studies currently performed by the Department will be necessary in applying this measure. Meeting the additional obligations needed to implement the legislation requires .25 FTE of an Environmental Specialist 4 position per biennium ($37,519 in FY 95-97)

During the two years of the enforcement delay and the one-year suspension of enforcement which goes into effect should the RPC recycling rate for compliance purposes fall below 25 percent, the Department will not have to expend resources on enforcement.

Other state agencies. No impact.

III. Changes in Approval of Out-of-State Recycling Programs

DEQ. Requires rule change and changes in some tracking and recycling program certification procedures. Additional expenditures for publicity and publications for these changes. Impact is .10 FTE (Environmental specialist 4) in 95-97 and $11,313.

Other state agencies. No impact.

IV. Miscellaneous Changes:

1. *Additional time to implement recycling program elements.* No direct impact.
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* No direct impact other than having existing Regional DEQ staff work with very small landfills over the next two years in preparation for implementation of Subtitle D (technical assistance with alternatives to groundwater monitoring, consideration of regionalizing solid waste management, etc.). Work falls within existing range of duties of current staff.

Assumptions

I. Solid Waste Fee Decrease

It is difficult to project the amount of material that will be used as alternative daily cover (ADC) for several reasons:

1. The material may be used only one time.
2. The material is not received in consistent quantities throughout the year.
3. The material is not received on a consistent schedule; it may be received twice in one year, or every quarter.

The projections use the following assumptions:

1. The reported tonnage for the period of Oct 94 through Sept 95 is used for each year of the 95-97 biennium.
2. The tonnage shown for 95-97 is increased 10% for 97-99, assuming there will be some level of increase. The mill yard waste was a one-time approval in 1995 and does not appear in the tonnage for 97-99.
3. The tonnage shown for 95-97 assumes that all landfills approved to receive PCS will accept the maximum amount approved and pay the reduced fee on all of it.

Anticipated Tonnage of Alternative Daily Cover

Materials	*1994-95*[1]	*1995-97*[2]	*1997-99*[3]
Auto fluff	51,961.00	103,922.00	-
Kyanite	1,699.00	3,398.00	3,738.00
Mill yard waste	1,016.00	2,032.00	-
Mullite waste	3,505.00	7,010.00	7,711.00
PCS	31,413.00	62,826.00	-
Paper sludge	26,239.00	52,478.00	57,726.00
Sludge	34,482.00	68,964.00	75,860.00
TOTAL	150,315.00	300,630.00	145,035.00
Fee impact		$282,592.00	$485,920.00

The average PCS cleanup is assumed to generate between 300 and 800 tons of PCS. The analysis assumes the landfill passes the savings in lower fees on to its customers.

[1] Amount reported as ADC for Oct 94-Sept 95

[2] 1995-97 projections for ADC paying reduced fee

[3] 1997-99 projections for ADC paying reduced fee

II. Modifications to Requirements for Rigid Plastic Container Recycling.
The assumptions used in Attachment B4, Fiscal and Economic Impact Statement, DEQ staff report for Proposed Rules for Adoption to Implement Rigid Plastic Container Law, October 11, 1994 are assumed to hold true for this analysis. Assumptions on the amount of rigid plastic containers used for food are from "Estimated Quantities of Rigid Plastic Containers Potentially Affected by Federal Regulations," prepared for the Oregon Department of Environmental Quality, May 1995 by Green Solutions. Further, it is assumed that RPCs used for "food" average 2 oz. each.

III. Changes in Approval of Out-of-State Recycling Programs
Assumed that very few landfills -- no more than four or five -- will be involved in taking out-of-state waste from new sources. It is also assumed that those that do already have relatively sophisticated tracking systems and the additional recordkeeping and reporting will be relatively easy to implement. All landfills are already required to report tonnages of in-state and out-of-state solid waste separately.

IV. Miscellaneous Changes:
1. *Additional time to implement recycling program elements.* Assumes fewer than 10 wastesheds will fail to meet their 1995 material recovery rate.
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* 37 landfills in Oregon meet the daily tonnage and precipitation criteria for the delayed effective date. These landfills take only 1.2 percent of the total waste disposed of at municipal solid waste landfills in Oregon. Many of the landfills serve communities of fewer than 200 people and are located more than 100 miles from the nearest landfill currently required to meet Subtitle D criteria.

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ATTACHMENT B-3

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rulemaking Proposal
for
Amendments, Solid Waste and Recycling Administrative Rules

Land Use Evaluation Statement

1. Explain the purpose of the proposed rules.

The proposed rules would implement changes required by legislation passed by the 1995 Oregon Legislature, as well as changes made necessary by changes in Federal regulations. It would also make some minor changes and technical corrections identified by the Department as necessary for program implementation. Major changes include: exempts solid waste used for alternative daily cover at landfills from the DEQ $.81 per-ton solid waste disposal fee and the $.13 per-ton Orphan Site Account fee. Exempts rigid plastic containers containing food from compliance with the rigid plastic container law (rigid plastic containers holding "drinkable liquids" are still required to comply); allows certain exemptions and delays in enforcement of the rigid plastic container law; reduces maximum civil penalty for noncompliance with the rigid plastic container law from $10,000 to $1,000 per day. Requires landfill operator to notify DEQ before Oregon landfill may receive waste from out of state; allows two years for landfill operator to submit information to DEQ demonstrating that the out-of-state jurisdiction sending the waste has a recycling program complying with Oregon requirements. Adopts federal changes allowing certain very small municipal solid waste landfills two additional years to meet federal RCRA Subtitle D requirements.

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:

In general these rules do not affect the Agency's existing rules relating to land use. But in instances where very small municipal landfills are subject to the two-year federal delay, the rules may relate to the issuance or renewal of solid waste permits.

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):

Issuance of a solid waste permit requires issuance of a land use compatibility determination by the local jurisdiction.

c. **If no, apply the following criteria to the proposed rules.**

In the space below, state if the proposed rules are considered programs affecting land use. State the criteria and reasons for the determination.

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.**

Deanna Mueller-Crispin — Division

Intergovernmental Coord.

2/5/96 — Date

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ATTACHMENT B-4

Questions to be Answered to Reveal
Potential Justification for Differing from Federal Requirements.
(Revised 4/12/96)

This solid waste rulemaking includes four separate elements (numbered from I to IV in the staff report and below). Federal requirements exist for only two of these elements, as noted below.

1. Are there federal requirements that are applicable to this situation? If so, exactly what are they?

I. Solid Waste Fee Decrease (HB 2009):
There are no Federal requirements for per-ton solid waste disposal fees. This rulemaking element is not discussed further in this attachment.

II. Rigid Plastic Container Law (SB 949):
At this time there are no federal packaging standards applying specifically to rigid plastic containers. However, federal regulations apply generally to packaging of various categories of consumer products, including the following:

Federal Food, Drug and Cosmetic Act. Food packaging is regulated as an indirect food additive under this Act. The Food and Drug Administration (FDA) regulates food packaging through the food additive petition process. Manufacturers are required by law to obtain approval from FDA for all the materials used in direct-contact food packages before they can be marketed. FDA regulations do not currently address the source of the plastic polymer material. Thus the FDA does not currently approve or disapprove the use of recycled polymers or plastics for food.

Cosmetic manufacturers also have a legal obligation to produce safe products (including ingredients and packaging) under this Act. This includes ensuring that contaminants do not migrate from the packaging to the product in a manner that will compromise the safety of the product.

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The pesticides covered under FIFRA are considered hazardous and must be registered. Proposed federal rules would include some aspects of packaging in the regulation of the pesticides. The proposed regulation would specifically forbid pesticide container reuse. FIFRA labeling requirements specify that pesticide containers are to be disposed of as trash.

Hazardous Materials Transportation Act. Regulates the transportation of hazardous materials including herbicides, insecticides, fungicides and rodenticides. Performance specifications relate to stress, minimum thicknesses, ability to withstand pressure and impact, and extreme temperatures. The federal Department of Transportation (US DOT) has adopted regulations (49 CFR 41) that prohibit use of post-consumer recycled content in certain packages.

United Nations Transport of Dangerous Goods Code (UN). Containers (e.g., plastic drums and jerricans) used in shipping hazardous materials are also regulated by UN for transportation and storage safety, if shipped out of the U.S.

U.S. Department of Agriculture (USDA). Regulations govern dairy, poultry and meat products. USDA requires food packagers to submit letters of guarantee and limitations from the package manufacturer, stating that the material in the package meets federal regulations and the conditions under which the package can be used.

In the sense that no federal regulations exist which specifically apply to rigid plastic containers (disregarding their contents), Oregon law is more stringent. However, the above federal regulations govern areas not covered by the Oregon Rigid Plastic Container Law, and in that sense Oregon law is less stringent.

III. Out-of-State Recycling Certification (SB 1089):
Not applicable. There are no federal requirements concerning recycling programs.

IV. Miscellaneous Changes and Technical Corrections:
1. *Additional time to implement recycling program elements.* Not applicable. There are no federal requirements concerning recycling programs.

2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

40 CFR Parts 257 and 258, Solid Waste Disposal Facility Criteria ("Subtitle D") apply to municipal solid waste landfills.

40 CFR Part 257 also applies to non-municipal land disposal facilities.

On October 2, 1995 the Environmental Protection Agency (EPA) adopted final rules delaying from October 9, 1995 to October 9, 1997 the effective date for certain very small municipal landfills to meet Subtitle D standards. The purpose of the delay was to allow more time to develop specific requirements, such as groundwater monitoring requirements, for these small landfills that are feasible to be implemented while still protecting the environment and human health. The EQC adopted this delay in temporary rule, effective November 28, 1995. The Department proposes that the delayed date be adopted as permanent rule.

The Environmental Quality Commission (EQC) has previously adopted the federal Subtitle D landfill requirements along with any amendments as rule as of a certain date. Since that time EPA has updated and amended the rules. Since the Department cannot adopt federal rules prospectively, the reference date in DEQ's solid waste rules needs to be amended to include those federal regulation changes which have occurred since the last DEQ rule update on October 1, 1993.

The proposed rule changes concerning Subtitle D do not differ from federal requirements, but rather would make state requirements conform to federal requirements.

The other parts of the proposed rule deal mainly with legislatively required modifications to existing Department programs for which there are no federal counterparts.

2. Are the applicable federal requirements performance based, technology based, or both with the most stringent controlling?

II. Rigid Plastic Container Law (SB 949):

The federal packaging requirements are generally performance-based.

IV. Miscellaneous Changes and Technical Corrections:
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

The Subtitle D regulations contain both performance-based and technology-based requirements. Some of the performance-based requirements are contingent on approval by the director of an "approved state." Oregon has received "approved state" status from EPA.

3. Do the applicable federal requirements specifically address the issues that are of concern in Oregon? Was data or information that would reasonably reflect Oregon's concern and situation considered in the federal process that established the federal requirements?

II. Rigid Plastic Container Law (SB 949):

The Oregon law is meant to encourage the reuse and recycling of rigid plastic containers, and reuse of post-consumer plastic resins in rigid plastic containers. The federal packaging requirements do not address these issues.

IV. Miscellaneous Changes and Technical Corrections:
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

EPA's original regulation had exempted very small landfills in remote, arid regions from the requirement to monitor groundwater. In 1993 that exemption was revoked as the result of a lawsuit. In 1994 EPA held public meetings to hear views and acquire information associated with groundwater monitoring requirements at these landfills. Oregon presented written information to EPA, suggesting less expensive alternatives.. EPA has not yet proposed a rule with revised groundwater monitoring alternatives for very small landfills; this is the main reason for the two-year delay in effective dates of Subtitle D for these landfills. It would be prohibitively expensive for many very small landfills to provide the monitoring now specified in Subtitle D. The Department hopes EPA will take its groundwater monitoring suggestions into account in future Subtitle D amendments.

4. Will the proposed requirement improve the ability of the regulated community to comply in a more cost effective way by clarifying confusing or potentially conflicting requirements (within or cross-media), increasing certainty, or preventing or reducing the need for costly retrofit to meet more stringent requirements later?

II. Rigid Plastic Container Law (SB 949): The proposed regulations implement statutory changes. The statutory changes were meant to make compliance easier for the regulated community by exempting rigid plastic containers containing food from the Oregon requirements, in large part because of concern about FDA packaging requirements.

IV. Miscellaneous Changes and Technical Corrections:
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

The delay in the effective date will provide additional time for EPA to develop more cost-effective ways for very small landfills to provide acceptable groundwater monitoring.

5. Is there a timing issue which might justify changing the time frame for implementation of federal requirements?

II. Rigid Plastic Container Law (SB 949): Not applicable.

IV. Miscellaneous Changes and Technical Corrections:
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

DEQ agrees with the reasons given by the federal government for changing the effective date.

6. Will the proposed requirement assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth?

II. Rigid Plastic Container Law (SB 949): Not applicable.

IV. Miscellaneous Changes and Technical Corrections:

2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*
Not applicable.

7. Does the proposed requirement establish or maintain reasonable equity in the requirements for various sources? (level the playing field)

II. Rigid Plastic Container Law (SB 949): Product and container manufacturers of food products packaged in glass containers have maintained that the proposed requirement (or more precisely, its legislative origin) reduces equity, since food containers made of glass are required by statute to contain 35% recycled glass by January 1, 1995. Food containers made of plastic are now exempt from recycling, reuse or recycled content requirements.

IV. Miscellaneous Changes and Technical Corrections:
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

All very small landfills meeting the federal criteria would receive a two-year delay in having to comply with the federal regulations. Other (in general larger) municipal solid waste landfills must comply with the more stringent effective dates. These larger landfills have greater financial resources which should facilitate their compliance at the earlier date.

8. Would others face increased costs if a more stringent rule is not enacted?

Not applicable.

9. Does the proposed requirement include procedural requirements, reporting or monitoring requirements that are different from applicable federal requirements? If so, Why? What is the "compelling reason" for different procedural, reporting or monitoring requirements?

Not applicable.

10. Is demonstrated technology available to comply with the proposed requirements?

II. Rigid Plastic Container Law (SB 949): Yes.

IV. Miscellaneous Changes and Technical Corrections:
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*
None needed.

11. Will the proposed requirement contribute to the prevention of pollution or address a potential problem and represent a more cost effective environmental gain?

II. Rigid Plastic Container Law (SB 949): No, although product and container manufacturers had expressed concern about potential adverse public health effects if they were required to use recycled content in rigid plastic containers containing food (rather than using another of the law's compliance options).

IV. Miscellaneous Changes and Technical Corrections:
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*
The delay will give more time to develop standards for cost-effective alternatives to groundwater monitoring for these very small landfills, and for the landfills to implement these standards.

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State of Oregon
Department of Environmental Quality Memorandum

Date: February 23, 1996

To: Interested and Affected Public

Subject: Rulemaking Proposal and Rulemaking Statements - Amendments, Solid Waste and Recycling Administrative Rules

This memorandum contains information on a proposal by the Department of Environmental Quality (DEQ) to adopt new rules and rule amendments regarding requirements for management of solid waste and recycling. Pursuant to ORS 183.335, this memorandum also provides information about the Environmental Quality Commission's intended action to adopt rules.

This proposal would incorporate changes required by legislation passed by the 1995 Oregon Legislature, as well as changes made necessary by changes in Federal regulations. In addition it would make some minor changes and technical corrections identified by the Department as necessary to clarify program implementation. Major legislative and federal changes include:

I. Solid Waste Fee Decrease (HB 2009): Exempts solid waste used for alternative daily cover at landfills from the $0.81 per-ton solid waste disposal fee and the $0.13 per-ton Orphan Site Account fee.

II. Modifications to Requirements for Rigid Plastic Container Recycling (SB 949):
- Exempts rigid plastic containers containing food from compliance with the rigid plastic container law (although "drinkable liquids" in rigid plastic bottles are still required to comply).
- Allows certain exemptions and delays in enforcement by DEQ.
- Reduces the maximum civil penalty from $10,000 to $1,000 a day.

III. Changes in Approval of Out-of-State Recycling Programs (SB 1089):
- Requires landfill operator to notify DEQ before Oregon landfill may receive waste from out of state.
- Allows two years for landfill operator to submit information to DEQ showing that the out-of-state jurisdiction has a recycling program which complies with Oregon requirements.

IV. Miscellaneous Changes and Technical Corrections:
1. Allows cities until January 1, 1998 to implement additional recycling program elements if the wasteshed in which they are located does not meet its 1995 material recovery rate. (SB1089)

Accommodations for disabilities are available upon request by contacting the Public Affairs Office at (503) 229-5317 (voice) or (503) 229-6993 (TDD).

2. Adopts Federal changes allowing very small landfills in arid regions two additional years to meet Subtitle D landfill requirements.
3. Other miscellaneous and technical corrections update the reference date for adoption of federal Subtitle D regulations, and correct erroneous references in a number of rule divisions.

Note: The body of this Memo uses the above numbering system to refer to the various parts of this rulemaking.

What's in this Package?

Attachments to this memorandum provide details on the proposal as follows:

Attachment A	The official statement describing the fiscal and economic impact of the proposed rules. (Required by ORS 183.335)
Attachment B	A statement providing assurance that the proposed rules are consistent with statewide land use goals and compatible with local land use plans.
Attachment C	Questions to be Answered to Reveal Potential Justification for Differing from Federal Requirements.
Attachment D	The actual language of the proposed new rule, OAR 340-91-035, Notification of Intent to Receive Out-of-State Waste and Compliance "Demonstration."

Hearing Process Details

You are invited to review these materials and present written or oral comment in accordance with the following:

Date: March 26, 1996
Time: 1 p.m.
Place: Conference Room 3A, Department of Environmental Quality Headquarters, 811 SW 6th Avenue, Portland, Oregon

Deadline for submittal of Written Comments: 5 p.m., March 29, 1996

In accordance with ORS 183.335(13), no comments from any party can be accepted after the deadline for submission of comments has passed. Thus if you wish for your comments to be considered by the Department in the development of these rules, your comments must be received prior to the close of the comment period. The Department recommends that comments be submitted as early as possible to allow adequate review and evaluation of those comments.

Jacquie Moon will be the Presiding Officer at this hearing. Following close of the public comment period, the Presiding Officer will prepare a report which summarizes the oral testimony presented and identifies written comments submitted. The Environmental Quality Commission (EQC) will receive a copy of the Presiding Officer's report and all written comments submitted. The public hearing will be tape recorded, but the tape will not be transcribed.

If you wish to be kept advised of this proceeding and receive a copy of the recommendation that is presented to the EQC for adoption, you should request that your name be placed on the mailing list for this rulemaking proposal.

What Happens After the Public Comment Period Closes

The Department will review and evaluate comments received, and prepare responses. Final recommendations will then be prepared, and scheduled for consideration by the Environmental Quality Commission (EQC).

The EQC will consider the Department's recommendation for rule adoption during one of their regularly scheduled public meetings. The targeted meeting date for consideration of this rulemaking proposal is May 17, 1996. This date may be delayed if needed to provide additional time for evaluation and response to testimony received in the hearing process. You will be notified of the time and place for final EQC action if you present oral testimony at the hearing or submit written comment during the comment period or ask to be notified of the proposed final action on this rulemaking proposal.

The EQC expects testimony and comment on proposed rules to be presented **during** the hearing process so that full consideration by the Department may occur before a final recommendation is made. In accordance with ORS 183.335(13), no comments can be accepted after the public comment period has closed by either the EQC or the Department. Thus the EQC strongly encourages people with concerns regarding the proposed rule to communicate those concerns to the Department prior to the close of the public comment period so that an effort may be made to understand the issues and develop options for resolution where possible.

Background on Development of the Rulemaking Proposal

<u>Why is there a need for the rule?</u>

The 1995 Oregon Legislature passed several bills making a number of changes in solid waste and recycling program laws. The rule amendments are needed to bring the Department's regulations into conformance with the laws. The Environmental Protection Agency adopted final rules delaying from October 9, 1995 to October 9, 1997 the effective date for certain very small

municipal landfills to meet the standards required under Subtitle D (40 CFR Part 258). The EQC adopted the revised effective dates as a temporary rule on November 17, 1995. The dates need to be adopted as a permanent rule

The Department has the statutory authority to address this situation under ORS 459.045, 459.995, 459A.025, 459A.650 through .685 and 468.020.

How was the rule developed?

The Solid Waste Advisory Committee (SWAC) reviewed drafts of the proposed rule changes at their fall and winter 1995-96 meetings. The Department incorporated the SWAC's comments into the proposed rule amendments, which are supported by the SWAC. The SWAC previously supported adoption of the temporary rule delaying Subtitle D effective dates for very small landfills.

Documents relied on include:

1. 40 CFR Part 258
2. Environmental Protection Agency rule published in 60 FR 52337-52342
3. ORS 459 and 459A
4. OAR 340 Divisions 90, 91, and 93 through 97
5. 1995 HB 2009; 1995 SB 949; 1995 SB 1089
6. Estimated Quantities of Rigid Plastic Containers Potentially Affected by Federal Regulations, prepared for DEQ by Green Solutions, Renton, WA; May 1995.
7. DEQ Report to Environmental Quality Commission: Proposed Rules for Adoption to Implement Rigid Plastic Container Law; October 11, 1994.

How does this rule affect the public, regulated community, other agencies,

I. Solid Waste Fee Decrease (HB 2009)

Persons and businesses generating waste material that is used for alternative daily cover on municipal landfills will pay lower DEQ fees on that material ($0.30/ton rather than $1.24/ton). This mainly affects some industrial firms such as scrap metal reclaimers whose operations generate residual material (e.g. "auto fluff") which may be put to this use, as well as pulp and paper mills whose sludge has also been used for daily cover. Persons generating petroleum-contaminated soils will also benefit from the reduced fee if the contaminated soils are used as landfill cover. Two sections of the fee schedule rule are proposed to be deleted, one dealing with the hazardous substance authorization fee which expired, by rule, on June 30, 1994; and the section dealing with a surcharge on out-of-state solid waste which was invalidated by the US Supreme Court.

II. Rigid Plastic Container Law (SB 949)

Persons who produce or generate a packaged product sold or offered for sale in Oregon in a rigid plastic container; and persons who produce or generate rigid plastic containers used for a packaged product sold in Oregon are affected. If their product is a "food," it is now exempt from the rigid plastic container law. Point of sale packagers such as take-out food services and other food vendors who use rigid plastic containers were formerly subject to the requirements of the rigid plastic container law, but have been exempted by SB 949.

All persons still subject to the law will receive relief from recordkeeping requirements as long as the aggregate recycling rate for rigid plastic containers remains above 25 percent. Although the compliance dates are not affected, product and container manufacturers will not be subject to enforcement or potential civil penalties for non-compliance during the two-year enforcement delay (until January 1, 1998) or the one-year enforcement exemption allowed if the rate drops below 25 percent. The maximum civil penalty for non-compliance with the law has been reduced from $10,000 to $1,000 a day.

The general public is not directly affected by these rule amendments.

III. Out-of-State Recycling Certification (SB 1089)

Before SB 1089 was passed, landfill operators who wanted to receive solid waste from out of state had to submit information on the out-of-state jurisdiction's recycling program to the Department before the waste could be accepted. Only after the Department certified that the program met Oregon requirements could the waste be landfilled. Now a landfill operator must still notify DEQ before receiving solid waste from out of state, but has two years to provide information to the Department on the out-of-state jurisdiction's recycling program. This gives the operator much greater ability to respond quickly to market opportunities to take waste from potential new out-of-state customers who are looking for a place to dispose of waste. OAR 340-91-090, Equivalents for Out-of-State Jurisdictions -- Waste Reduction Programs, is proposed to be deleted as its substance has been incorporated into other parts of Division 91.

IV. Miscellaneous Changes and Technical Corrections:

1. *Additional time to implement recycling program elements.* (SB 1089) Provides two additional years (until 1/1/98) for cities of over 4,000 population in a county to provide two more recycling program elements if the county failed to meet its mandated 1995 material recovery rate. This affects local governments (eight counties and Metro had not yet achieved their 1995 goals by the end of 1994), and in particular the cities with over 4,000 population (of which there are 36 in those eight counties and Metro) and their franchised garbage collectors or recycling collectors, which would be required to provide the additional recycling opportunities (such as recycling collection for commercial establishments). The stay in implementation would delay incurring

costs for those programs (which costs would be passed on to local residents), but would also delay the additional recycling opportunities for local residents and businesses.

2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* Allows very small landfills located in dry, remote areas two additional years (until 10/9/97) to meet stringent Federal requirements such as groundwater monitoring and financial assurance. This affects owners and operators of these landfills which are often local governments, and the residents of the areas served by the landfills. The local population (general public as well as business and industry) served by the landfills would ultimately have to pay for the increased costs of the federal requirements. The delay provides more time to develop less costly alternatives to groundwater monitoring or find alternative means of solid waste disposal.

3. *Other Miscellaneous Changes and Technical Corrections.* The disposal of "clean fill" is excluded by OAR 340-93-050(2)(c) from solid waste permit requirements. The proposed rule adds a definition of "asphalt paving," to clarify that clean fill excludes asphalt that shows evidence of fresh oil, and should include only weathered asphalt. This will clarify that disposal of fresh asphalt is subject to permitting by the Department for those persons needing to dispose of it. Also clarifies rule references for persons using solid waste and other Department rules.

How does the rule relate to federal requirements or adjacent state requirements

I. Solid Waste Fee Decrease (HB 2009)

a. *Federal.* There are no Federal requirements for per-ton solid waste disposal fees.

b. *Adjacent states.*

Washington. Both residential and commercial solid waste collection services pay a 3.1% tax on gross revenue which goes into a public works trust fund. Wastes not subject to garbage collection do not pay the tax; in most cases wastes used for alternative daily cover would not use a garbage collection service. Manufacturers, wholesalers and retailers of specified products (e.g. food and beverage industries) are also subject to a .015 percent Litter Control Tax on gross proceeds.

California. Landfill operators pay a state $1.34 per-ton solid waste disposal fee. Currently the fee is waived for materials used for alternative daily cover if such materials meet guidance criteria adopted by the California Integrated Waste Management Board.

Idaho. Does not collect a per-ton solid waste disposal fee.

Nevada. Does not collect a per-ton solid waste disposal fee.

II. Rigid Plastic Container Law (SB 949)

a. *Federal.* At this time there are no federal packaging standards applying specifically to rigid plastic containers. However, federal regulations apply to packaging of various categories of consumer products, including the following:

Federal Food, Drug and Cosmetic Act. Food packaging is regulated as an indirect food additive under this Act. The Food and Drug Administration (FDA) regulates food packaging through the food additive petition process. Manufacturers are required by law to obtain approval from FDA for all the materials used in direct-contact food packages before they can be marketed. FDA regulations do not currently address the source of the plastic polymer material. Thus the FDA does not currently approve or disapprove the use of recycled polymers or plastics for food.

Cosmetic manufacturers also have a legal obligation to produce safe products (including ingredients and packaging) under this Act. This includes ensuring that contaminants do not migrate from the packaging to the product in a manner that will compromise the safety of the product.

Federal Insecticide, Fungicide and Rodenticide Act (FIFRA). The pesticides covered under FIFRA are considered hazardous and must be registered. Proposed federal rules would include some aspects of packaging in the regulation of the pesticides. The proposed regulation would specifically forbid pesticide container reuse. FIFRA labeling requirements specify that pesticide containers are to be disposed of as trash.

Hazardous Materials Transportation Act. Regulates the transportation of hazardous materials including herbicides, insecticides, fungicides and rodenticides. Performance specifications relate to stress, minimum thicknesses, ability to withstand pressure and impact, and extreme temperatures. The federal Department of Transportation (US DOT) has adopted regulations (49 CFR 41) that prohibit use of post-consumer recycled content in certain packages.

United Nations Transport of Dangerous Goods Code (UN). Containers (e.g., plastic drums and jerricans) used in shipping hazardous materials are also regulated by UN for transportation and storage safety, if shipped out of the U.S.

U.S. Department of Agriculture (USDA). Regulations govern dairy, poultry and meat products. USDA requires food packagers to submit letters of guarantee and limitations from the package manufacturer, stating that the material in the package meets federal regulations and the conditions under which the package can be used.

In the sense that no federal regulations exist which specifically apply to rigid plastic containers (disregarding their contents), Oregon law is more stringent. However, the above federal regulations govern areas not covered by the Oregon Rigid Plastic Container Law, and in that sense Oregon law is less stringent.

b. *Adjacent States.* Washington. Washington does not have any packaging laws for rigid plastic containers.

Idaho. Idaho does not have any packaging laws for rigid plastic containers.

Nevada. Nevada does not have any packaging laws for rigid plastic containers.

California. In 1991, California passed the Rigid Plastic Packaging Container Act. California regulations are in general similar to Oregon's law, although several key aspects differ significantly. In 1995 the California law was amended to extend indefinitely a previously limited exemption for products subject to US DOT Title 49 regulations or the UN regulations. Their previous exemption had been slated to sunset on December 31, 1995. FIFRA-regulated products are exempt. Packages containing food or cosmetics are not exempt from the California law, but do not have to meet requirements until January 1, 1997. Manufacturers using such packages must also report to the State by December 1, 1995 demonstrating they are taking all feasible actions to comply.

Although some aspects of Oregon law and regulations are more stringent than California law and regulations, the changes in SB 949 are all less stringent than comparable California regulations.

III. Out-of-State Recycling Certification (SB 1089)

a. *Federal.* There are no federal requirements concerning recycling programs.

b. *Adjacent states.* Washington. Requires states exporting waste to Washington for disposal to have waste reduction and recycling programs comparable to those required for the State of Washington. The programs for the exporting state as a whole are considered, as Washington has a state recycling goal but no local (county) goals. The Department of Ecology (DOE) is required to review those programs. DOE is allowed by the legislation to establish a fee for this review, but they have not set one. The landfill operator must notify DOE before accepting out-of-state waste. The landfill must report quarterly to DOE on the amount of out-of-state waste received by state, type of waste and source of waste.

California. No requirements for certification of recycling programs for out-of-state waste being disposed of in California.

Idaho. No requirements.

Nevada. No requirements.

IV. Miscellaneous Changes and Technical Corrections:

1. *Additional time to implement recycling program elements.* Not applicable. This applies to a small part of Oregon's opportunity to recycle program.

2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements*

a. *Federal.* On October 2, 1995 EPA adopted a two-year delay for very small landfills to comply with federal Subtitle D municipal solid waste landfill management requirements. EPA did this to allow more time to develop specific requirements for these small landfills that are feasible while still protecting the environment and human health. The EQC has previously adopted the federal Subtitle D landfill requirements by reference. Adoption of the delay would make state rule conform to federal regulations and would give more time to develop standards for cost-effective alternatives to groundwater monitoring,

b. *Adjacent States.* Washington. Has not adopted the Subtitle D date extension. Most small landfills have closed.

California. Has not specifically adopted the Subtitle D date extension. Considers that they have sufficient flexibility in current rule to implement the extension.

Idaho. Idaho statute declares state law to correspond to federal regulations, so the date extension did not need to be specifically adopted to be effective in Idaho.

Nevada. Has adopted the Subtitle D implementation date delay.

How will the rule be implemented

I. Solid Waste Fee Decrease (HB 2009): The Department has already notified landfill operators affected by the fee decrease, and is revising its quarterly solid waste disposal report forms to reflect the decrease. Revised report forms will be sent to only those six or seven landfills which are affected.

II. Modifications to Requirements for Rigid Plastic Container Recycling (SB 949): After the 1995 Legislative Session, the Department prepared and mailed a fact sheet on changes in SB 949 to persons affected by and interested in the rigid plastic container regulations (the rigid plastic container interested persons mailing list). The Department will again notify them when the final implementing rules are adopted. The rule will cause few changes in implementation for the Department, other than delaying any enforcement actions until after January 1, 1998.

III. Changes in Approval of Out-of-State Recycling Programs (SB 1089): Through this rulemaking process all landfill operators will be notified of the changes in notification and recycling program certification and reporting procedures for waste coming into Oregon from new out-of-state generators. DEQ solid waste technical assistance staff will receive training on the new procedures so they can advise landfill operators in their Regions. The DEQ forms now used to apply for recycling and waste reduction program certification are being updated to correspond to new legislative and regulatory requirements.

IV. Miscellaneous Changes:

1. *Additional time to implement recycling program elements (SB 1089).* Local governments and wasteshed recycling coordinators will receive notice through this rulemaking of the additional time to implement additional recycling program elements.

2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* The Department has already notified operators of very small landfills meeting the criteria about the two-year delay. Regional solid waste staff are working with operators of these landfills to facilitate a smooth transition to meeting the federal criteria after the two-year period expires.

Overall: the Department will issue revised administrative rules incorporating the adopted changes and make them available through all Department Offices to the general public on request.

<u>Are there time constraints</u>

I. Solid Waste Fee Decrease (HB 2009): The Legislation went into effect September 9, 1995, so the fee decrease has been operative since that date. The rule needs to be changed to correspond to the statute and to current practice.

II. Modifications to Requirements for Rigid Plastic Container Recycling (SB 949): The Legislation went into effect September 9, 1995. The rule needs to be updated to correspond to statute.

III. Changes in Approval of Out-of-State Recycling Programs (SB 1089): The legislation went into effect September 9, 1995. The rules need to be changed to specify the procedures to be used by landfill operators to notify DEQ about new sources of out-of-state waste and in keeping records.

IV. Miscellaneous Changes:

1. *Additional time to implement recycling program elements (SB 1089).* The new legislation delays the date to implement new recycling activities from July 1, 1996 to July 1, 1998. The rule change should be in place before that date.
2. *Additional time for small landfills to meet Federal Subtitle D landfill requirements.* The two-year delay in the federal Subtitle D regulations went into effect October 2, 1995. The temporary rule adopted by the EQC went into effect November 28, 1995 and will expire on May 28, 1996. A permanent rule should be adopted before the expiration date of the temporary rule.

Contact for More Information or Copy of the Proposed Rules:

If you would like to receive a copy of the actual language of all the proposed rule amendments, or would like to be added to the mailing list, please contact:

Michelle Shepperd
(503) 229-6724 or toll-free in Oregon 1-800-452-4011

If you would like more information on this rulemaking proposal, please contact:

Deanna Mueller-Crispin
Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204
(503) 229-5808 or toll-free in Oregon 1-800-452-4011

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Attachment C

State of Oregon

Department of Environmental Quality Memorandum

Date: April 15, 1996

To: Environmental Quality Commission

From: Jacquie Moon

Subject: Presiding Officer's Report for Rulemaking Hearing
Hearing Date and Time: March 26, 1996, beginning at 1:00 p.m.
Hearing Location: Headquarters Office, Portland, Oregon

Title of Proposal: Amendments, Solid Waste and Recycling Administrative Rules

The rulemaking hearing on the above titled proposal was convened at 1:00 p.m. People were asked to sign witness registration forms if they wished to present testimony. People were also advised that the hearing was being recorded and of the procedures to be followed.

Four people were in attendance, one person signed up to give testimony.

Prior to receiving testimony, Deanna Mueller-Crispin briefly explained the specific rulemaking proposal, the reason for the proposal, and responded to questions from the audience.

Summary of Oral Testimony

Bernard Bigham provided oral testimony on behalf of TPST Technologies, Inc., and TPST Soil Recyclers of Oregon, Inc. General support for the proposed changes was expressed. However, concern was expressed for the Solid Waste Fee Decrease, specifically the portion that would decrease DEQ per-ton tipping fees on disposal of waste approved for use as alternative daily cover at landfills.

Mr. Bigham testified that encouraging the use of petroleum-contaminated soil for daily cover at municipal landfills by means of DEQ's ability to assess fees is contradictory to federal clean air goals and to the mission of DEQ.

He testified that the use of petroleum-contaminated soil as daily cover would result in the release of most of the volatile organic compounds (VOCs) contained in the soil because of the manner in which daily cover is handled. He based this conclusion on emission modeling which indicates that spreading and agitation of the soils greatly increase the release of VOCs.

Additionally, he stated that municipal solid waste landfills were recently made subject to a new EPA rule designed to cut down on smog-causing emissions and toxic air pollutants. This rule sets new source performance standards regulating air emissions from new and modified landfills. In part, it limits landfills of 2.5 million tons design capacity to a total non-methane VOC emission limit of 50 tons per year. Any exceedence of those limits require the use of both operational and emission controls. Mr. Bigham said petroleum contaminated soil is only one source of non-methane VOCs in a landfill; other sources can be considered to be higher.

He further testified that it has not yet been determined if the upcoming Off-site Waste and Recovery National Emission Standard for Hazardous Air Pollutants, which exempts municipal solid waste landfills from its requirements, will apply to petroleum-contaminated soils used as daily cover. If it does apply, a minimum threshold of 10 tons per year release of any one hazardous air pollutant (HAP) or 25 tons total per year release for all HAPs combined would be established.

He proposed that OAR 340-97-120(5)(e)(B) be amended to include petroleum-contaminated soils in the definition of solid waste, and that the Oregon Solid Waste Management Rules, Chapter 340, Division 97 be amended to exclude permanently the practice of using petroleum-contaminated soil as daily cover.

Written Testimony

The following people handed in written comments but did not present oral testimony:

1) Bernard Bigham submitted his oral testimony.

2) Marla Donahue, Vice President, Public Affairs, Foodservice and Packaging Institute, Inc.

There was no further testimony and the hearing was closed at 2:00 p.m.

ATTACHMENT D

State of Oregon
Department of Environmental Quality

Memorandum

Date: May 3, 1996

To: Environmental Quality Commission

From: E. Patricia Vernon, Manager, Solid Waste Policy and Program Section

Subject: Summary and Evaluation of Public Comments and Response to Comments, Solid Waste and Recycling Rule Adoption

A public hearing on the Proposed Rules was held in Portland on March 26, 1996. A total of four people attended the hearing, and one person gave oral testimony which was also submitted in written form. One additional written comment was received by the Department. Below is a summary of the comments received and the Department's responses.

Comments concerning Item I, Solid Waste Fee Decrease:

Comment 1, made by a representative of a company engaged in thermal desorption of contaminated soil:

Petroleum-contaminated soils are regularly being used as daily cover for landfills; this practice does not need to be encouraged through a fee decrease.

Department's Response:

The proposed rule allows the fee decrease for any material "used as daily cover at a landfill in place of virgin soil...," which includes petroleum-contaminated soils (PCS). The proposed rule also specifies general conditions for when the fee decrease would be allowed.

The Department has been administratively allowing the reduced fee for PCS used as daily cover since this issue arose in October 1994. The Department's position has always been that further consideration was needed of whether PCS used as cover should qualify for the reduced fee. Both the SWAC and landfill operators using PCS as daily cover were notified in the past that this issue would receive further deliberation. This issue is being considered by the SWAC and may be the subject of future solid waste rulemaking. Consequently no change from the proposed rule is recommended at this time

Comment 2, made by a representative of a company engaged in thermal desorption of contaminated soil:

Petroleum-contaminated soils release pollutants such as volatile organic compounds (VOCs) into the air when used as daily landfill cover. Emissions from PCS are greatly increased with the spreading and agitation associated with application of PCS as landfill cover. This use may be inconsistent with the Clean Air Act Titles I and V (and possibly Title III), and should be excluded by rule.

Department's Response:

The Department's rules for cleanup materials contaminated with hazardous substances, which are mainly PCS (OAR 340-93-170), establish a management hierarchy for those materials. The preferred management options are, first, use of "technologies where cross media effects are well controlled, such as thermal desorption." Landfill disposal is lower on the management hierarchy. However, persons needing to manage PCS often choose between on-site treatment in accordance with DEQ's Cleanup programs, and landfill disposal rather than more controlled technologies. It should be noted that prescribed on-site treatment handles the contaminated soil in a similar manner, turning and tilling it. Either option, both legal, ultimately results in the release of about the same amount of VOCs to the atmosphere.

In order to protect groundwater, the Department's existing rule (340-93-170(3)(d)(B)(iii)) further requires that PCS disposed of in landfills is "whenever possible" to be "incorporated into the daily cover material unless such practice would increase risks to public health or the environment."

The Department's Air Quality Program is analyzing the amount of VOC emissions from landfills that use PCS as daily cover. Generally, an air contaminant discharge permit (ACDP) will be required if emissions exceed 10 tons of VOCs per year, and a Title V permit may be required if the potential to emit VOCs exceeds 100 tons per year. Should a particular landfill require a permit due to the use of PCS as daily cover, the Air Quality Program will ensure that all applicable regulations apply.

The Department's preferred management of PCS is through treatment which does not emit VOCs such as incineration over treatment which does emit VOCs such as landfilling. However, in those cases where a responsible party chooses to dispose of PCS by landfilling, the Department continues to believe use of PCS as daily cover is desirable and prohibiting this action is environmentally inappropriate. The Department does not recommend a change in the proposed rule language.

General Comments:

A trade association of the food service industry submitted written comments expressing general support of the proposed rule.

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Attachment E

Solid Waste Advisory Committee Members

Gail Achterman
Stoel, Rives, Boley, Jones & Grey
900 SW 5th Avenue, #2300
Portland, OR 97204

Rick Allen
County Courthouse
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Madras, OR 97741

Neal Alongi
Emcon Northwest, Inc.
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Albany, OR 97321

Max Brittingham
Oregon Refuse and Recycling Association
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Salem, OR 97308-2186

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Sherwood, OR 97140

Sue Densmore
Rogue Waste Systems, Inc.
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Medford, OR 97501

Susan Keil
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Portland, OR 97210

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Pendleton Sanitary Service, Inc.
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Pendleton, OR 97801

Betty Patton
Environmental Practices
32 NE 44th Avenue
Portland, OR 97213

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Metropolitan Service District
600 NE Grand Avenue
Portland, OR 97232-2799

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3040 N Delta Highway
Eugene, OR 97401-1696

Ray Steinfeld, Jr.
Steinfeld's Products Company
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Portland, OR 97203-6596

Chris Taylor
OSPIRG
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Portland, OR 97214-4701

ATTACHMENT F

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rulemaking Proposal
for
Amendments, Solid Waste and Recycling Rules

Rule Implementation Plan

Summary of the Proposed Rule

The proposed rules would implement changes required by legislation passed by the 1995 Oregon Legislature, as well as changes made necessary by changes in Federal regulations. It would also make some minor changes and technical corrections identified by the Department as necessary for program implementation. Major changes include: exempts solid waste used for alternative daily cover at landfills from the DEQ $.81 per-ton solid waste disposal fee and the $.13 per-ton Orphan Site Account fee. Exempts rigid plastic containers containing food from compliance with the rigid plastic container law (rigid plastic containers holding "drinkable liquids" are still required to comply); allows certain exemptions and delays in enforcement of the rigid plastic container law; reduces maximum civil penalty for noncompliance with the rigid plastic container law from $10,000 to $1,000 per day. Requires landfill operator to notify DEQ before Oregon landfill may receive waste from out of state; allows two years for landfill operator to submit information to DEQ demonstrating that the out-of-state jurisdiction sending the waste has a recycling program complying with Oregon requirements. Adopts federal changes allowing certain very small municipal solid waste landfills two additional years to meet federal RCRA Subtitle D requirements.

Proposed Effective Date of the Rule

Upon filing (approximately May 24, 1996).

Proposal for Notification of Affected Persons

The Department has already notified all landfill operators and permittees, and persons interested in and affected by the rigid plastic container law about the rulemaking proposal. The Department intends to again notify those persons affected by the rigid plastic container regulations after rule adoption. Local governments and wasteshed recycling coordinators received notice through rulemaking notification of the additional time allowed to implement additional recycling program elements if the wasteshed does not achieve its 1995 recovery rate.

Landfill operators and permittees will be further notified of the continuing consideration by the Solid Waste Advisory Committee of whether petroleum contaminated soil used as landfill daily cover should not receive a fee reduction.

Proposed Implementing Actions

I. Solid Waste Fee Decrease. The Department has revised its quarterly solid waste disposal report forms to reflect the fee reduction for materials used as alternative daily cover. These forms have been sent to only those six or seven landfills which are affected, and will be sent to any additional landfills which may be affected in the future. Permit templates will be reviewed for any needed changes.

II. Modifications to Requirements for Rigid Plastic Container Recycling. The rule will cause few changes in implementation for the Department, other than delaying any enforcement actions until after January 1, 1998.

III. Changes in Approval of Out-of-State Recycling Programs. The DEQ forms now used to apply for recycling and waste reduction program certification are being updated to correspond to new legislative and regulatory requirements. Permit templates will be reviewed for any needed changes.

Proposed Training/Assistance Actions

DEQ solid waste technical assistance staff have received notification of new out-of-state recycling program certification and reporting procedures, and will receive copies of the amended rules. Regional solid waste staff are working with operators of small landfills to facilitate a smooth transition to meeting federal criteria after the new two-year delay in meeting federal requirements expires.

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#D-1

DEPARTMENT OF STATE POLICE

OREGON
emergency management

STATUS OF EMERGENCY RESPONSE

Presented by Gary Pettit
Oregon Emergency Management

To

Environmental Quality Commission
Portland, Oregon
17 May 1996

DEPARTMENT OF STATE POLICE

OREGON
emergency management

Mission of Oregon Emergency Management

...maintain an Emergency Services System as defined and authorized in ORS 401, by planning, preparing, and providing for the prevention, mitigation, and/or management of emergencies or disasters that present a threat to the lives and property of the citizens of, and visitors to, the State of Oregon."

DEPARTMENT OF STATE POLICE

OREGON
emergency management

AGENDA

CSEPP Federal Mandate

Program Features

Location/Population at risk

Exercise Objectives

State Emergency Operations Plan

Concluding Remarks

DEPARTMENT OF STATE POLICE

OREGON
emergency management

CSEPP GOAL

To mitigate the effects of an accident to the maximum extent practicable.

- Establishment of comprehensive emergency planning and preparedness programs.

- Through preventive measures designed to render the stockpile less susceptible to both internally and externally generated accident scenarios.

"CSEPP Policy Paper Number 1, dtd May 1991."

DEPARTMENT OF STATE POLICE

OREGON
emergency management

PROGRAM FEATURES

* 100% Federally Funded:

Cooperative agreements between Federal, State, and County Governments.

* Integration of Federal, State and Local E.M. Requirements.

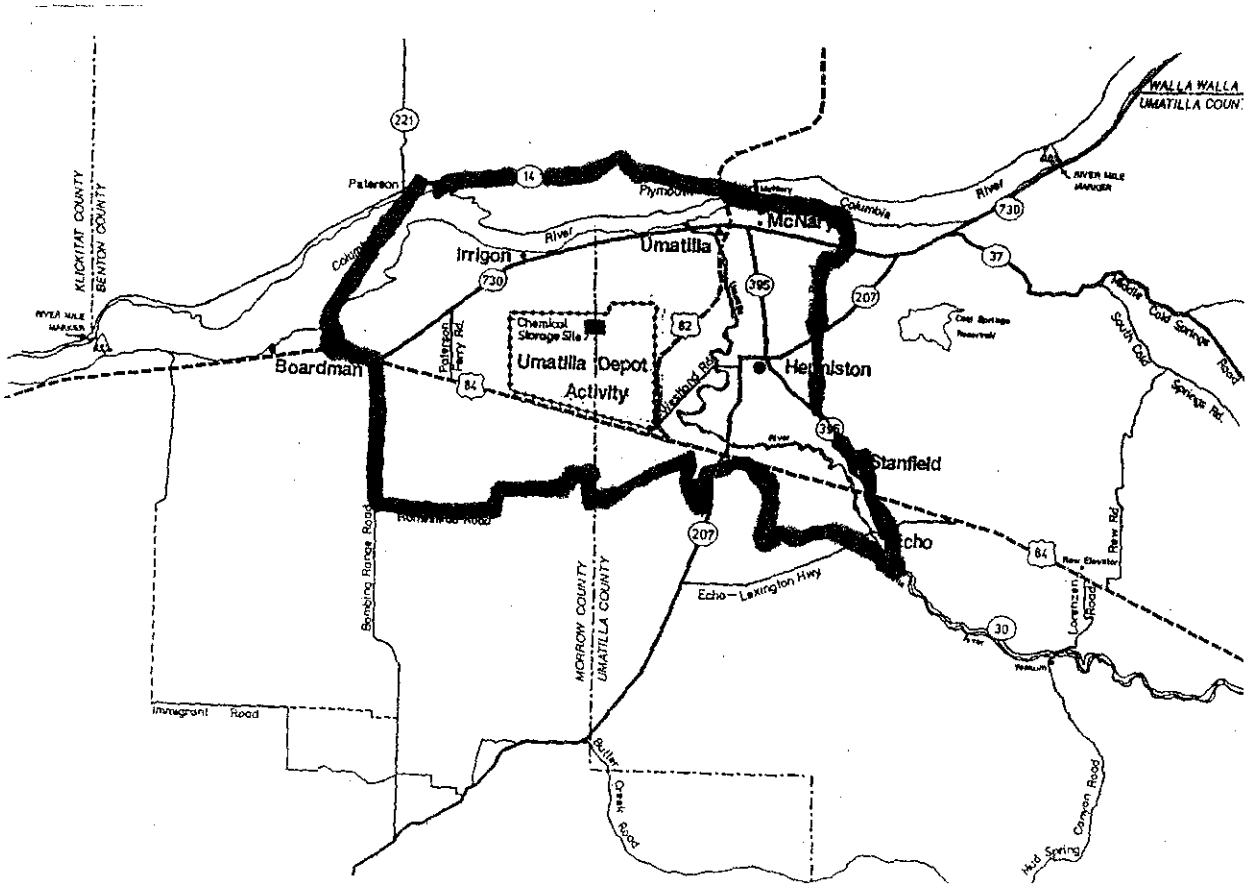
* Provides funding for full time staff at State (8.25 FTEs), & Counties (Morrow 4.8 FTEs & Umatilla 5.25 FTEs)

* Applicability to all hazards!

DEPARTMENT OF STATE POLICE

OREGON
emergency management

Location/Population at Risk



*** Approximately 41,000 people live and 9 cities/towns are within the CSEPP hazard zones.**

DEPARTMENT OF STATE POLICE

OREGON
emergency management

ANNUAL CSEPP EXERCISE

* Joint exercise conducted by Army & FEMA.

* Occurred on 9 May.

* Purpose: Demonstrate response capabilities.

* Coordination and preparation.

* Evaluation based upon plans.

* Standard Objectives derived from CSEPP Guidance and Policy.

DEPARTMENT OF STATE POLICE

OREGON
emergency management

STANDARD OBJECTIVES

* Objectives all jurisdictions must demonstrate annually:

-1. Initial Alert and Notification.
-2. Hazard Assessment.
-3. Protective Action Recommendations & Decision Making.
-4. Command and Control.
-5. Public Notification, Instructions and Emergency Information.
-6. Communications Systems, Facilities, Equipment and Displays.

Objectives which must be demonstrated once in a four year period/cycle:

-7. Protective Action Implementation for Special Populations and facilities.
-8. Traffic and Access Control.
-9. Public Affairs.
-10. Medical Services- First Response.
-11. Medical Services- Transportation.
-12. Medical Services- Medical Facilities.
-13. Field Response.
-14. Screening, Decon, Registration & Congregate Care of Evacuees.
-15. 24-hour Operations.

DEPARTMENT OF STATE POLICE

OREGON emergency management

OREGON
TYPICAL DISASTER SEQUENCE

Disaster Occurs

↓

Local Government Response

↓

Local Emergency Declaration

↓

Initial Damage Assessment
(American Red Cross "Windshield" Survey
may be a source of information)

↓

Local Request for State Assistance

↓

Governor's "State of Emergency" Declaration

↓

State Response

↓

State Request for Joint PDA

↓

Joint Preliminary Damage Assessment (PDA)

↓

State Request for Federal Assistance
(Identify Recovery Programs Needed)

↓

FEMA Analysis of Request & Recommendation to the President

↓

Presidential Declaration
(Major Disaster or Emergency)
(Disaster Area Designated)

↓

FEMA-State Agreement

↓

Reports
Hotline
Outreach

DISASTER FIELD OFFICE

Public Information
Congressional Affairs
Equal Opportunity

INDIVIDUAL ASSISTANCE PROGRAM

DISASTER APPLICATION CENTER

↓

Insurance / Volunteer Agencies
Temporary Housing Assistance
Small Business Administration Loans
Farmer's Home Administration
Individual and Family Grant Program
Cora Brown Fund
Crisis Counseling Assistance
Disaster Unemployment Assistance
Food Distribution Program
Food Stamp Program
Internal Revenue Service Assistance
Legal Services
Senior Citizens Assistance
Social Security Assistance
Veterans' Assistance

HAZARD MITIGATION PROGRAM
(Interagency Hazard Mitigation Team)
(Hazard Mitigation Grant Program)

PUBLIC ASSISTANCE PROGRAM

↓

Applicants' Briefing
Project Applications
Damage Survey Reports
Determine Method of Work
Advances & Reimbursement
Final Inspection

DEPARTMENT OF STATE POLICE

OREGON
emergency management

CONCLUDING REMARKS

Both County and State CSEPP staff are working together to identify requirements, seek funding, and improve plans to insure if an accident ever occurs that the maximum protection is provided to our citizens, their property and our visitors.

Comments on Destruction of Chemical Weapons at the Umatilla Army Depot

Don Wysocki, Rt. 1 Box 237 Pendleton Oregon

Prepared for Environmental Quality Commission Meeting, May 17, 1996, Portland, Oregon

I have served on the Governors Committee on chemical demilitarization at the Umatilla Army depot, since its inception about three years ago. During this period I have attended numerous meeting, listened to many experts, read extensively, and conducted my own research into the risks of incineration. I have attempted to look objectively at all facts and arrive at a reasonable position. Based my experiences and careful thought I submit the following statements. Please understand that these were not arrived at lightly.

1. Safe, expedient and fiscally responsible destruction of the Umatilla arsenal is needed. At this time only one method meets these requirements. This being **incineration.**

This statement is base on:

A. Careful analysis of the NRC report which includes:
Thorough reading of the document
Conversations with Carl Peterson (committee chair),
Investigation into composition and selection of members of this committee
(It was alleged that committee biased and had conflicts of interest) The committee actually had members from a wide range of backgrounds and the NRC has a strict screening process to demonstrate objectivity and no conflict of interest.

B. My own research into operation of a waste to energy incinerator at Spokane.
The waste incinerator at Spokane Washington safely burns 300 tons of waste per day. It burns 24 hours/day, 350 days/year. The waste volume is much larger and much more complex chemically than materials at Umatilla. Extensive monitoring is done and emissions of pollutants are less than a single wood burning stove. Design at Umatilla for emission control exceeds those in Spokane.

C. Development of alternative technology for destruction of agent while theoretically possible have yet to be shown feasible from a practical, environmental, and health aspect. The drain and store option as some propose extends into the future both increase risks and increased costs. Agent would need to be repackaged and disposed of in the future. As long as agent exists there are risks and over time cost of destruction increases.

2. **There is nationally organized effort to oppose and stop incineration at any cost**. I believe this to be small be very vocal minority. The sole objective of this organization stop incineration. This organization has demonstrated that is will use whatever means possible to prevent incineration without objectively reviewing the facts. This organization has consistently demonstrated this approach. Two recent examples are: 1) A greatly exaggerated press release of a report by Dr. Douglas Crawford-Brown at Chapel Hill North Carolina on risk assessment of incineration.

3. **Continued storage and delay of destruction pose increasing risk**. This is based on:

A. Continued deterioration of weaponry, particularly of M55 rocks. This rocket can auto ignite as fuel degrades over time.

B. Increasing risk of natural disaster such plane crashes and earthquakes over time.

C. The possible threat of terrorist activity. Events from around the world show that terrorism can happen unpredictably anywhere at any time without regard to reasonable or rational behavior.

Comments on Destruction of Chemical Weapons at the Umatilla Army Depot

Prepared for Environmental Quality Commission Meeting, January 11, 1996, Portland, Oregon

Risk Much work has gone into assessing the risk involved with destruction of chemicals weapons. A National Research Council (NRC) committee has reported on the risk. This committee was a group of scientists representing a wide range of viewpoints. All members serving on NRC committees much meet rigid criteria and scrutiny for no conflict of interest. The NRC committee on chemical weapons found that the greatest risk is in continued storage, particularly with M55 rockets. Also this committee found that incineration presents the lowest risk of any disposal methods. Currently the Oregon DEQ is doing a health risk assessment at Umatilla. The magnitude of risks are very, very small (10^{-6}) or less. We need to be concerned about these risks but they should be placed in perspective. There are several other respiratory health issues in the Umatilla area that have (much) higher but unknown risks. Specifically, burning of wood and other fuels in home heating, open burning, motor fuel emissions and air borne dust.. Pay attention to risk factors!.

Chemistry Basic chemical and physical principles state that matter can neither be created or destroyed. Any disposal system will use chemical processes to convert chemical agents to another chemical form. Regardless of the method used the process will rely on basic chemical processes, such as oxidation or hydrolysis. These chemical processes will be used whether incineration or other methods of disposal are chosen. Each method of destruction will have a waste stream that must be handled and each method has risks, costs, technological difficulties and design concerns .

Alternatives There will be four waste streams that must be disposed at Umatilla: 1) metal parts, 2) propellants, 3) chemical agents, and 4) dunnage. Incineration is the only available technology for items 1, 2, and 4. Incinerators will be necessary for these wastes. Alternatives have only been proposed for chemical agents. However, alternatives remain untested at a practical field scale. It seems unreasonable to destroy three waste streams by incineration and develop a parallel technology for chemical agents. This is particularly true if the parallel technology does not have less risk and is more costly, while incineration does not pose unreasonable risk..

Citizen Involvement and Concern Destruction of chemical weapons has received much media attention. It is my opinion however, that most citizens of the region do not understand the issues very well. Most people are very busy with jobs, families, etc. They do not have the time to evaluate all issues that pose some risk to them. I believe the majority of citizens feel that disposal and storage of weapons at Umatilla pose little risk and are more worried about other factors in their lives. They want to see the arsenal destroyed as quickly, safely and economically as possible. This is the responsibility of the Army , local, state and federal agencies and the Governors commission.

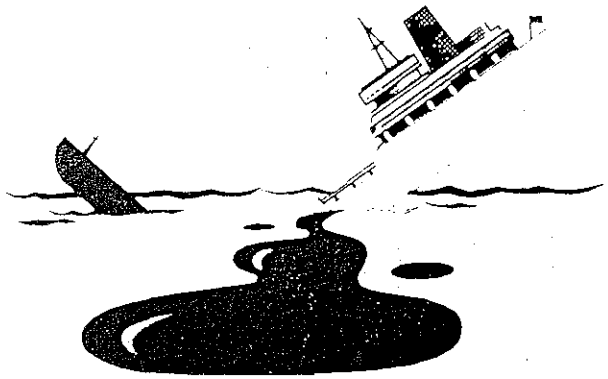
Don Wysocki
Rt. 1, Box 237
Pendleton, OR 97801

#81

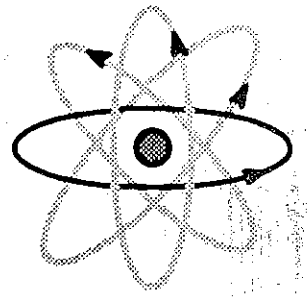
Congress created the Chemical Stockpile Emergency Preparedness Program to provide MAXIMUM PROTECTION for the general public and the environment in the vicinity of chemical agent storage sites.

Sample Decision Time of Various Hazards

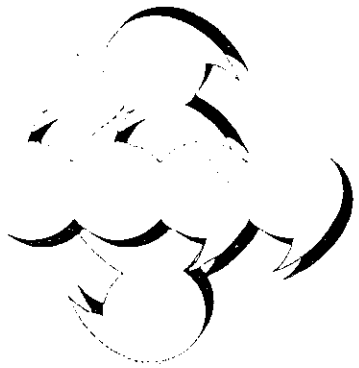
oil spill: 3 weeks



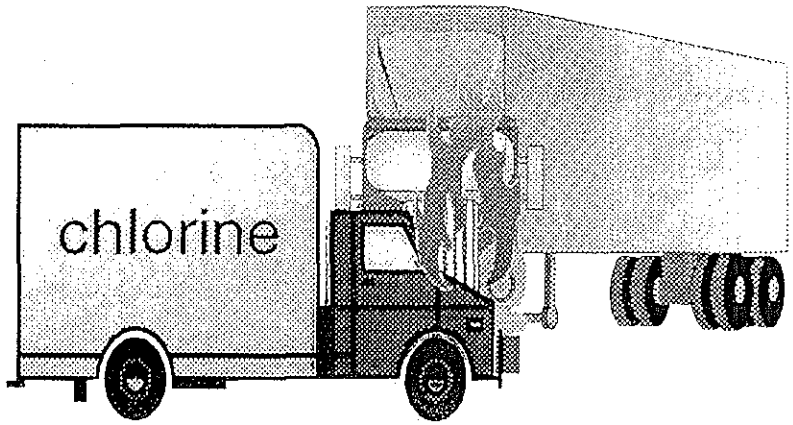
nuclear facility: 2 days



hurricane: 6 hrs

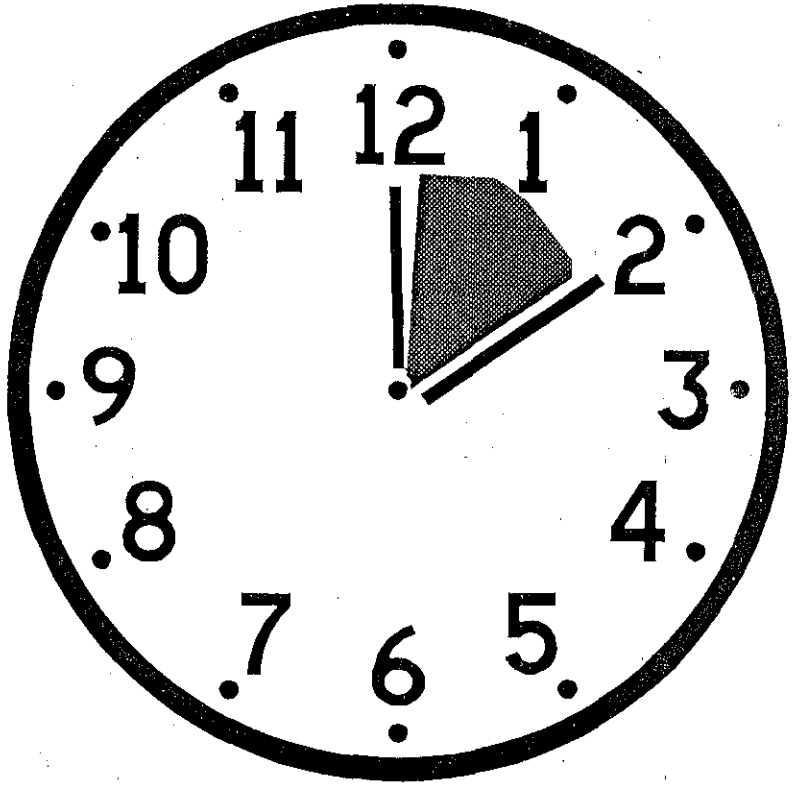


hazardous material:
20 - 30 minutes



Time for a CSEPP Event

The maximum time to make initial decisions is between 5 and 10 minutes

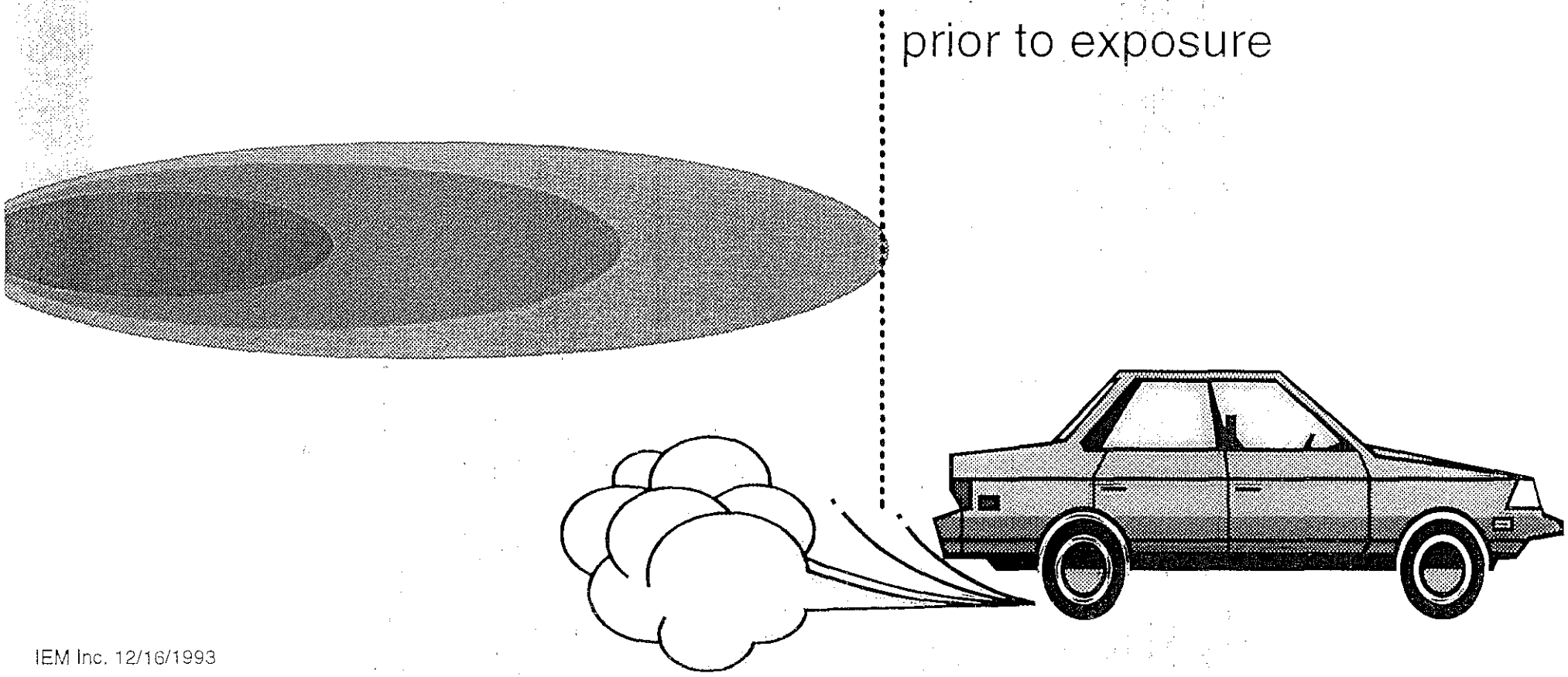


Time Issues in CSEPP

- Notification and Decision Window - 3 to 5 minutes
- Warning Dissemination Time Window - 5 to 15 minutes
- Citizen Mobilization Time - faster than any recorded
- Protective Action Implementation Window - less than 1 hour

Evacuation

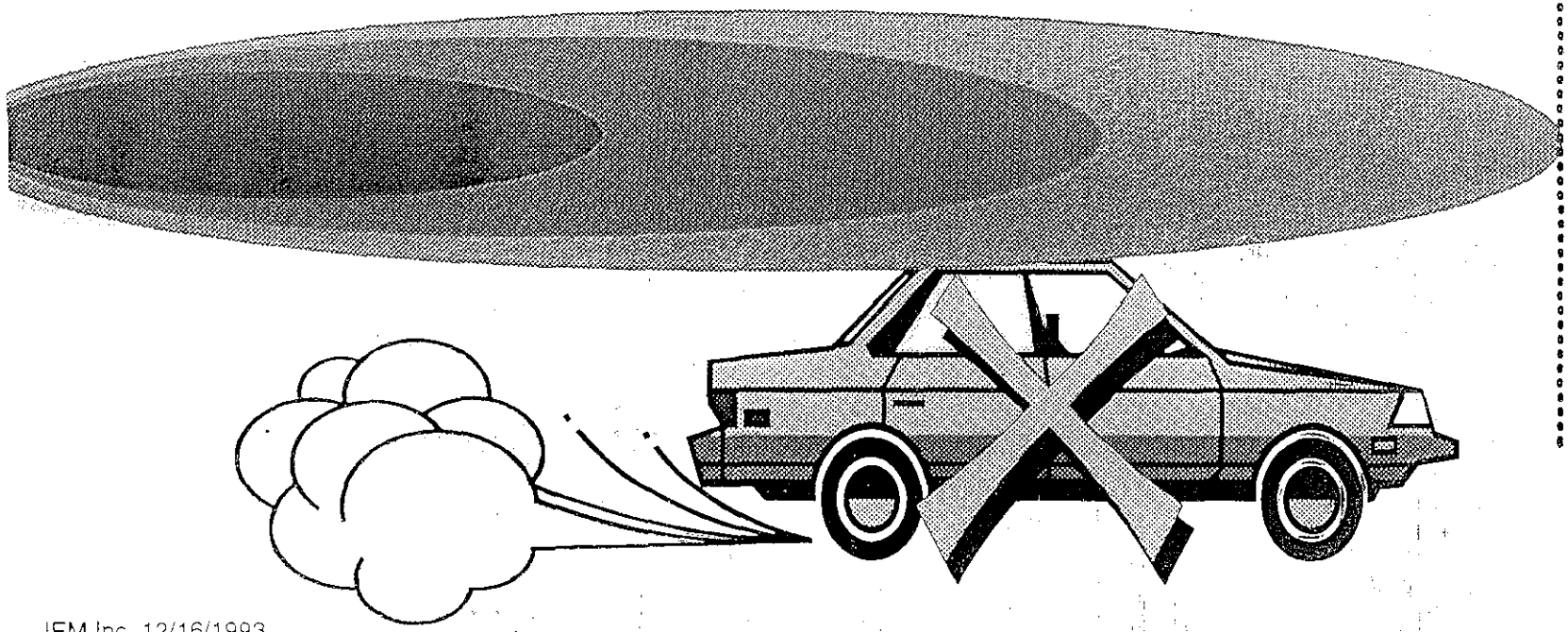
- Evacuation is the preferred protective action when it can be completed prior to exposure



Evacuation After Exposure

- Attempting to evacuate after the plume has reached a population is unwise because it would lead to a higher dosage than sheltering-in-place

after exposure

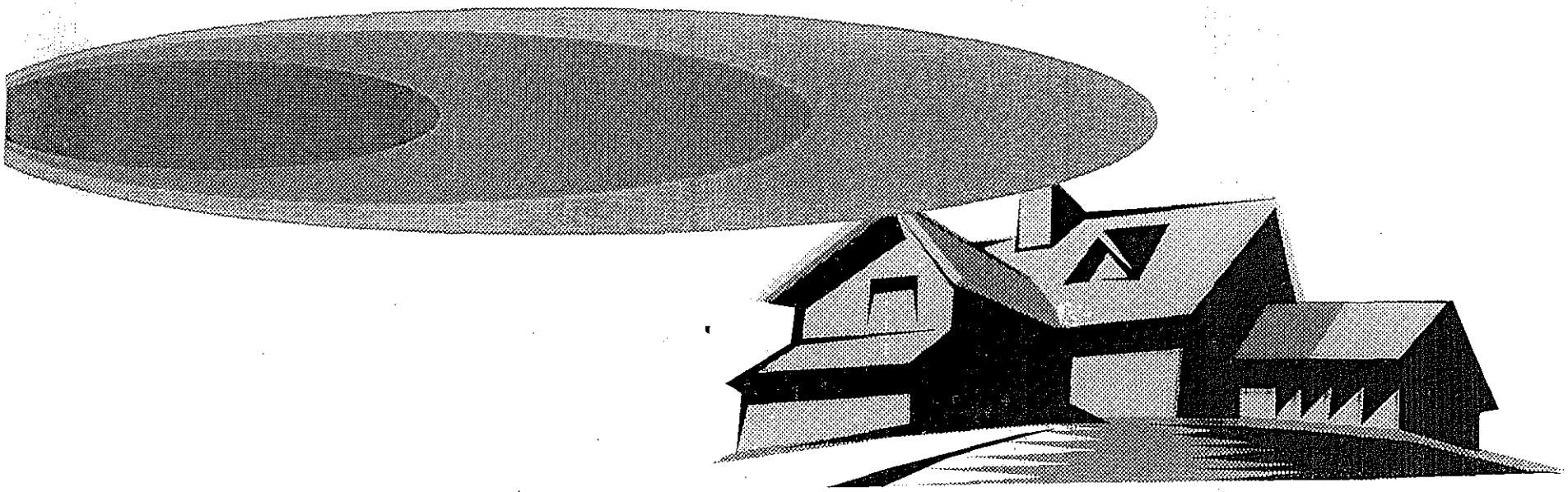


Evacuation Implementation Time

- Source: Oak Ridge Nat'l Lab study
- Evacuation (1 vehicle per household)
  - IRZ only (Oregon)
    - 1 hour and 45 minutes for daytime, good weather
    - 2 hours and 30 minutes for daytime, bad weather
  - IRZ/PAZ (Oregon)
    - 3 hours and 15 minutes for daytime, good weather
    - 3 hours and 35 minutes for daytime, bad weather

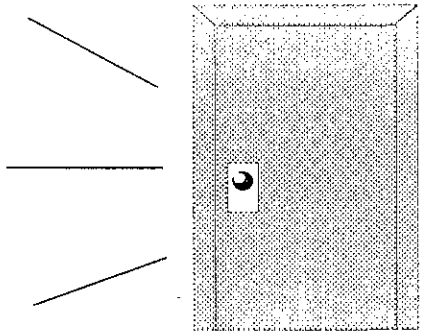
Sheltering

- Sheltering-in-place is the preferred protective action when evacuation cannot reasonably be completed prior to plume arrival

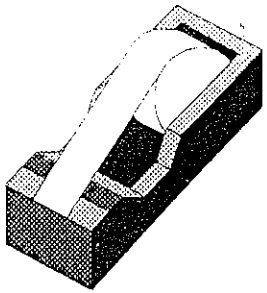


Types of Sheltering

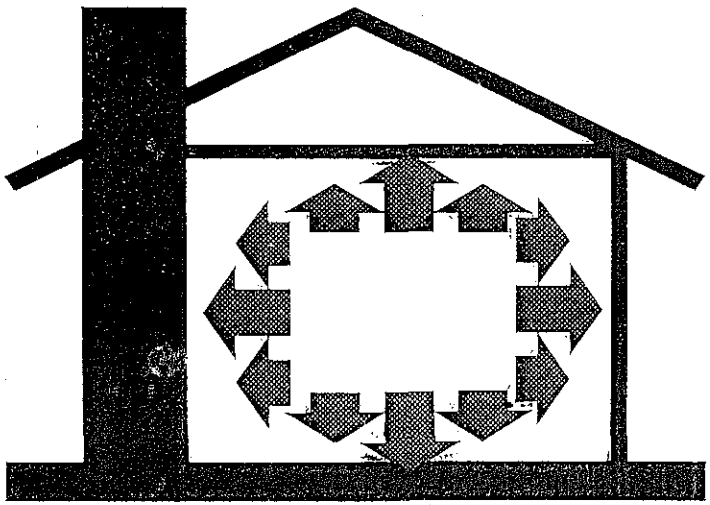
a house with
closed windows
and shut doors



taping and
sealing



pressurized
shelter



How Positive Pressurization Works

During an emergency, students will be assembled in a "safe area" of the school building. These areas are pressurized This means the air pressure inside the building will be higher than the air pressure outside. This prevents toxic chemicals from seeping in through cracks in the building, windows and doors.

Outside air will pass through special carbon filters in an air handling unit on the roof or on the ground. The filters are made out of materials that remove harmful gases and particles in the air.

Food, water, bathrooms and medical supplies will be available inside these "safe areas." Materials to keep students occupied will also be provided. School staff will supervise the students at all times. Students could be sheltered in the "safe areas" for up to 24 hours.

The positive pressurization project will go out to bid soon. Construction is expected to begin at the first schools this summer, with all schools completed by the fall of 1997. We'll keep you posted!

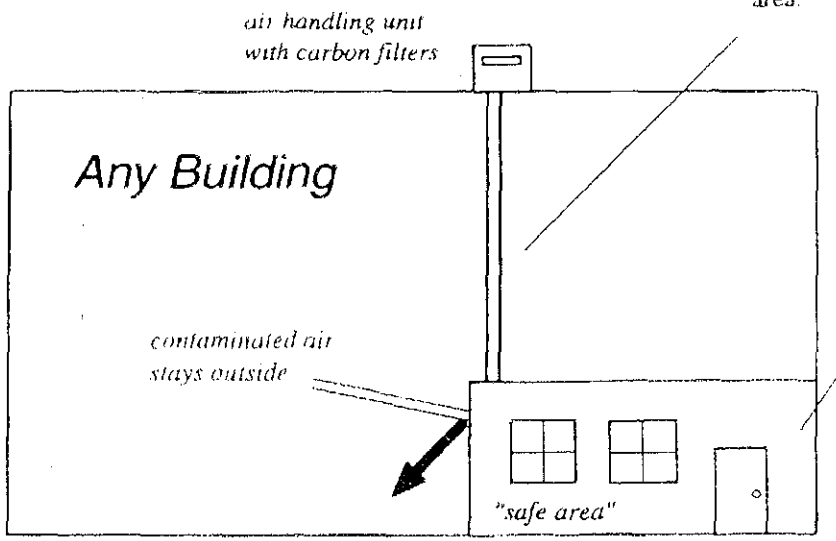
Emergency Managment

1

Outside air is pumped through carbon filters. The filters make the air safe to breathe by absorbing toxic materials

2

The clean air is piped to the sealed "safe area," making the air pressure inside higher than the air pressure outside, preventing contaminated outside air from entering the safe area.



3

Inside the "safe area" are bathrooms, food, water, blankets,medical supplies and materials to keep students occupied.

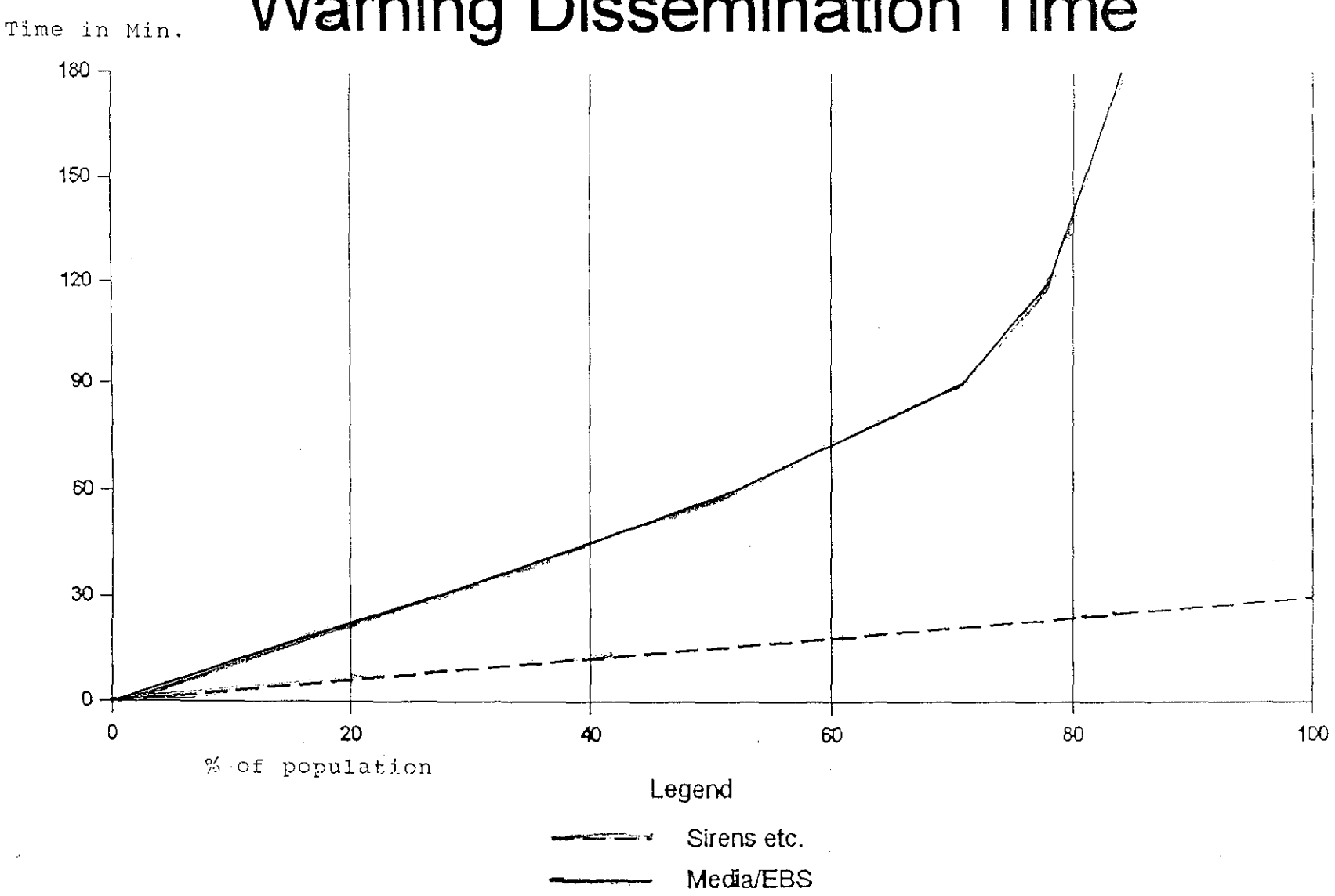
Sheltering Implementation Time

- Source: Oak Ridge Nat'l Lab study (ORNL-6615)

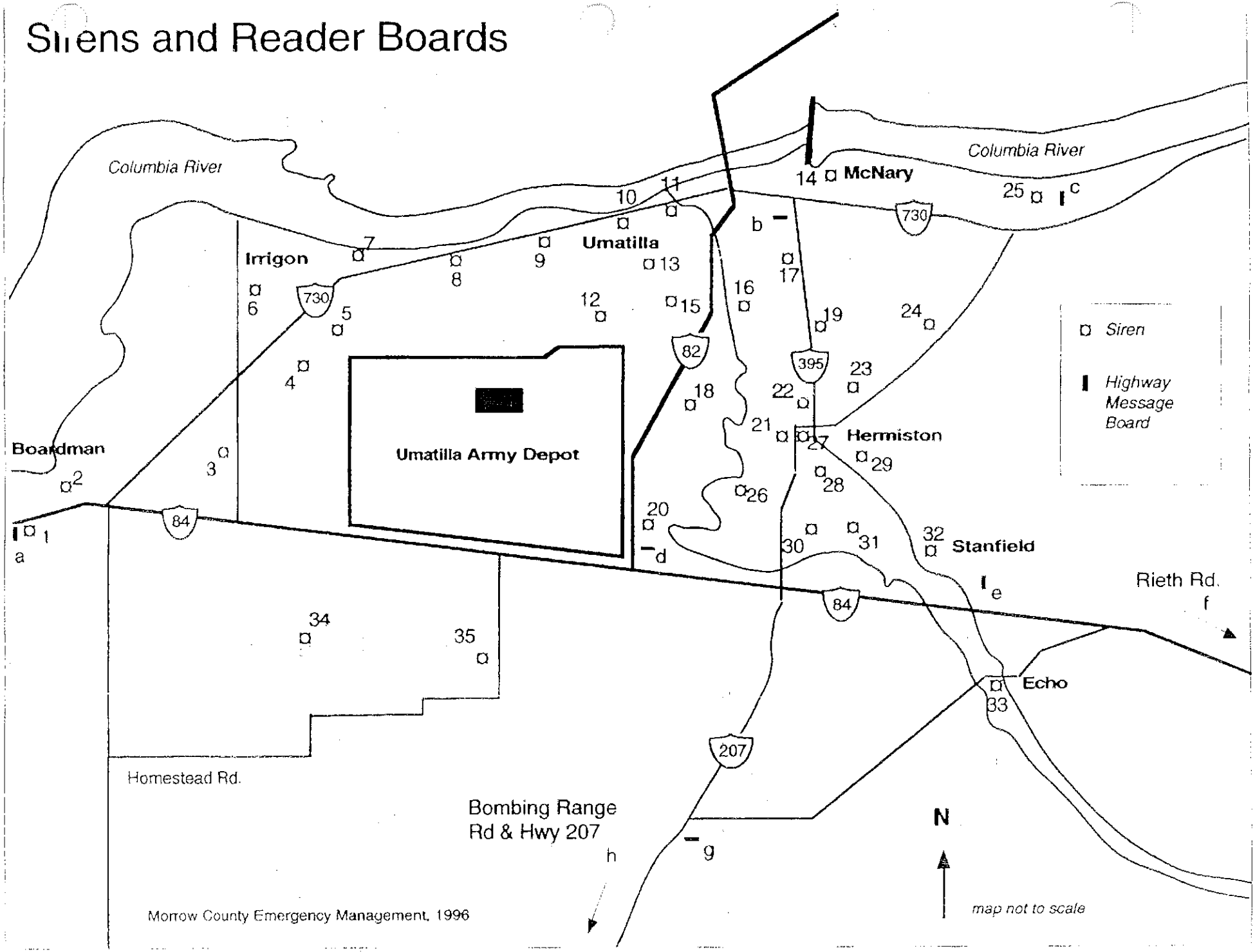
- Close Windows and Doors
  - Average estimated at 3 minutes
  - Range estimated at 2-6 minutes
- Tape and Seal Room
  - Average estimated at 15-17 minutes
  - Range estimated at 2-39 minutes

- Does not include mobilization time

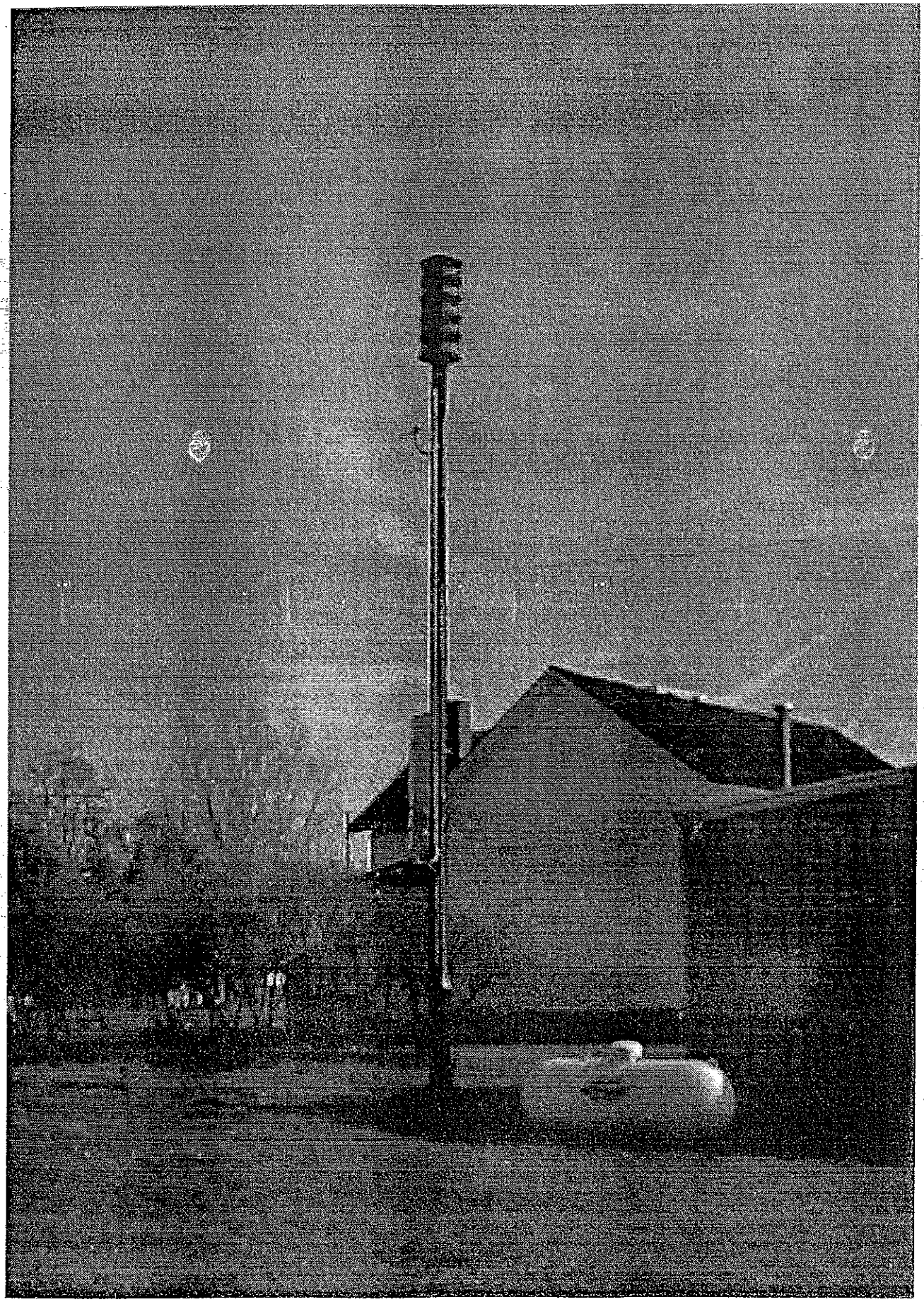
Warning Dissemination Time

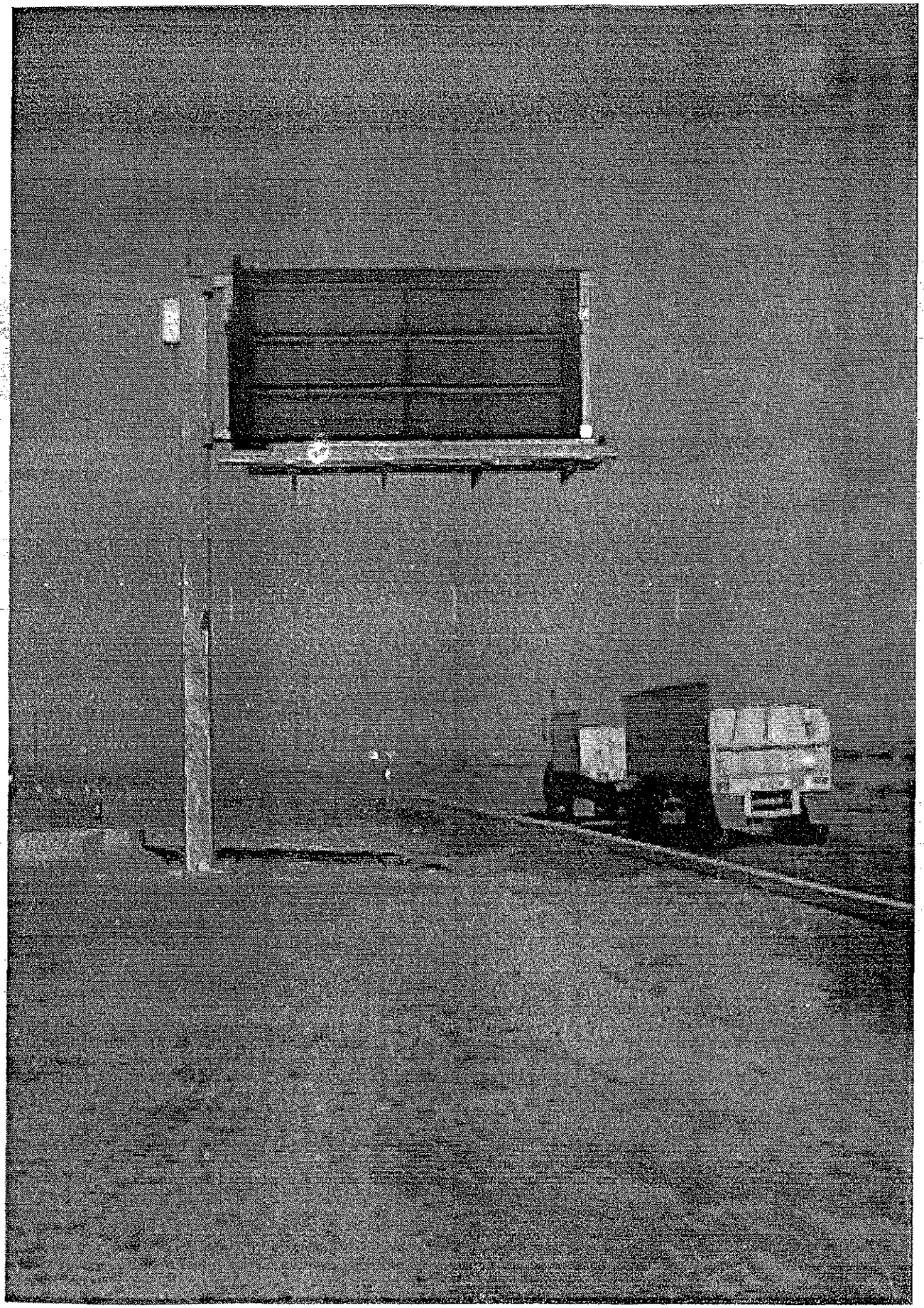


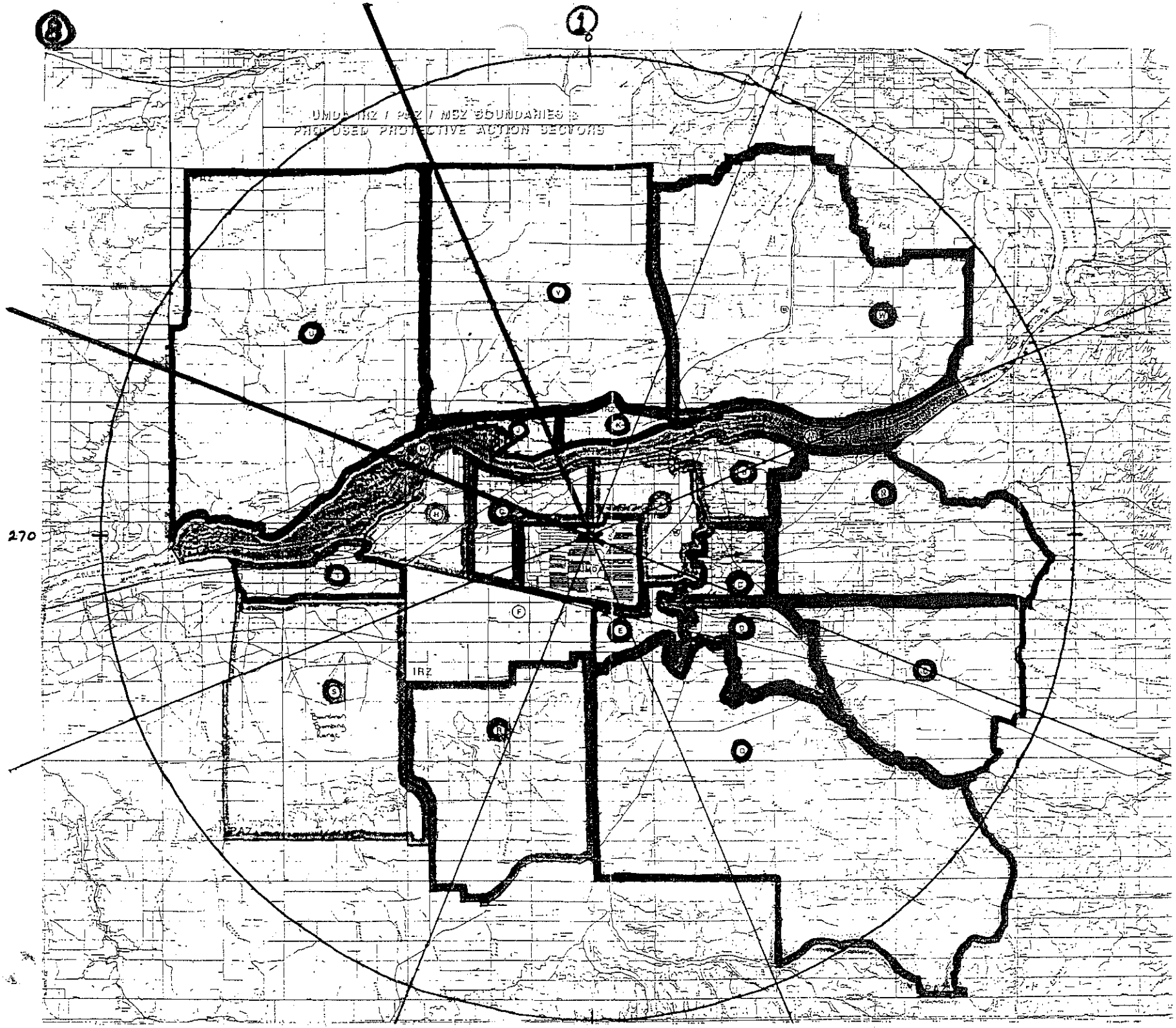
Sirens and Reader Boards



Morrow County Emergency Management, 1996






UMDNRZ / PAZ / MEZ BOUNDARIES
PROPOSED PROTECTIVE ACTION SECTORS
IRZ
PAZ
8
1
7
270

PROTECTIVE ACTIONS

BASE CASE 8

1. UMDA alerts Morrow County Emergency Operations Center via hotline.

2. Umatilla County notifies EBS Stations - prerecorded EBS message (Shelter In Place) is played in Spanish and English.

3. Sheriff's Department Dispatcher notifies via radio:

    1. All Deputies
    2. Boardman Police Department
    3. School Superintendent
    4. Oregon State Police
    5. All County Fire Departments (less Irrigon).
    6. Public Works Department
    7. Courthouse Switchboard
    8. Gilliam County Sheriff
    9. MEDCom

    * Notify Emergency Management Director/senior representative via telephone/cellular telephone if not present in EOC.
    * Hermiston Safety Center notifies Irrigon Fire Department via tone alert.

4. Emergency Management staff informs key personnel of appropriate Base Case PAD via the Alphamate-Telewaves paging system.

5. Ensure City of Boardman Police block eastbound traffic on I-84 until relieved by OSP and/or National Guard.

6. Ensure a deputy or public works crew block Bombing Range Road/ Highway 207 at I-84 to north/east bound traffic.

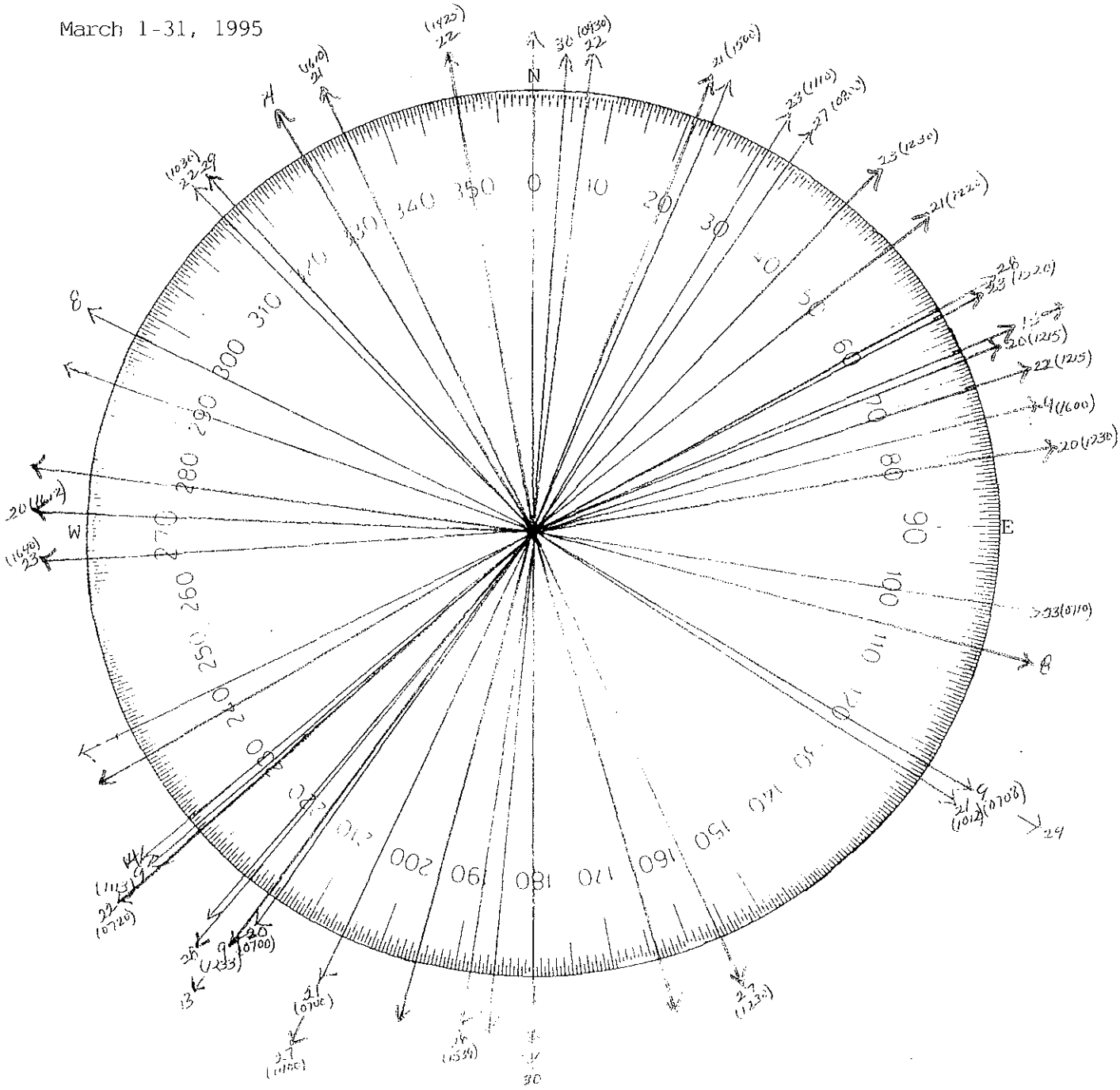
7. Ensure a deputy or public works crew blocks Patterson Ferry Road at I-84 to north bound traffic.

8. Ensure the Sheriff's Department boat is launched to enforce the Marine Safety Zone.

9. Emergency Management personnel set up EOC. Until commissions arrive, EM Director contacts UMDA to get additional information/update about the incident and initiates coordination with Irrigon and Boardman city officials and Umatilla, Benton, Gilliam and Wasco County Officials.

WIND DIRECTION
recorded at
UMDA

March 1-31, 1995



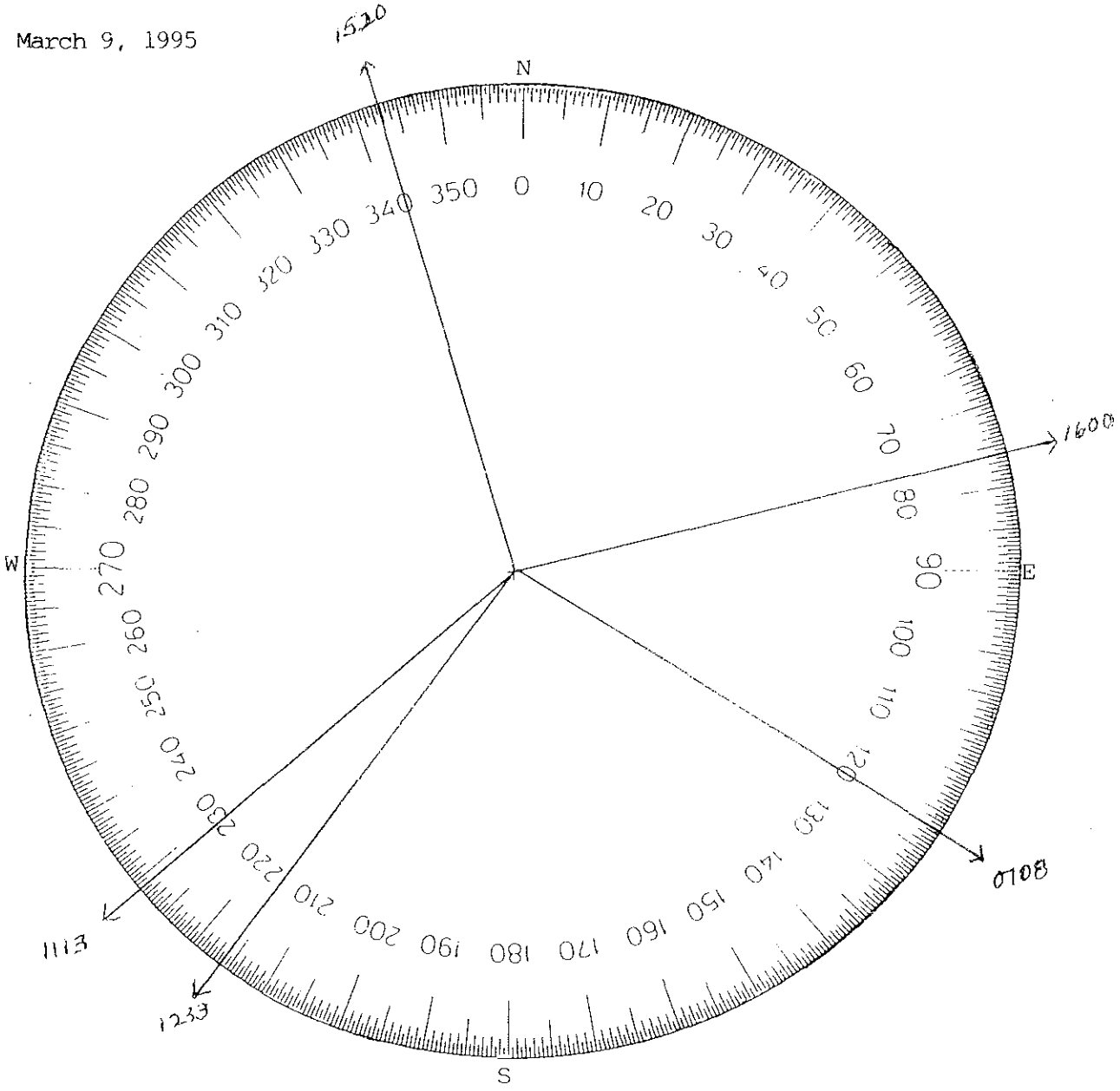
at arrow point indicates day
that wind shifts 90° or more
between morning and afternoon

MORNING
—— AFTERNOON

WIND DIRECTION
recorded at

UMDA

March 9, 1995



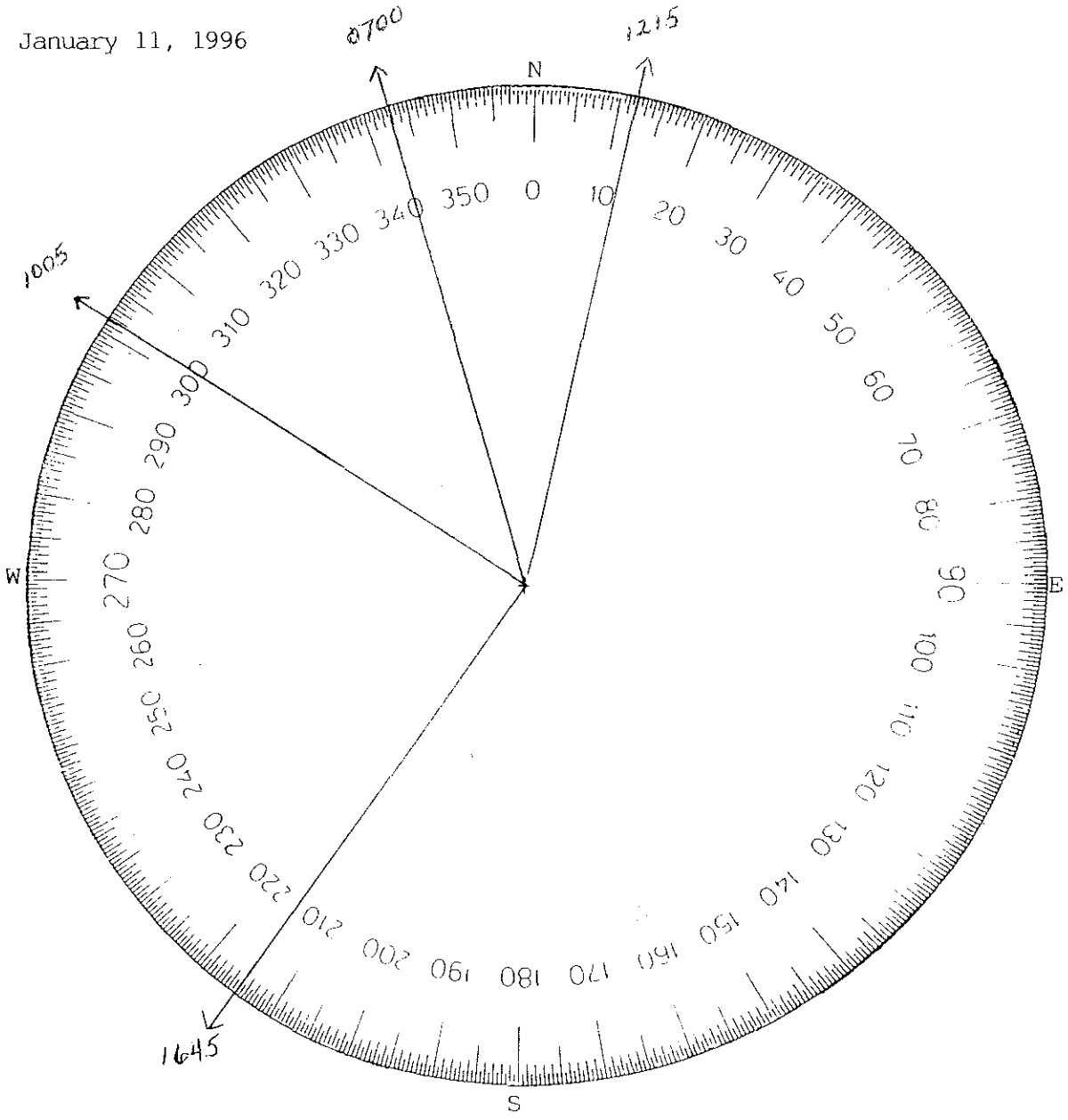
at arrow point indicates day
that wind shifts 90° or more
between morning and afternoon

← MORNING
← AFTERNOON

WIND DIRECTION
recorded at

UMDA

January 11, 1996



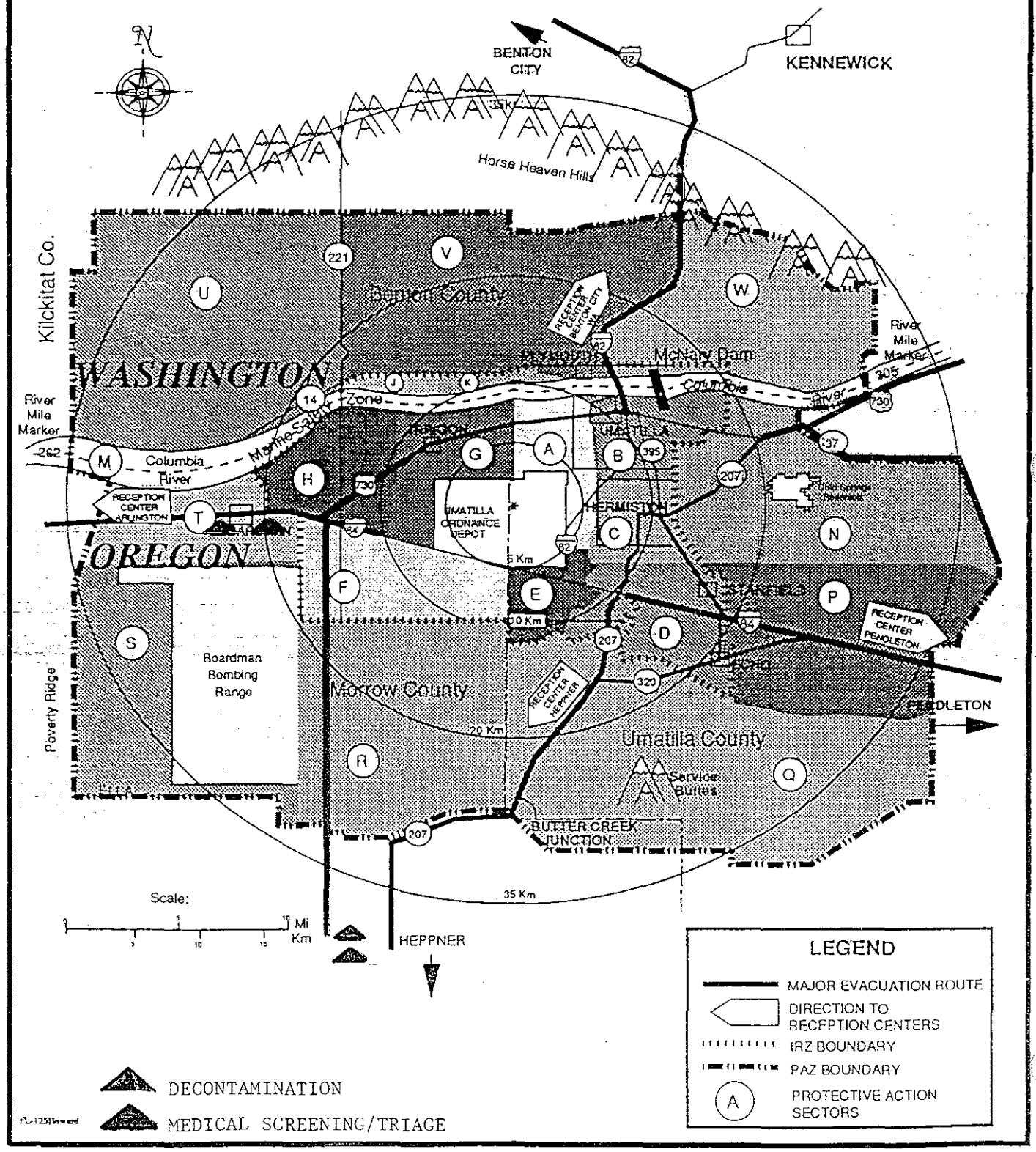
at arrow point indicates day that wind shifts 90° or more between morning and afternoon

⟵ MORNING
⟵ AFTERNOON

UMATILLA DEPOT ACTIVITY

EMERGENCY PLANNING ZONE MAP

PROTECTIVE ACTIONS SECTORS AND EVACUATION ROUTES



COUNTY CSEPP CONCERNS

- LACK BASIC RESPONSE CAPABILITIES: AGENT MONITORING, PERSONAL PROTECTIVE EQUIPMENT AND DECONTAMINATION UNITS
- LACK A MEDICAL RESPONSE CAPABILITY
- EXCESSIVE RELIANCE ON VOLUNTEER AGENCIES
- POTENTIAL EFFECTS OF UMATILLA CHEMICAL DEPOT BEING ON THE BASE REALIGNMENT AND CLOSING LIST
- CRITICAL SHORTAGE OF RESPONSE COMMUNICATIONS
- DISCONNECT BETWEEN ENVIRONMENTAL IMPACT STATEMENT THREAT AND ARMY/FEMA ACTIONS, I.E. - "99% OF RISK IS ASSOCIATED WITH STORAGE"

  - EOC WILL NOT BE MANNED 24 HOURS PER DAY UNTIL LIVE AGENT BURNING BEGINS

  - PERIMETER OF DEMIL FACILITY WILL BE MONITORED BUT STORAGE COMPOUND WILL NOT

  - MITIGATION, I.E. - SMOKE DETECTORS/FIRE SUPPRESSION SYSTEM IN M-55 BUNKERS, REFRIGERATING HD (MUSTARD) BUILDING, IS NOT A PRIORITY

- LACK OF REAL TIME, MICRO WEATHER DATA
- LIABILITY AND CLAIMS ISSUES
- SITE AND OPERATING PARAMETERS OF DEMIL FACILITY

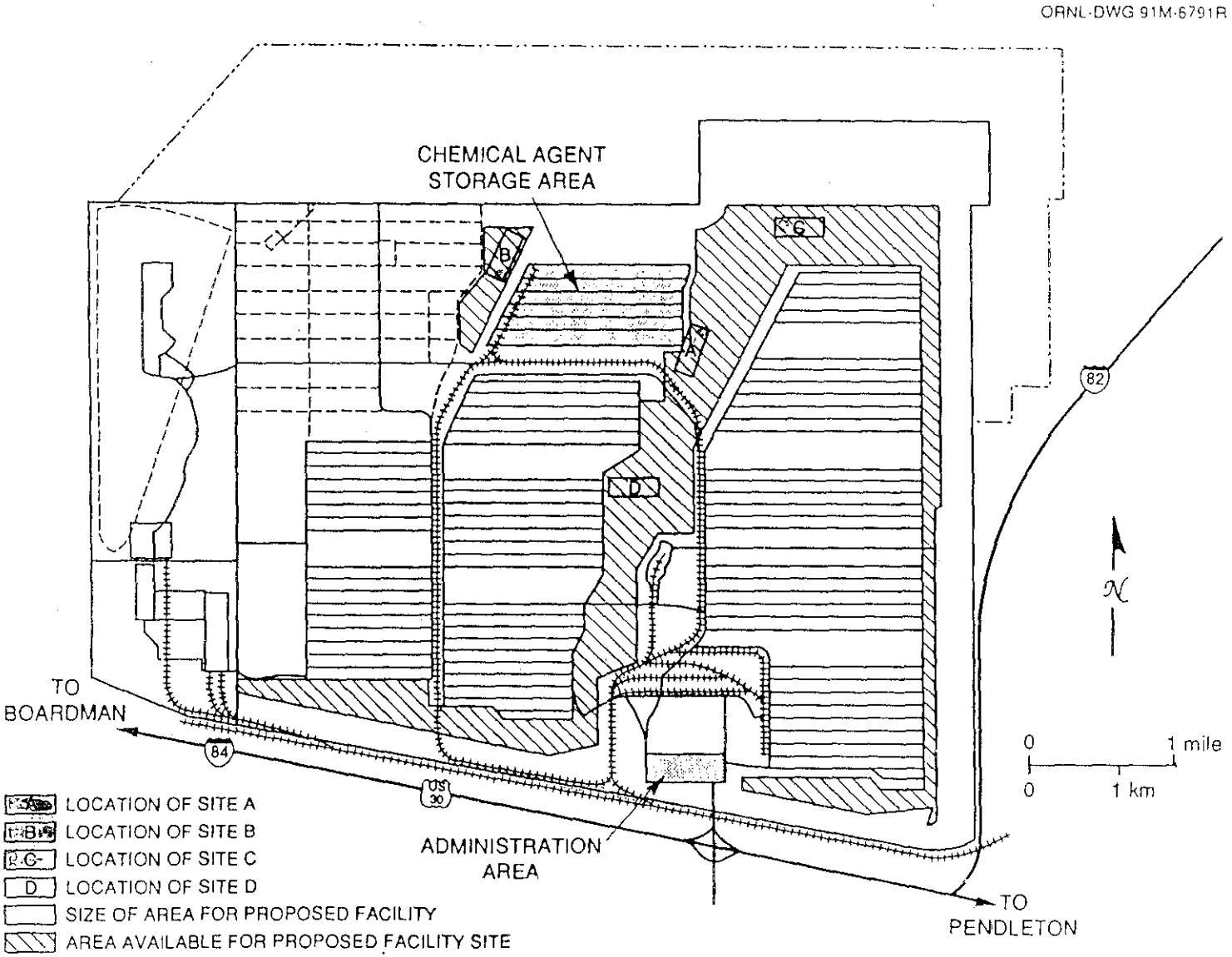


Fig. 4.1 Locations of alternative sites identified for the proposed disposal facility at Umatilla Army Depot.

II-E 1

MORROW COUNTY

COUNTY COURT

P.O. Box 788 -:- Heppner, Oregon 97836
[503] 676-9061 FAX [503] 676-9876

LOUIS A. CARLSON, Judge
Heppner, Oregon
RAYMOND J. FRENCH, Commissioner
Heppner, Oregon
DONALD C. J. McELLIGOTT, Commissior
Ione, Oregon

November 1, 1995

The Honorable John A. Kitzhaber
Governor of the State of Oregon
254 State Capitol
Salem, OR 97310

Dear Governor Kitzhaber:

On behalf of the citizens of Morrow County, we respectfully request that you deny an operating permit for the proposed Umatilla Depot Activity (UMDA) chemical weapons incinerator until such time as a viable public safety program to protect people in the depot's vicinity is in place. We are not opposed to the concept of incineration and adamantly support eliminating the chemical weapons by the earliest possible date; however, we believe that an off-post emergency response capability affording our citizens the "Maximum Protection" mandated by Congress must be in place before proceeding with demilitarization. To date, the Chemical Stockpile Emergency Preparedness Program (CSEPP) created to protect our citizens has been largely an ineffective failure. Currently, we cannot provide our citizens even "minimum protection." Given CSEPP's abysmal record, we see little likelihood that local emergency response capabilities will be adequate before the incinerator is completed. Based on the experience of Tooele County, Utah, where the Army is pressing to begin trial burns of actual chemical agents before basic off-post emergency response capabilities are in place, we find this an unacceptable prospect.

To facilitate eliminating the chemical weapons threat at UMDA, granting a provisional permit tied to a strict compliance schedule for implementing a viable off-post emergency response may be a feasible middle course. Under such an agreement, if the Army fails to meet mutually agreed upon performance schedules, the permit would be revoked, halting all work on the incinerator until the Army is in compliance.

This is a matter of great concern to us. We have the legal and moral responsibility to respond to a chemical accident at UMDA, yet we are denied the resources to protect our citizens. Increasingly, the bureaucratic hierarchy in CSEPP, particularly at the Federal level, has negated our ability to impact the program. To resolve our public safety shortfalls, we are convinced that the following capabilities must be in place and operational prior to operational permitting:

1. An Alert and Notification System with comprehensive coverage of the Immediate Response Zone (IRZ) to include Tone Alert Radios for all residences and occupied structures in the IRZ and special facilities in the Protective Action Zone (PAZ).

2. Personal Protective Equipment (PPE)--masks and overgarments--for first responders and medical personnel.

3. Monitoring devices to detect the presence of chemical agents.

4. Mobile decontamination equipment.

5. Mobile medical triage/screening, treatment and adequate patient evacuation capabilities.

6. A communications system linking all local field response units.

7. Enhanced sheltering for all residences and occupied structures within five miles of the chemical storage area.

8. Collective overpressurization or transportation enhancement for all special facilities in the IRZ.

9. A system for sheltering evacuated citizens.

10. An established protocol for allowing the reentry of evacuated residents following a chemical accident.

With these basic measures in place, we can begin to approach the Congressional Mandate of "Maximum Protection."

We stand ready to discuss this issue with you and your staff. As the level of government charged with the responsibility of dealing with the consequences of such an accident, we believe it is important that our concerns be addressed. Our local perspective may differ significantly from other agencies and governmental organizations concerned with UMDA and CSEPP. Once again, we look forward to discussing our perspective with you and welcome any questions you may have regarding this critically important issue.

Sincerely,

Morrow County Court

Louis A. Carlson
Judge

Raymond J. French
Commissioner

Donald C.J. McElligott
Commissioner

city
of
hermiston 180 N.E. 2ND STREET / HERMISTON, OREGON / 97838 / (541) 567-5521 / FAX (541) 567-5530

#E-1

DATE: April 15,1996

TO: Oregon Department of Environmental Quality
2146 N.E. Fourth Street, Suite 104
Bend, OR 97701
Attention: Brett McKnight

RE: Comments on the Proposed Incineration of Chemical Weapons Stockpiled at the Umatilla Army Depot near Hermiston, Oregon

These are the facts on alternative technologies for disposing of the chemical weapons stockpiled at the Umatilla Army Depot near Hermiston based on independent studies by the National Research Council, a group of the best scientists in the world.

Alternative Technologies

The Army has seen promising results in the laboratory. However, the laboratory is a lot different than a full-scale facility. The difference is a test tube amount of agent compared to a round of ammunition filled with pounds of agent.

Based on recommendations from the National Research Council (National Academy of Sciences), the Army targeted their research on alternative technologies for the bulk storage sites only (Aberdeen Proving Ground and Newport). A bulk site stores agent (VX and HD only) in ton containers only. There are no explosive components, propellant, metal parts or pallets to be concerned with.

Two low-temperature and low-pressure destruction technologies are focused on neutralization and neutralization followed by biodegradation. Neutralization counteracts the effectiveness of the agent, and biodegradation breaks it down into harmless products using microorganisms.

The Defense Acquisition Board will make a decision in October of this year whether or not the most promising technologies can be developed further. If the DAB decides to continue with alternative technologies, it will take 7 to 10 years for research and development of the technologies.

Even if an alternative technology is selected, the whole process has to start over. In other words:

- The permitting process has to start from scratch. It has taken over 10 years to get to this point with the incineration process permit.

- There are different standards that have to be identified by EPA and DEQ.

- A new environmental impact statement will have to be developed and provided to the public for comment because of different impacts to consider. It has taken 10 years plus to get to where we are with the EIS we have.

Umatilla has full up rounds. In other words, they have propellant and explosive parts in them.

- The energetics are still a risk even if the agent is drilled and drained out.

- Residual is left over so the rounds still have to be overpacked and stored indefinitely.

- The agent is placed in a ton container (chlorine tank).

- Two hazards:

  1. Neutralization technology leaves large amounts of hazardous waste because of the amount of product that has to be used (3 to 5 times as much as incineration).

  2. Energetics have not been taken care of. Until the munitions are taken apart, we won't know if they are also contaminated with agent.

There is no other known technology to successfully remove the agent from metal parts, explosive parts, propellant or pallets. That means, even if an alternative technology is used for the agent, we still have to deal with the rest of the weapon components.

Incineration

The impact on the community at this point is continued storage. CSEPP plans have been developed for safety of the community until the weapons can be destroyed. The National Research Council, Department of Health and Human Services, and the Environmental Protection Agency have all gone on record stating that incineration is a safe and proven method. The NRC has also said

that the Army should continue their plans to destroy the weapons by incineration for all of the sites that have energetics and metal parts.

The chemicals are scheduled to be destroyed at Umatilla starting in the year 2001. Once that process begins, the more munitions that are destroyed, the more the risk goes down. Alternative technologies are 7 to 10 years away just for research and development. By that time the chemicals stored here could have already been destroyed by incineration.

Army Reaching Out to Private Industry

Last fall the Army advertised in the Commerce Business Daily asking for viable technologies that could be researched and developed.

The companies that responded to the advertisement had to clearly demonstrate technical maturity and show potential for full-scale development. Three companies met these requirements:

1. Subsea International, Inc. - Electrochemical Oxidation
2. ELI ECO Logic International, Inc. - High Temperature Gas Phase Reduction
3. M4 Environmental L.P., Inc. - Molten Metal

These companies have started preliminary work. However, the technologies are only targeted for Aberdeen Proving Ground, Maryland, and Newport, Indiana, because they have only bulk storage.

Frank Harkenrider, Mayor

Bob Severson, City Councilor

Rod Hardin, City Council President

DuWayne White, City Councilor

Christine Smalley, City Councilor

Michael A. Boise, City Councilor

Kraig A. Cutsforth, City Councilor

Gary R. Quick, City Councilor

Jackie C. Myers, City Councilor

cc: Governor John Kitzhaber

C:\OFFICE\WPWIN\FRANK\LETTERS\DEQ.WPD

E-1

Umatilla County

Board of County Commissioners

May 16, 1996

Environmental Quality Commission
ATTN: Henry Lorenzen, Chairman
Department of Environmental Quality
811 SW Sixth Avenue
Portland, OR 97204

Dear Chairman Lorenzen and Members of the Commission:

At your May 17, 1996 meeting state and local emergency management officials will explain the emergency preparedness and response plans and capabilities for dealing with a chemical munitions accident at the Umatilla Depot Activity that might affect the off-post communities.

The Umatilla County Board of Commissioners shares the concerns expressed by Morrow County and others over the lack of off-post monitoring capabilities, limited-medical response capabilities, inadequate response communications, etc. However, the Board, at this time, favors proceeding with the DEQ permit process for the proposed Army incinerator facility, as long as there continues to be a good-faith effort on the part of the Army and others involved to address and resolve to local satisfaction these critical emergency management issues. To delay the approval and construction of the facility which will eventually remove the chemical munition hazard from our counties would seem to be counter productive.

As noted above, our position is based upon satisfactory resolution of local emergency preparedness and response concerns. The County will continue to work closely with the Army, DEQ, our communities and citizens, and our neighboring counties to insure the maximum safety and protection of the public.

216 S.E. 4th Street - Pendleton, Oregon 97801 * Ph: 503-276-7111 - Fx: 503-278-5463

Respectfully submitted,

UMATILLA COUNTY BOARD OF COMMISSIONERS

Emile M. Holeman

Emile Holeman, Chairman

William S. Hansell

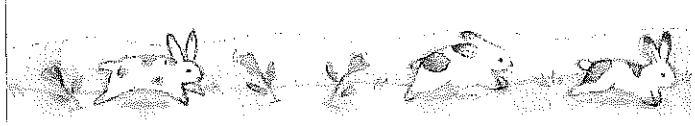
Bill Hansell, Vice-Chairman

Glenn Young

Glenn Youngman, Commissioner

BCC:vt

Karyn Jones
1010 West Highland
Hermiston, OR 97838
(503) 567-6581



THE UNDER SECRETARY OF DEFENSE
WASHINGTON, DC 20301

ACQUISITION

07 NOV 1991

Honorable Les Aspin
Chairman, Committee on Armed Services
House of Representatives
Washington, DC 20515

Dear Mr. Chairman:

As required by Section 173 of Public Law 101-510, the National Defense Authorization Act for Fiscal Year 1991, attached is the Chemical Weapons Stockpile Safety Contingency Plan.

Sincerely,

Don Yockey

Enclosure

cc:
Honorable William L. Dickinson
Ranking Republican

M55 Only

CHEMICAL WEAPONS STOCKPILE SAFETY CONTINGENCY PLAN

1. STATEMENT OF REQUIREMENT - CONGRESSIONAL TASKING

Section 173 of Public Law 101-510, dated November 5, 1990, the National Defense Authorization Act for Fiscal Year 1991, states the following requirement:

"CHEMICAL WEAPONS STOCKPILE SAFETY CONTINGENCY PLAN

Development of Plan. The Secretary of Defense shall develop a plan setting forth the steps the Department of Defense would take if the chemical weapons stockpile of the United States began an accelerated rate of deterioration (or experience any other event which called into question its continued safe storage) before a comprehensive full-scale chemical weapons disposal capability is developed. The plan shall address -

- *the schedule that would have to be followed to put the plan into effect;*
- *the level of funding that would be required to put the plan into effect;*
- *the equipment and other resources ... would be required to put the plan into effect; and*
- *an assessment of how quickly the plan could be placed into effect in the event of an emergency."*

2. CURRENT CHEMICAL WEAPONS STOCKPILE DEMILITARIZATION PROGRAM

Congress has directed (Title 14, Part B, Section 1412 of PL 99-145) the Army to destroy the unitary chemical agents/munitions stockpile located at all of the nine (eight CONUS and one OCONUS) storage locations (Enclosure 1). The Chemical Stockpile Disposal Program (CSDP), is experiencing cost growths and program slippages due to construction problems and delay of operational verification testing at the Johnston Island plant. The Army is currently working towards solving these issues. It should be noted that the OCONUS plant on Johnston Island in the Pacific initiated operations on June 30, 1990 and is undergoing extensive systems verification tests.

3. CONTINGENCY PLAN

a. Current Hazards and Solutions.

(1) General. Small amounts of agent leakage have occurred in all types of toxic chemical munitions over the last 40 years. Procedures are currently in place to provide long term safe storage of deteriorating stockpile munitions with the exception of the M55 rocket, which has a unique configuration. The storage approach being used for stockpile munitions is early detection of leakage and controlling the leakage by containerization (overpack), bulk container repair, or agent transfer. All operations have been and continue to be conducted without unacceptable risk to workers or the environment. Containerized leakers can be safely stored until processed by planned demilitarization facilities. Enclosure 2 shows the number of leaking munitions by location and shows the M55 as having the highest incidence of leakage. Since long term storage procedures are in place for all other munitions, this plan will focus on contingencies for the M55 rocket.

(2) Propellant Instability. Propellant approaching hazardous stabilizer levels can be, and has been, removed in the past from the 105mm and 4.2in cartridges with existing procedures and equipment. The M55 Rocket is unique in being the only chemical munition that is stored in a potentially propulsive state with the rocket motor and chemical warhead mechanically joined inside a container; i.e., the shipping/firing tube.

(3) Propellent Monitoring. The Army monitors the stabilizer content of the propellant in storage by a series of annual tests. Analysis is conducted on both master samples taken from each lot produced and on samples taken from the rocket motors. This process provides general indicators of overall stockpile stability and allows for a minimum of two years warning prior to the propellant reaching a hazardous state.

(4) Warhead/Rocket Separation. If the propellant becomes unsafe prior to scheduled demilitarization, a process to separate the warhead from the rocket will be used. This allows the toxic hazard of the warhead and the fire/explosive hazards of the motor to be controlled separately. The potential for a catastrophic event would be completely eliminated using this approach. However, since there is a risk of creating a small number of leakers in the separation process, this operation should be considered only as an emergency procedure.

b. Emergency Threats and Solutions.

(1) Potential Hazards. The M55 rocket presents both agent leakage and an explosive/propellant hazard. This is the most difficult situation with which to deal. Therefore, the U.S. Army contingency plan is based on the low probability/worst case scenario that several lots (up to 20,000 rockets) have deteriorated to the point that they require remedial action over time to render them safe. This would include steps to preclude a rocket motor from functioning and thereby initiating an igloo fire, or to control some other catastrophic breakdown of the rocket system. The possibility of this happening is very unlikely.

(2) Imminent Threat. In the event that M55 Rockets must be destroyed within 6 months to prevent a catastrophic fire or explosion in a storage facility, the following steps will be taken:

- M55 Rockets would be removed from storage facility and sent to a static firing site.
- M55 Rockets would be removed from shipping containers and placed in a static firing restraining fixture.
- Rockets would be statically fired, and the warhead repackaged and moved to a remote facility.

This procedure would be performed on production lot quantities: i.e., (1000-5000) at each storage site. Depending on the condition of the rocket, an alternative procedure would be to mechanically demate the warhead and rocket motor by unscrewing them while held in the restraining device.

(3) Potential Threat Over Time. When action must be taken to prevent the rockets from reaching a hazardous state in 24 months (e.g. due to propellant stabilizer breakdown).

- Facilities and equipment for separating the motors from warheads would be brought together at each location storing M55 rockets.
- The rocket in its container would be sheared to separate the motor and warhead sections, using technology such as a water jet shearing system.
- Handling equipment (e.g. conveyers, holding devices, containment systems) would be devised to eliminate the most hazardous steps in the process.
- Process rate is projected at 120 rockets per 10-hour shift.
- Ultimate destruction of the chemical agent warhead would be in planned facilities at a later date.
- Destruction of the rocket motor propellant would be by open air burning or conventional demilitarization methods.

4. OTHER CONSIDERATIONS

a. Monitoring, Maintenance and Surveillance.

Monitoring, maintenance and surveillance requirements would remain the same since the M55 warheads must be maintained with the rest of the stockpile.

b. Environmental Permits or Waivers.

This plan is based on the assumption that operations would occur only under emergency conditions and all environmental permits would be expedited or waived.

5. RESOURCES

Existing equipment is available for modification to support static fire. Equipment must be designed and produced to support separation operations. Operations will be conducted with existing personnel. Funding is the primary resource needed to support this plan.

The following are very preliminary cost estimates which require further study and analysis. Additional costs, yet to be determined, are likely as a result of technical feasibility and preliminary design analysis. Of key concern is configuring facilities and equipment for production lot quantities.

a. Static Firing Restraining Facilities

Fixtures/Equipment (5) @ $100K	$500K
Modification of Storage Igloos (5) @ $100K	$500K
Engineering Design	$100K
Total	$1,100K

Labor (for an estimated 100 rockets/site)	
500 rockets @ 20MH/rocket X $111.00/hr. (average wage)	$1,110K

Environmental waivers	
$100K/Installation X 5 Installations	$500K

b. Rocket Separation Facilities and Equipment Costs.

(1) The estimated facilities and equipment costs for the five CONUS installations storing M55 rockets are as follows:

Engineering Design/Procurement Specifications	$250K

Facilities and Equipment Costs:	
Purchase and install 5 water-jet machines @ $300K each	$1,500K
Purchase and install 5 rocket handling systems @ $400K each	$2,000K
Modify 5 storage igloos to provide explosive and vapor containment @ $600K each	$3,000K
Total for Facilities and Equipment	$6,750K

(2) Labor. Labor, rather than equipment, is the major expense. The presence of the toxic agents increases labor requirements in all phases of the operation. The waterjet is projected to be capable of handling one rocket per minute. Monitoring, special handling requirements, transportation and safety limits (number of rockets permitted at an operation site) could reduce this production rate.

(a) Using the previous Chemical Agent Munitions Disposal System (CAMDS) operation as a guide for manpower and support requirements and using the maximum projected production rate of 120 rockets/shift, the average requirement is 3.0 manhours per rocket.

(b) The estimated cost of separating 20,000 M55 Rockets would be:
20,000 rockets X 3.0 MH/rocket X $111.00/hr (average wage) **$6660K**

(3) Environmental Permits.
The permitting cost would be an estimated $100,000 per installation, or $500,000 for all 5 sites, unless waived **$500K**

6. IMPLEMENTATION/SCHEDULE

Separation of warhead/rocket motor assemblies can begin once equipment has been readied to support the separation method selected. Scheduling considerations are as follows:

a. Static Firing. Procurement and fabrication of static firing and restraining facilities will require approximately 30 days after identification of the requirement.

b. Separation. Separation facilities procurement, fabrication and installation of equipment will require approximately 12 months from the time funding is received.

ENCLOSURES:

1. Stockpile Distribution
2. Leaking Chemical Munitions

M55 ROCKET SEPARATION STUDY

(M55-QD-8)

TR1-0008.1

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19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This report presents a conceptual engineering design, cost estimates, a risk assessment and an environmental analysis of a concept for separating the energetic components from the lethal chemical agent contained in M55 rockets. The M55 rocket separation plant conceptual design incorporates, to the maximum extent practicable, the equipment and facilities designed for demilitarization of M55 rockets. The system shall be designed to process 300 rockets per day by removing the chemical agent and transferring it to standard bulk chemical agent storage containers. The rocket warhead and shipping and firing tube shall be punched to enhance the decontamination process. These two rocket sections shall be chemically decontaminated in preparation for storage. Life cycle cost estimates for implementing the separation concept at Anniston Army Depot (ANAD), Lexington Blue Grass Depot Activity (LBDA) and Umatilla Depot Activity (UMDA) are 73.3, 71.8 and 79.9 million dollars, respectively.

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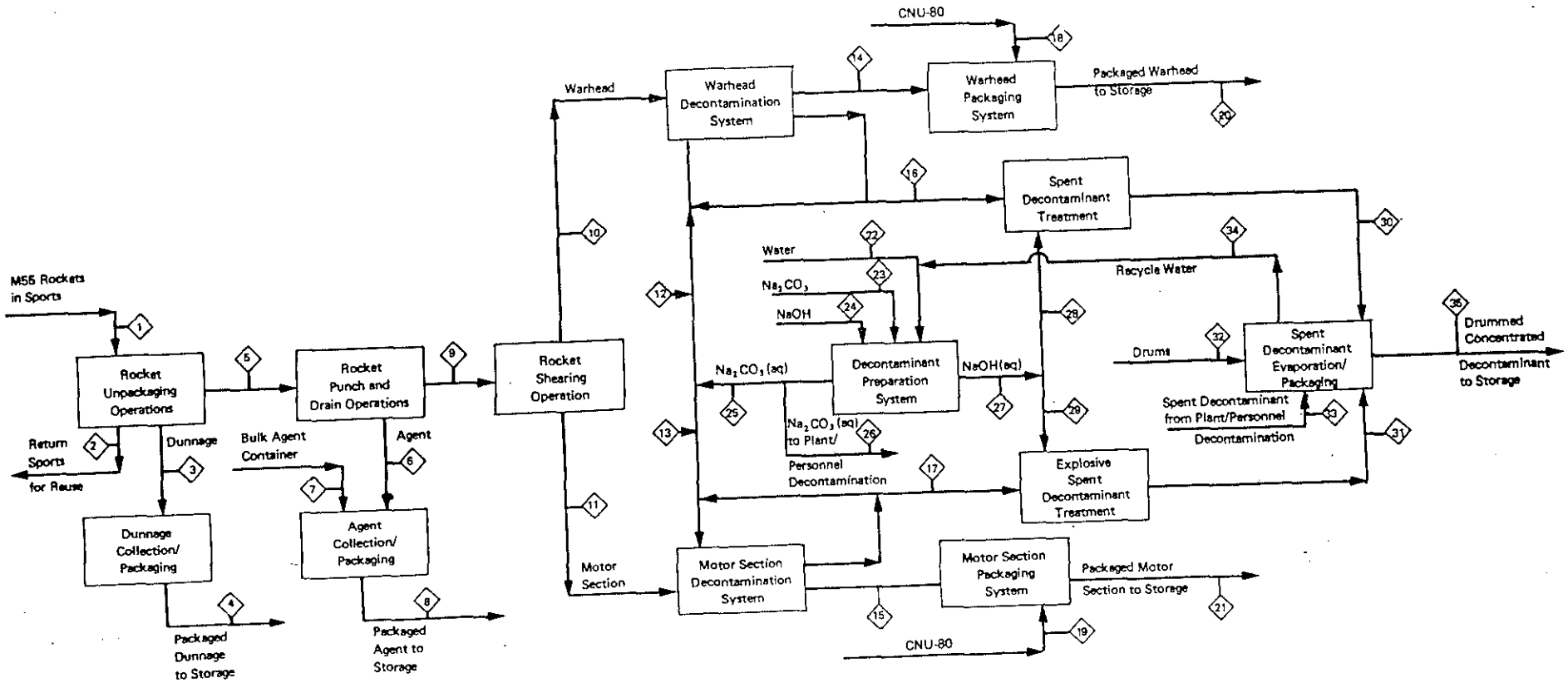
The risk analysis for the separation concept identified and quantified potential releases of agent. The worst consequence event during separation operations is a major spill of agent from the interim agent holding tanks. A release of 4580 pounds of agent is estimate with total probability of 1.6×10^{-8} (ANAD), 1.4×10^{-6} (LBDA) and 2×10^{-8} (UMDA). The worst consequence event for storage of the separated rocket components involves earthqua. failure of the storage igloos containing bulk agent storage containers. In this event, the relevant releases are summarized as 37,500, 30,000 and 45,000 pounds of agent for ANAD, LBDA and UMDA, respectively. The probabilities of these releases range from 4×10^{-6} (UMDA) to 2×10^{-5} (ANAD). The environmental analysis compared potential impacts of the rocket separation concept with those of continued storage and on-site demilitarization of these munitions. Expected construction impacts for the rocket separation concept are generally insignificant. Impacts of normal operations of the rocket separation concept would be equal to or less than those of on-site demilitarization. With respect to potential air quality impacts, the impacts of rocket separation could be significantly less than those of demilitarization. Environmental impacts of accidents or abnormal events could be of very low probability but relatively higher consequences for the rocket separation concept. This results from the greater agent volumes and longer duration agent storage requirements associated with the concept as presently defined.



Source: Arthur D. Little, Inc.

FIGURE 2-3 PROCESS FLOW DIAGRAM— SEPARATION OF GB-FILLED ROCKETS

GENERAL ATOMICS

Contact: Doug Fouquet
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FOR IMMEDIATE RELEASE
June 13, 1994

General Atomics of San Diego, California announced today that it has successfully demonstrated that supercritical water oxidation (SCWO) can be used to destroy all the major types of chemical agents in the U.S. chemical weapons stockpile. Supercritical water oxidation is a highly versatile process which offers an environmentally attractive alternative to incineration for the destruction of many types of hazardous organic waste.

In these first-of-a-kind tests performed under contract with the Advanced Research Projects Agency (ARPA), each of the agents (GB, VX and mustard) was successfully destroyed in a bench-scale reactor at the IIT Research Institute surety facility in Chicago. Destruction and removal efficiencies (DREs) greater than 99.99999% were obtained for GB and VX at temperatures ranging from 450 to 550 degrees C; the demonstrated DRE for mustard was limited by the sensitivity of the sampling instrumentation, but exceeded 99.9999%. GB, VX and mustard are the chemical agents most prevalent in chemical munitions inventories worldwide and are of primary concern when designing facilities for agent destruction.

The next step in this ARPA-sponsored contract will be the development of a transportable SCWO pilot plant suitable for the destruction of small quantities of chemical agents, solid rocket motor propellant and other Department of Defense hazardous wastes. This unit is scheduled to begin operation with simulant materials this fall.

Supercritical water oxidation is a process in which water is heated to temperatures and pressures similar to those used in modern steam power plants. At these conditions organic materials such as chemical agents can be dissolved in the water and readily oxidized. Because the process is so efficient, the end products are largely carbon dioxide, water and common salts which can be fully contained and analyzed for purity before release -- providing total enclosure, with all the attendant environmental advantages. Such salts as are produced from contaminants such as sulfur, phosphorous or chlorine are reduced to small quantities of simple, stable materials which can be disposed of by burial. Because of the modest temperatures compared to incineration, NOx gases, common precursors of smog, are not produced.

William Davison, Director of General Atomics' Advanced Process Systems Division, said, "This test is a landmark demonstration of a new way to treat a most difficult set of chemical problems in an environmentally benign fashion. We at General Atomics are enthusiastic about the prospects offered by SCWO for reducing the chemical weapons threat worldwide as mandated by the International Chemical Weapons Convention. We anticipate being involved in the early stages of the development of a waste treatment technology with the potential to serve both industrial and military needs for organic waste treatment. This is an excellent example of the benefits of the administration's focus on dual-use technologies, an effort spearheaded by ARPA."

General Atomics is a high technology firm focused on energy, environmental, and defense-related research and development. It is the developer of helium-cooled nuclear reactors for electric power generation and the automated Cryofracture process for chemical munitions destruction. It also carries out the largest U.S. industrial research program in controlled fusion energy.

Alternative Technologies for the Destruction of Chemical Agents and Munitions

COMMITTEE ON ALTERNATIVE CHEMICAL DEMILITARIZATION TECHNOLOGIES

BOARD ON ARMY SCIENCE AND TECHNOLOGY

COMMISSION ON ENGINEERING AND TECHNICAL SYSTEMS

NATIONAL RESEARCH COUNCIL

Washington, D.C. 1993

gaseous oxidation products can be made adequate to store any accidental release of vaporized agent from the destruction facility. Large activated-carbon (charcoal) adsorbers can perform much the same function. In this case, agent and products of incomplete combustion are captured and retained on the charcoal.

The amount of gas released can be greatly reduced by the use of pure oxygen in destruction processes instead of ordinary nitrogen diluted air. Waste gas can be further reduced by capturing the carbon dioxide it contains with lime, as well as capturing HCl, HF, SO_2, and P_2O_5, at the cost of increasing the amount of solid waste produced. These techniques can be applied to all technologies.

2. There are many possible destruction processes.

A wide variety of processes have been proposed to replace or augment components of the current baseline destruction system. The scope of possible modifications ranges from simply replacing one component, such as the agent combustion process, to replacing all current combustion-based processes. New components would likely require 5 to 12 years for research and demonstration, the lower figure representing the time required for construction and testing of demonstration facilities, the higher figure including research and pilot plant work as well.

3. Initial weapons disassembly and agent detoxification and partial oxidation could meet international treaty demilitarization requirements and eliminate the risk of catastrophic agent releases during continued storage.

The strategy of disassembling weapons and applying liquid-phase processes to destroy agent can meet treaty demilitarization requirements. By destroying the stored agent, the risk of catastrophic agent release during storage is avoided. Final disposal of the wastes generated would be delayed until complete oxidation processes are developed.

4. There are a number of promising chemical processes for agent detoxification or oxidation.

Chemical techniques could allow agent detoxification in low-temperature, aqueous systems. The reaction products could be confined and tested to determine whether further processing is needed to meet demilitarization requirements and also for suitability for release to a disposal facility or to local storage. The best results with such processes have been

RECOMMENDATIONS FOR THE DISPOSAL OF CHEMICAL AGENTS AND MUNITIONS

Committee on Review and Evaluation of the Army
Chemical Stockpile Disposal Program
Board on Army Science and Technology
Commission on Engineering and Technical Systems
National Research Council

Washington, D.C. 1994

from the Health Effects section of the "Selection Criteria."

There is little information about the neurotoxic effects, due to the rare instances of GB and VX exposure during production, storage, or warfare usage.

It has been possible to chronicle the effects of mustard agents from historical exposures. The United States and England have "mustard pensioners" who were exposed to HD during World War I, and who subsequently suffered from chronic bronchitis and increased rates of cancer when compared to World War I amputee casualties not exposed to the agent. During World War II, the Japanese had a chemically contaminated facility on Okuna-Jima Island where workers experienced severe blistering exposure, primarily to H mustard, but the badly contaminated sites also contained phosgene and Lewisite. Apparently, increased cancer rates have been documented from exposure during work-related activities at mustard production facilities. In addition to numerous reports on cancer incidence in the Okuna-Jima cohort, there have also been reports of increased cancer incidence among British workers from a World War II-era plant that manufactured mustard (S. Leffingwell, personal communication, 1993).

It has been difficult to provide a quantitative evaluation of the carcinogenicity of mustards since the mutagenicity is relatively low and the animal studies were limited; however, an Oak Ridge Study in 1980 suggested that H was three times as carcinogenic as benzo[*a*]pyrene. In 1993, the Institute of Medicine published a report, *Veterans at Risk: The Health Effects of Mustard Gas and Lewisite*, that considerably expands the list of health consequences of mustard (IOM, 1993). The Army currently enforces stringent, short-term, total concentration limits for working-level exposure and long-term general population limits that are far more protective in terms of public safety than are standards for other hazardous chemicals. This provides a comfortable safety margin to normal occupational exposure under current standards.

The Health Effects from Normal Operations

Most of the risk assessments that have been performed relative to chemical stockpile disposal have dealt with the accidental release of agent. However, there is increasing public concern over potential long-term, chronic health effects due to cumulative, low-level exposure to either agent or other pollutants (e.g., NO_x and dioxin) from the normal operations of chemical storage or disposal facilities. These long-term public health effects are much more difficult to evaluate than the effects of accidental releases, and they suffer from incomplete, variably interpretable data for effects that may have a latency of 20 to 30 years. Such studies usually lack pre-exposure controls and rely on nonrandomly collected data such as self-reported effects. In addition, site-similar epidemiology at chemical agent and munitions disposal

sites or related hazardous waste disposal sites is currently quite limited in the scientific literature. These issues cannot be thoroughly addressed in this report; however, a separate National Research Council committee will address the nature and probability of health effects associated with incineration. This proposed evaluation has been titled "Health Effects of Waste Incineration" and will examine the potential health effects from incinerators in general (rather than from incinerators that handle specific substances such as the agents in the chemical stockpile), under both steady and upset operating conditions. It will be sponsored by the Agency for Toxic Substances and Disease Registry (ATSDR), the U.S. Environmental Protection Agency, and the U.S. Department of Energy.

In the limited studies that have evaluated the chemical nature of stack emissions, it has been observed that the levels of destruction and the nature of organic compound emissions vary significantly, depending on the parent compound. Thus, the principal organic hazardous constituents (POHCs) and the products of incomplete combustion (PICs) can be quite complex. For example, the combustion of natural gas may include more than 100 elementary chemical reactions, which may result in over 100 different products of incomplete combustion. Although it is possible to determine whether any individual product is released at significant toxicity levels, the overall biological effects of the mixtures are unknown. Only a few incinerator emission studies have been performed in detail, primarily because of the complexity of the chemical analysis and the lack of correlation of presumed effects with dosage. In such studies, it is critical to be able to separate presumed insult (neuropathy, allergy, cancer induction, etc.) from coincidental circumstances. These studies have generally concluded that the normal "nonupset" operation of incinerators results in stack emissions that are equivalent to those from comparable combustion systems such as fossil-fuel power plants. Off-normal operation is not monitored by the EPA, but disposal facility permits will require cessation of agent feed if furnace conditions are outside normal operating limits. All such facilities must satisfy EPA emission standards. As a point of reference, the EPA Health Effects Research Laboratory in North Carolina, and others, have provided data on the mutagenicity of stack emissions suggesting that incineration facilities, if operating properly, produce no more toxic pollutants than many residential furnaces, cars, and wood stoves (Watts et al., 1989; 1992; Driver et al., 1990). Recent studies of industrial incinerators have provided some evidence of the low risk of proper routine operation (Dempsey and Oppelt, 1993).

An incinerator siting study oriented toward evaluating long-term, low-level toxicity effects is currently under way in North Carolina (ATSDR Division of Health Sciences). This study relies on self-reported symptoms from complex exposures that included direct worker exposure and fugitive emissions, not just stack emissions (S. Leffingwell, personal communication,

1993). Another community health evaluation has been performed with the Vertac Incinerator in Jacksonville, Arkansas, in which the result of dioxin contamination was examined before and after remediation. Only immediate acute effects were detected, and those were correlated with immediate symptomatic exposure. The study suffers from a lack of precontamination or fugitive exposure information. Overall, it is difficult to extract consistent conclusions from the generic occupational studies that have been performed over the past several years.

The difficulty involved in performing an epidemiological study before and after agent destruction could be very great. Such a study would be extremely difficult, if not impossible, because no correlation with dosage could be determined—since no measurable agent release would be expected and by-product releases could be very small. In addition, the maximal level of effect from chronic low-level exposures would be expected to be less than 5 percent differences, based on the correlations for AChE changes determined following symptomatic exposures described previously. Thus, the studies would be expected to produce data at the margin of detection accuracy, and any observed results might be strictly coincidental. Should a sublethal release occur, it would be possible to mark and develop a prospective cohort study.

It might be possible to evaluate the impact of incineration technologies at various hazardous waste sites around the world in a comprehensive health effects study, such as the National Research Council evaluation previously discussed. Such a study is beyond the intent of the stockpile disposal program. Such general population evaluations might be reinforced by insights gained from laboratory animal studies; however, these require extrapolation from short-term, high-dose treatments to long-term, low-dose exposures more likely to be encountered in the environment. In addition, the laboratory animal response must then be converted to potential human responses in which the target organs might have differing sensitivities or vary significantly for particularly sensitive subgroups. Such extrapolations have been shown to be extremely difficult to make and to be inconsistent in results.

It is not possible to assess the long-term impact of alternative technologies at this time because their engineering development is preliminary, and the extent of exposure to chemical agents or other destruction pollutants during processing is largely unknown.

Resolution of the issues of the long-term public health and environmental effects of normal, low-level exposure to either agent or other processing pollutants is beyond the scope of this report. For the purposes of this report, the number of useful studies is quite limited and the data base is incomplete. There is certainly no clear indication of increased incidence of cancer, neurological disruptions, or other negative health effects that can be

associated with low level, nonsymptomatic exposure or long-term proximity to hazardous waste incinerators. Likewise, there is no unequivocal evidence that the risk can be ignored.

RISK ASSESSMENT ACTIVITIES

Programmatic Risk Assessment

A programmatic quantitative risk assessment accomplished in the late 1980s (U.S. Army, 1988) was performed to evaluate the risk of agent exposure from accidents while using the baseline system for the Chemical Stockpile Disposal Program (CSDP). This report, prepared by an Army contractor more than five years ago, was undertaken to compare broad stockpile disposal alternatives (discussed below). The Stockpile Committee, while not endorsing the report, has accepted it as the principal extant, substantial, and comprehensive risk assessment on the CSDP. The assessment provides extensive data and information that the committee relied upon in its analysis.

The risk from agent or other potentially harmful emissions as a result of normal operations was not assessed because of the greater concern at the time with major accidents. In particular, quantitative risk assessment methods were used to assess the probabilities of fatalities from acute agent exposure outside the military base.

The following risk and reliability studies were performed relative to disposal by the baseline system:

- risk trade-off between storage and disposal of the stockpile;
- risk trade-offs between on-site or regional disposal plants and a national disposal facility; and
- reliability of unit operations.

Several alternatives for the application of the baseline system considered in the final environmental impact statement for the CSDP included

- continued storage (the "no-action" alternative);
- on-site disposal;
- regional disposal centers (involving rail shipments);
- national disposal center (involving rail shipments); and
- partial relocation (involving shipment of two stockpiles by air).

From Chemical Stockpile Disposal Concept Plan (AMXTH-CD-FR-85047, U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland 21010-5401, March 15, 1986) p. 6-8.

6.7 PROVISION FOR CONTRACTOR INDEMNIFICATION

Approval of a blanket indemnification under Public Law 85-804 will be required for all contractors in the disposal program. Without such indemnification few contractors will desire to bid on contracts involving design, construction, or operation of facilities that could expose them to liabilities that are presently difficult to cover by insurance.

Public Law 85-804 provides indemnification for Government contractors who may be exposed to unusually hazardous risks as stated: "Claims by third parties, the Federal Government, and contractor for death, personal injury, and loss of, damage to, or loss of use of property arising in connection with or resulting from explosion of, release of, contact with, or exposure to lethal chemical agents." Contractors involved in the destruction program could possibly suffer severe financial loss from claims if indemnification is not obtained. Indemnification is granted to a contractor on a case-by-case basis after he applies to the Secretary of the Army and receives approval. Approval of a blanket indemnification could expedite this requirement. Adequate insurance coverage for claims resulting from sudden and accidential release or discharge of toxic chemicals, or from an alleged gradual environmental impairment, is considered unavailable in today's insurance marketplace, and if available would conceivably be priced beyond economic reason.

* *

Johnston Atoll (JACADS) Performance Record

MYTH: JACADS operations have been safe.

"JACADS, the nation's first [chemical weapons incinerator] prototype...has an excellent record for meeting all required environmental and safety standards...."
—Annual Status Report on Lethal Chemical Weapons and Materiel. December 1995.

"Multiple safety features are designed in the process...to prevent agent or hazardous material release." —Safely Destroying America's Chemical Weapons. U.S. Army.

FACT: JACADS has experienced:

—Fires in 1991 and 1994 caused by jammed furnace feed gates.

—Open-burning of dunnage during Operational Verification Testing (OVT), and permit violations in 1994, resulting from waste management problems.

—A $72,300 EPA fine for improper storage of hazardous waste in 1994.

—Average operational days of 8-12 hours, rather than the projected 24 hours.

—219 alarms during OVT due to inadequate monitoring systems.

—An M55 rocket explosion on the demilitarization line in 1994.

—Agent release into the atmosphere in 1990.

—Agent GB release into the atmosphere in March 1994, resulting in a $50,000 fine for violating EPA emissions standards.

—Agent GB release into the atmosphere in March 1995.

JACADS Emissions Record

MYTH: JACADS proves that incineration is a safe, effective disposal method.

"All that will come out of the stacks will be steam and water."

— Jeff Lindblad, Public Affairs Officer, Pine Bluff Chemical Activity. Pine Bluff Commercial, July 1995.

"Johnston Atoll...produces dioxin levels well under levels of health concern regulated by EPA....Smoke from a single cigarette contains far higher concentrations of dioxins than do any emissions from any of the Johnston Atoll incinerators."

—LTC George T. Greiling, Chief, Special Actions Branch. Letter to Sen. Hatfield, July 1995.

FACT

JACADS has experienced 3 known releases of agent into the atmosphere.

A chemical weapons disposal program representative stated she "did not know" how many JACADS agent releases have not been reported to Congress.

— Kathy Gibbs in Anniston, Alabama, March 1995.

Known smokestack emissions from JACADS include acetone, arsenic, benzene, chromium, cadmium, chloride, chloroform, chloromethane, copper, lead, mercury, nickel, toluene, vinyl chloride and zinc, to name a few.

—United Engineers and Constructors, February 1993.

EPA dioxin studies show that the U.S. has already exceeded a "safe" body burden level of dioxin. —1994 EPA Dioxin Reassessment

"The technology to look for 1,000 possible compounds or to quantify 100% of the emissions...does not exist." — Former Program Manager for Chemical Demilitarization. September 1994

[redacted]

Risk of Continued Storage

MYTH: Continued storage of chemical weapons poses the highest risk; incineration poses a low risk.

"A common perception is that incineration poses a greater risk than continued storage...although risk assessments demonstrate that storage of the stockpile poses the greatest public risk." —PMCD Annual Status Report, December 1995.

"...Leaving [chemical weapons] in storage is much more dangerous than incineration." —Army spokesperson Mark Evans, Associated Press, August 1994.

FACT

The *Risk Assessment in Support of the Chemical Stockpile Disposal Program* (GA Technologies, 1987), the supporting document of the 1988 Final Programmatic Environmental Impact Statement (FPEIS), did not include deterioration of munitions as a risk factor of continued storage.

The 1994 NRC Stockpile Committee Report stated the 1988 FPEIS Risk Assessment was fraught with "inadequacy of data, inaccuracies of modeling, and the incomplete identification and understanding of accident phenomena."

There has never been a risk assessment done on deterioration of munitions as a risk factor of continued storage. Only external factors (airplane crashes, earthquakes) were factored into the Risk Assessments.

Actions exist which would reduce external risks by more than 90%. Reviews of external risk in Maryland showed the 1987 study to be overstated by 10,000%!

Only projected "normal operations" risks were attributed to incineration operations in the 1987 and 1988 assessments. No actual operational data from the Johnston Atoll incinerator has ever been factored into the risk assessment.

M55 Rocket Stability

MYTH: M55 rockets are so unstable, they could auto-ignite any day now.

"M55 rockets stored here could start cooking off anytime... if I lived here, I'd be begging the Army to begin building an incinerator tomorrow."

— NRC Former Chairman Carl Peterson at a public meeting in Richmond, Kentucky, May 12, 1994.

"...There are 400,000 M55 chemical rockets stored around the country, and statistically one could 'go off' at any time."

— Assistant Army Secretary, Pine Bluff Commercial, July 19, 1995.

"The Army has raised the specter that some of the aging rockets are deteriorating and could self-detonate, causing others to 'cook off' or 'ignite as well."

— The Oregonian, December 31, 1995.

"Military experts at first estimated that the M55s were safe until 1986, but a 1993 Army report suggests the danger zone could be reached in 1997."

—Time Magazine, February 12, 1996.

FACT

There is "less than a one-in-a-million chance of auto ignition of a non-leaking M55 rocket before 2013; even using the most conservative data this time period may extend to 2043 or even 2064." —M55 Rocket Storage Life Evaluation. U.S. Army, December 1994.

There is no evidence that agent from any M55 has ever leaked into propellant, increasing the possibility of auto ignition.

"...Preliminary indications from a Pentagon reassessment of the M55 rocket shows they probably won't become dangerous for 'about 100 years.'"

—Army spokesperson Marilyn Tischbin. The Oregonian, August 11, 1994.

Reconfiguration of Munitions

MYTH: Incineration is the only way to eliminate the risk of M55 rockets and other explosives.

FACT

Army contracted reports and chemical demilitarization program officials agree that M55 rockets can be reconfigured to eliminate risk of auto ignition. The 1985 Army contracted A.D. Little study gives a blueprint for reconfiguring M55 rockets, apart from incineration, within 2-3 years.

In response to a question regarding feasibility of the A.D. Little reconfiguration study, General Busbee stated "it is technically possible" to implement the A.D. Little reconfiguration process.

"Initial weapons disassembly and agent detoxification...could meet international treaty demilitarization requirements and eliminate the risk of catastrophic agent releases during continued storage." —Alternative Technologies for the Destruction of Chemical Agents and Munitions, National Research Council, 1993.

"If propellant [in M55 rockets] becomes unsafe prior to scheduled demilitarization, a process to separate the warhead from the rocket will be used. The potential for a catastrophic event would be completely eliminated using this approach." —Chemical Weapons Stockpile Safety Contingency Plan, directed by the 1991 Defense Authorization Act.

Immediate reconfiguration of chemical weapons and neutralization of chemical agent, followed by 25 years of storage offers a lower possible risk to communities. —Comparative Risk Assessment of Alternative Management and Treatment Options for the Army Chemical Weapon Incineration Program, Dr. Douglas Crawford-Brown. February 1996

[redacted]

Alternatives to Incineration

MYTH: There is no better way to dispose of chemical weapons than by incineration.

"At this time, no other proven technology exists that can effectively destroy or decontaminate the chemical agents, the explosives, the drained or empty munitions and containers, and the packing material." —Safely Destroying America's Chemical Weapons, U.S. Army.

FACT

"There are many possible destruction processes. The scope of possible modifications ranges from simply replacing one component, such as the agent combustion process, to replacing all current combustion-based processes....There are a number of promising chemical processes for agent detoxification....there are technologies to replace the baseline metal parts furnace." —Alternative Technologies for the Destruction of Chemical Agents and Munitions. National Research Council, 1993.

"There is still time to do...research [of alternative technologies]. It is insurance against future trouble, and it is a rock-bottom necessity." —International Union of Pure and Applied Chemistry Task Force on Scientific Aspects of the Destruction of Chemical Warfare Agents, 1994.

Following is a brief list of non-incineration technologies capable of treating chemical weapons, and the respective vendor. These technologies are currently under Army investigation:

—Chemical Neutralizaion/Biodegradation:	Edgewood Research, U.S. Army
—Molten Metals/Molten Salts:	M4 Environmental L.P., Inc.
—Electrochemical Oxidation:	AEA Technologies
—Supercritical Water Oxidation:	General Atomics
—Hydrocracking:	EcoLogic, Inc.

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IN THE UNITED STATES DISTRICT COURT
DISTRICT OF UTAH, CENTRAL DIVISION

Chemical Weapons Working Group (CWWG), Inc., Sierra Club, and Vietnam Veterans of America Foundation, Plaintiffs, v. United States Department of the Army, United States Department of Defense, and EG&G Defense Material, Inc., Defendants.	Case No. _____

COMPLAINT

I. JURISDICTION

1. Jurisdiction of the Court to hear this action is provided by 28 U.S.C. § 1331, as this action involves one or more federal questions. Jurisdiction is also provided by the Resource Conservation and Recovery Act (RCRA) provision for jurisdiction of the federal courts to hear citizen suits, 42 U.S.C. § 6972(a), and the analogous provision of the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2619(a). This action is a citizen suit under these statutes to enforce requirements of these acts, including emission limitations, and to enjoin an imminent hazard. Jurisdiction is also based on the Administrative Procedures Act (APA), 5 U.S.C. § 701 et seq., as the Department of the Army and the Department of Defense have committed arbitrary, capricious and lawless acts. This Court has pendent jurisdiction over the state law claim.

II. NOTICE REQUIREMENTS

2. Plaintiffs filed a Notice of Intent to Sue on April 8, 1996 via certified mail, return receipt requested, with all appropriate parties pursuant to 42 U.S.C. § 6972, 33 U.S.C. § 1365, 15 U.S.C. § 2619, and the regulations thereunder. That Notice is attached as Exhibit 1. Because the violations and imminent hazards complained of by the Plaintiffs involve RCRA hazardous waste violations (subchapter III violations), the complaint may be brought immediately after filing of the notice. See 42 U.S.C. §§ 6972(b)(1)(A)(iii), 6972(b)(2)(A)(iii). Also see, Dague v. City of Burlington, 935 F.2d 1343 (2d Cir. 1991) rev'd in part on other grounds 112 S.Ct. 2638.

III. PARTIES

A. PLAINTIFFS

3. Plaintiff Chemical Weapons Working Group, Inc. (CWWG) is a non-profit environmental and citizens organization incorporated in the State of Kentucky that is dedicated to protecting public health and the environment in the communities around the sites proposed by the Army and Department of Defense (DOD) for disposal of the chemical weapons stockpile, as well as throughout the world. CWWG's members reside, work and recreate in the communities around the Army, DOD and EG&G Defense Materials, Inc.'s (EG&G) chemical weapons incineration facility in Tooele County, Utah, the Tooele Chemical Demilitarization Facility (TOCDF), and in proximity to the water bodies and food sources which will be impacted by toxic emissions from the TOCDF. CWWG's members are and will be adversely affected by the Defendants' incineration of nerve agent, blister agent and other hazardous and toxic wastes at the TOCDF as a result of toxic emissions including highly toxic and environmentally persistent dioxin, dioxin-like compounds, nerve agents and blister agents. The emission of these highly toxic compounds will, as developed more fully infra, poison the air, water, soil and food sources on which the members of CWWG depend, and which directly and indirectly affect their health, property, recreational, aesthetic and environmental interests.

4. Plaintiff Sierra Club is a national non-profit environmental organization that is dedicated to protecting public health and the environment. The Sierra Club has an Utah chapter and a Salt Lake City group. The Sierra Club has members who reside, work and recreate in the communities around the Army, DOD and EG&G's chemical weapons incineration facility in Tooele County, Utah, and in proximity to the water bodies and food sources which will be

impacted by toxic emissions from the facility. Sierra Club also derives income from arranging nature outings in Utah. Sierra Club's members are and will be adversely affected by the Defendants' incineration of nerve agent, blister agent and other hazardous and toxic wastes at the TOCDF as a result of toxic emissions including highly toxic and environmentally persistent dioxin, dioxin-like compounds, nerve agents and blister agents. The emission of these highly toxic compounds will, as developed more fully infra, poison the air, water, soil and food sources on which the members of Sierra Club depend, and which directly and indirectly affect their health, property, recreational, aesthetic and environmental interests. Members of Sierra club also conduct business, recreational, educational, inspirational, and scientific activities in the vicinity of the TOCDF, including fishing in the water bodies affected thereby, on a regular and continuing basis. Apart from these uses, some of Sierra Club's members obtain their drinking water from sources which are hydrologically connected to waters into which TOCDF will discharge chemical warfare agents.

5. Plaintiff Vietnam Veterans of America Foundation (VVAF) is a national non-profit organization dedicated to protecting the interests of Vietnam Veterans. Vietnam veterans reside, work and recreate in the communities around the various sites proposed by the Army and DOD for disposal of chemical weapons. Many of these veterans have been exposed to the ultra toxic chemical dioxin as a contaminant in the herbicide/defoliant agent orange which was extensively sprayed by the military in Vietnam. The EPA has recently issued a report based on a multi-year study of dioxin exposure and has concluded that the average resident of the United States is already overexposed to dioxin as a result of existing and past dioxin emission sources, and that the current average exposure to dioxin is 10-100 times higher than a safe dose. This report

confirms that this high national dioxin exposure has resulted primarily from the atmospheric transport of dioxin air emissions from numerous sources, primarily incinerators which have caused nationwide dioxin contamination even in areas where no incinerators or other dioxin sources are located. The Vietnam veterans unfortunately are likely to have an even higher total exposure than the average because of their additional exposure in Vietnam. The Army, DOD, and EG&G chemical weapons incineration facility in Tooele County, Utah will be a significant additional source of dioxin emissions that will add to an already unacceptable dioxin exposure nationally, which additional dioxin exposure is likely to cause harm to Vietnam veterans.

B. DEFENDANTS

6. The Defendants United States Department of the Army (Army) and Department of Defense (DOD), agencies of the United States, are the owners of the Tooele Chemical Demilitarization Facility (TOCDF), including the incineration components thereof, and are responsible for performing certain mandatory duties under federal statutes in regard to activities at TOCDF including ensuring that the disposal of chemical weapons is conducted in a manner that provides maximum protection of public health and the environment. The Army and DOD are responsible for the incineration trial burn and "production burn" for chemical weapons components including ultra toxic nerve and blister agents, which incineration activities Plaintiffs allege herein are in violation of federal law and pose an imminent hazard to public health and the environment.

7. Defendant EG&G Defense Materials, Inc. (EG&G) is the operator of the TOCDF incineration facility which Plaintiffs allege herein is in violation of federal law and poses an imminent hazard to public health and the environment.

IV. BACKGROUND FACTS

8. There is no dispute that the world's store of obsolete chemical weapons must be destroyed. The potential for military use of these weapons must be eliminated. However, the issue is not whether such demilitarization and detoxification should be done, but how to do it safely.

9. The Army, DOD and EG&G are currently preparing to incinerate nerve and blister agents at the TOCDF incineration facility. TOCDF involves five incineration or thermal treatment units:

a) Two Liquid Incinerators (LICs): The LICs include a primary and a secondary combustion chamber and are designed to burn nerve agents -- GB, VX and mustard -- as well as liquid laboratory waste and spent decontamination liquid;

b) The Deactivation Furnace System (DFS): The rocket pieces, PCB containing rocket firing/shipping tubes, explosives and propellants are fed into the DFS which includes a rotary kiln and afterburner (after leaving the DFS, the rocket pieces are placed on a heated discharge conveyor (HDC) for further decontamination); and

c) The Dunnage Incinerator (DUN): The DUN is designed to burn both non-contaminated and contaminated dunnage from the munitions processing operations -- wooden

rocket pallets and mortar shipping boxes, charcoal and filter media, used protective suits, and demister candle filter media.

d) The Metal Parts Furnace (MPF): The MPF is designed to heat metal parts, including ton containers, bombs, spray tanks, and artillery projectiles and their burster wells, after most of the agent has been drained and explosives removed, to 1000 degrees Fahrenheit and maintain that temperature for 15 minutes to vaporize remaining agent contamination which is discharged as a gas and passed through an afterburner.

10. The TOCDF incinerators and combustion units are not closed loop systems. Notwithstanding pollution control systems, these TOCDF combustion units emits large volumes of combustion gases as well as fugitive emissions into the environment. These combustion gases and fugitive emissions that are released to the environment contain a variety of highly toxic compounds including unburned chemical warfare agents as well as dioxin and dioxin-like compounds which are among the most, if not the most, toxic chemical compounds yet to be discovered.

11. The underlying premise of the Army's 1982 decision to use incineration for the disposal of nerve agents and the detoxification of other residuals from demilitarization of chemical weapons was, in large part, the then-common assumption that hazardous waste incineration was a well-defined, mature technology. A mature technology is a technology that is productive, safe for workers and protective of human and environmental health. At the time of the Army's decision, there was an obvious dearth of documentation on incinerator performance, safety and impacts.

12. However, as noted infra, since the 1982-85 period when the Army selected incineration as the method for detoxification/disposal of the components of demilitarized chemical weapons and EPA issued the original RCRA permit for JACADS, the prototype experimental facility in the Pacific, numerous studies and reports have been published, describing various limitations of incinerator performance and environmental impacts. This technology was, and still is, practiced and promoted not because it is a proven, mature technology, but because it is expeditious and liability-free for the generators of the materials incinerated (i.e., the pollutants emitted from incinerator stacks and those deposited in the ashes and residues of pollution control systems cannot be easily traced back to the generators of the waste).

13. The Plaintiffs have for several years attempted to convince the Defendants to abandon their longstanding commitment to incineration technology for disposal of chemical weapons and to adopt a safer alternative method. These efforts have been intensified in the last two years with the release of the EPA Dioxin Reassessment reports in September, 1994 which clearly documented the already unacceptable health risks posed by existing incineration facilities nationwide, and with the emergence of several additional alternative technologies that have obvious advantages to incineration in terms of the ability to safely treat nerve and blister agents.

14. Plaintiffs have made comments at various points in the administrative processes relating to permitting and risk assessment for the TOCDF, expressing various technical objections to the project as not being in compliance with applicable law and posing an unacceptable risk to public health and the environment. Most of those concerns remain unaddressed either by the Defendants or the federal and state permitting agencies. Plaintiffs

have been instrumental in bringing, and continue to bring, to public attention new and disturbing information from former employees at the TOCDF and the prototype JACADS facility regarding threats to public safety and violations of law at the TOCDF. The Defendants have not addressed this evidence and these allegations by Plaintiffs in a timely or responsible manner, and the violations of law and threats to public health and the environment continue.

15. Unless the relief that Plaintiffs pray for herein is granted, the health, property, recreational and other interests of Plaintiffs will be adversely affected and irreparably harmed by the Defendants' illegal discharge of ultra toxic chemical poisons including the chemical warfare agents GB, VX, and HD, as well as the ultra toxic chemical poison dioxin and dioxin-like compounds. While the public interest is served by the responsible destruction of chemical weapons in a manner that complies with applicable laws that protect public health and the environment, the public interest is not served by the Defendants reckless rush to destroy the chemical weapons stockpile in such a dangerous manner that defeats the purpose of the Congressional mandate under which the Army and DOD act, and violates the several federal and state laws that govern the Defendants actions. As Congress has made crystal clear in 1992 in passing the Federal Facilities Compliance Act, codified at 42 U.S.C. § 6961, the federal agencies, including the Army and DOD, are not placed above the federal and state environmental laws. To the contrary, the Army and DOD must comply to the letter with all substantive and procedural provisions of all federal, state and local environmental protections. 42 U.S.C. § 6961.

V. PLAINTIFFS' CLAIMS

COUNT 1: IMMINENT AND SUBSTANTIAL ENDANGERMENT POSED BY THE CHEMICAL WEAPONS INCINERATION PROJECT AT TOOELE, UTAH

16. Plaintiffs incorporate by reference paragraphs 1 through 15.

17. Defendants' incineration of nerve agent, blister agent, and other hazardous and toxic wastes at the TOCDF results in the discharge of substantial amounts of toxic chemicals including the ultra toxic chemical poisons dioxin and nerve agents GB and VX and blister agents as a result of both the incomplete destruction (by incineration) of the chemical agents in the wastes as well as a result of the actual creation of dioxin and dioxin-like compounds as a product of the combustion process.

18. Dioxin is a shorthand term for a whole family of chemicals (including furans) with similar chemical structures and health and environmental impacts. The United States Environmental Protection Agency has found dioxin to be extremely toxic and carcinogenic even at low doses. The type of dioxin considered by EPA to be the most toxic and carcinogenic is 2,3,7,8-tetrachlorinated dibenzo-p-dioxin (2,3,7,8-TCDD). The numbers 2,3,7, and 8 represent the position of chlorine atoms around the benzene rings that make up the chemical structure of dioxin.

19. In performing health assessments where dioxin is involved the potencies of each member of the family of dioxins and the sister chemical furans that are being emitted from an incinerator are often expressed as toxic equivalents of 2,3,7,8 - TCDD. In this system TCDD as the most potent form of dioxin receives a toxic potency value of one (1), and the other dioxins' toxic potencies are expressed in relation to it as .5, .1, and the like. The toxicity of

a mixture of various types of dioxins and furans can be expressed in terms of the equivalent toxic units of 2,3,7,8-TCDD by multiplying the quantity of each type of dioxin by its toxic equivalency factor and summing the results. The phrase toxic equivalents is typically referred to as TEQs.

20. The chemicals in the dioxin family are persistent in the environment and can accumulate in soil, and bioaccumulate and biomagnify in the food chain via plants and animals, eventually reaching humans. It takes seven years to a lifetime, depending on the individual, for humans to eliminate half of the dioxin they ingest from their bodies. It can take as long as ten years or more for half the dioxin present in soil to break down.

21. Based on EPA data on dioxin emissions from hazardous waste incinerators and EPA's latest Dioxin Reassessment report (EPA, September 1994) which reports research and analysis on the levels of toxicity and carcinogenicity of dioxin, taken together with the Army and Utah DEQ risk assessments for TOCDF, the TOCDF incinerators is expected to emit more than a million toxic doses of dioxin. Dioxin is the most powerful chemical poison discovered to date. It thus becomes a critical question as to the extent to which such massive amounts of emitted poison will ultimately be captured in the food chain, inhaled, or otherwise result in human exposure. The extent of harm to public health will depend on the answer to this question.

22. The Army and the Utah Department of Environmental Quality (DEQ), in the Risk Assessments for the TOCDF incinerators, failed to properly take into account the existing high dioxin exposure from existing sources nationally and in the Salt Lake area in the assessment and calculation of risk from dioxin emissions from the TOCDF incinerators. This is a critical error because the occurrence of non-cancer adverse health effects from dioxin exposure is thought by

EPA to be a threshold phenomenon. That is, harm from dioxin exposure other than cancer is thought to not occur if the total dose to which a person is exposed is lower than a certain threshold dose. This threshold dose, which has not been specifically identified with any certainty by EPA or any agency or scientist to date, has been conservatively estimated for purposes of agency public health and environmental protection decision-making via calculation of a reference dose (RfD) (a virtually safe dose).

23. The critical nature of this risk assessment error by Defendants is clear when considered in light of the EPA's 1994 Dioxin Reassessment findings that national exposure to dioxin from existing sources is already one to two orders of magnitude (10-100 times) greater than any virtually safe dose or RfD EPA might calculate for dioxin. See EPA 1994 Health Assessment for Dioxin, Vol. III, p. 9-82 to 9-86.

24. The 1994 EPA Dioxin Health Assessment reports clearly identify the dangers posed by exposure to dioxin and dioxin-like chemicals. A few of the key additional conclusions reached by EPA regarding dioxin are:

- Chlorinated dibenzo-p-dioxins (CDDs) and related compounds (collectively commonly known simply as dioxins) are contaminants present in a variety of environmental media. This class of compounds has caused great concern in the general public as well as intense interest in the scientific community. Much of the public concern revolves around the characterization of these compounds as among the most potent "man-made" toxicants ever studied. Indeed, these compounds are extremely potent in producing a variety of effects in experimental animals based on traditional toxicology studies at levels hundreds or thousands of times lower than most chemicals of environmental interest.[1]

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[1] Health Assessment Document for 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds, EPA/600/BP-92/001c, U.S. EPA, August 1994 at 9-1. Hereafter this document will be referred to as "EPA 1994."

- There are 75 individual compounds comprising the CDDs [chlorinated dioxins], depending on the positioning of the chlorine(s), and 135 different CDFs [chlorinated furans]. These are called individual congeners. Likewise, there are 75 different positional congeners of BDDs [brominated dioxins] and 135 different congeners of BDFs [brominated furans] ... There are 209 PCB [polychlorinated biphenyl] congeners ... Mixed chlorinated and brominated congeners also exist increasing the number of compounds considered dioxin-like.[2]

- Extensive evidence has accumulated over the past 20 years to demonstrate that the immune system is a target for toxicity of ... TCDD [2,3,7,8 tetra chlorinated dioxins] ... and structurally related halogenated aromatic hydrocarbons (HAHs), including the polychlorinated dibenzofurans (PCDFs), polychlorinated biphenyls (PCBs), and polybrominated biphenyls (PBBs). This evidence was derived from numerous studies in various animal species, primarily rodents, but also guinea pigs, rabbits, monkeys, marmosets, and cattle. Epidemiological studies also provide evidence for the immunotoxicity of HAHs in humans.[3]

- The potential for dioxins and related compounds to cause reproductive and developmental toxicity has been recognized for many years. Recent laboratory studies have broadened our [EPA's] knowledge in this area and suggest that altered development may be among the most sensitive TCDD endpoints.[4]

- There have been several long-term studies designed to determine if TCDD is a carcinogen in experimental animals. All of these studies have been positive and demonstrate that TCDD is a multi-site carcinogen, is a carcinogen in both sexes and in several species including the Syrian hamster, is a carcinogen in sites remote from the site of treatment, and increases cancer incidence at doses well below the MTD.[5]

- The mechanistic basis for inter-individual variation is unclear, and this lack of knowledge complicates approaches to estimate human risks from experimental animal data. However, several studies indicate that, for the most part, humans appear to respond like experimental animals for biochemical and carcinogenic effects.[6]

EPA 1994 at 9-6 to 9-7.

[3]EPA 1994 at 4-1.

[4]EPA 1994 at 5-1.

[5]EPA 1994 at 6-38.

[6]EPA 1994 at 6-39 to 6-40.

- TCDD alters a number of other pathways involved in the regulation of cell differentiation and proliferation. The specific relationships of these effects to multistage carcinogenesis are not known, but the broad array of effects on hormone systems, growth factor pathways, cytokines, and signal transduction components is consistent with the notion that TCDD is a powerful growth dysregulator.[7]

- Human exposure to ... TCDD ... has been associated with non-cancer effects in most systems. The majority of effects have been reported among occupationally exposed groups, such as chemical production workers, pesticide users, and individuals who handled or were exposed to materials treated with ... TCDD-contaminated pesticides, and among residents of communities contaminated with tainted waste oil (Missouri, USA) and industrial effluent (Seveso, Italy).[8]

- Estimates of exposure to dioxin-like CDDs and CDFs based on dietary intake are in the range of 1-3 pg TEQ/kg body weight/ day. Estimates based on the contribution of dioxin-like PCBs to toxicity equivalents raise the total to 3-6 pg TEQ/kg body weight/day. This range is used throughout this characterization [EPA reassessment] as an estimate of average background exposure to dioxin-like CDDs, CDFs, and PCBs. This average background exposure leads to body burdens in the human population that average 40-60 pg TEQ/ g lipid (40-60 ppt [parts per trillion]) when all dioxins, furans, and PCBs are included. High-end estimates of body burden of individuals in the general population (approximately the top 10% of the general population) may be greater than three times higher.[9]

- With regard to average intake, humans are currently exposed to background levels of dioxin-like compounds on the order of 3-6 pg TEQ/kg body weight/day, including dioxin like PCBs. This is more than 500 fold higher than EPA's 1985 risk-specific dose associated with a plausible upper bound, ... and several hundredfold higher than revised risk specific dose estimates ... Plausible upper-bound risk estimates for general population exposures to dioxin and related compounds, therefore, may be as high as ... one in ten thousand to one in a thousand ... .[10]

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[7]EPA 1994 at 6-38.

[8]EPA 1994 at 7-87.

[9]EPA 1994 at 9-77 to 9-78.

[10]EPA 1994 at 9-86.

- ... TCDD is the most potent form of a broad family of xenobiotics that bind to an intracellular protein known as the Ah receptor. Other members of this family include halogenated hydrocarbons such as the PCBs, naphthalenes, and dibenzofurans, as well as nonhalogenated species such as 3-methylcholanthrene and B-naphthaflavone. The biological properties of dioxins have been investigated extensively in over 5,000 publications and abstracts since the identification of TCDD as a chloracnegen ... [in 1957].[11]

- From the complex picture that evolves from the ... data, it is amply evident that TCDD elicits a plethora of toxic responses, both after short term and long term exposure.[12]

- ... based on the results of two or more studies, recent evidence suggests that chloracne, elevated GGT[13] levels, an increased risk of diabetes, and altered reproductive hormone levels (luteinizing hormone, follicle-stimulating hormone, and testosterone) appear to be long-term consequences of exposure to ... TCDD ... .[14]

- Based on all of the data reviewed in this reassessment and scientific inference, a picture emerges of TCDD and related compounds as potent toxicants in animals with the potential to produce a spectrum of effects. Some of these effects may be occurring in humans at very low levels and some may be resulting in adverse impacts on human health.[15]

25. Government risk assessments of TOCDF and related facilities and scientific studies of dioxin provide a reasonable basis for concluding that the incineration of the chemical weapons waste at the TOCDF will lead to actual levels of dioxin and other toxic chemical exposure that will pose serious risk of harm to Plaintiffs and the public including cancer, immune and reproductive system damage and other harmful effects to human health.

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[11]EPA 1994 at 8-1.

[12]EPA 1994 at 3-34.

Gamma glutamyl transpeptidase.

[14] EPA 1994 at 7-238.

[15]EPA 1994 at 9-87.

26. The TOCDF incinerators will release such dangerous quantities of 2,3,7,8-TCDD (dioxin) and its equivalents (combinations of the other types of dioxins and furans) that even if only a small fraction of the dioxin emitted is captured by the food chain, great harm will occur to human health as well as to wildlife via, inter alia, cancer, reproductive and immunosuppressant effects.

27. Dioxin is created by the incineration of wastes in general. EPA, DEQ and the Army admit that dioxin will be a product of incomplete combustion from the incineration process.

28. The Defendants' hazardous waste incineration operation at the TOCDF poses a serious imminent and substantial endangerment to human health and the environment, given all the facts stated supra and:

a) the failure of the above named Defendants to adequately analyze and identify the toxic and hazardous contaminants expected to be present in the emissions from the TOCDF hazardous waste incinerators, and the toxicity of these emissions;

b) the failures of the Defendants to properly evaluate the risks to public health and the environment posed by the expected toxic emissions from the TOCDF incineration facility;

c) the incinerators' inability to adequately destroy hazardous wastes and hazardous constituents including PCBs, dioxins, furans, blister agents and nerve agents and related chemicals at concentrations found in the waste feeds;

d) the inability of existing pollution controls to adequately control toxic emissions from the facility;

e) the nature of the acutely hazardous/toxic waste feed (including its chemical constituents and the concentrations of each) and resulting releases into the air of both unburned toxic

chemicals and toxic metals in the waste feed, including nerve and blister agents, and toxic chemical by-products of incomplete combustion, including arsenic, lead, polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans, polychlorinated biphenyls, other dioxin-like chemicals and hundreds of other products of incomplete combustion (PICs), approximately 90% of which have yet to be identified by the Defendants, EPA or any party, which toxic chemical releases will pose serious risk of harm to human health (cancer, immune and reproductive system damage and other effects) and the environment;

f) the occurrence of upset conditions, off-normal conditions and accidents during operation of the incinerator facility which will result in even greater releases of toxic chemicals from the incinerator stack and fugitive emissions sources at the facility;

g) the proximity of residential and agricultural areas and the existence of significant routes of human exposure to toxic chemicals, including nerve agents, released from the site which include exposure via consumption of contaminated locally produced food including dairy products and locally grown beef, grains and produce, as well as via inhalation and direct contact with nerve agent and contaminated soil;

h) the considerable evidence that nerve agent will be released from the TOCDF in substantial quantities if operation with live agent begins, which evidence includes the problematic performance of the JACADS prototype facility on Johnston Atoll, and confirmed release of live nerve agent at JACADS, for which the Army was fined by EPA, the risk assessments prepared for TOCDF as well as for the proposed Anniston, Alabama and Umatilla, Oregon facilities which report a significant risk of harmful acute exposures to nerve agent released from the facilities, and the recent disturbing disclosures of former TOCDF safety officer Steve Jones

regarding numerous safety and environmental violations and problems which the Army, DOD and EG&G have failed to address responsibly; and

i) the virtual certainty that if agent is released from TOCDF in substantial quantities, such as in a maximum credible event (reasonable worst case accident or malfunction) that fatalities will occur in the civilian population, and likely in large numbers, with as many as 1 fatality in every 100 persons exposed at a distance of 15-40 miles.

29. The Risk Assessments prepared for the Army and DEQ on the dangers of the TOCDF incineration project, while not admitting per se an unacceptable risk, provides evidence on its face that the risk to public health of adverse health effects are significant as a result of toxic emissions from the incinerators. As one example, the dioxin exposures resulting from the dioxin emissions from the TOCDF incinerators which are admitted in the DEQ Risk Assessment, when taken together with existing dioxin exposures which are documented in EPA's 1994 Dioxin Reassessment reports, would be expected to cause harm to local residents, based on simple calculations using EPA risk assessment methods.

30. The Army and DEQ Risk Assessment also significantly underestimates the health risk from the TOCDF incinerators as a result of omission in the risk assessments of entire categories of toxic chemical emissions, including nerve agent combustion and degradation byproducts.

31. Considering all of these circumstances, the incineration of nerve and blister agents, PCBs and other hazardous wastes by the Defendants at the TOCDF poses an imminent and substantial endangerment to public health and the environment.

COUNT 2: VIOLATION OF THE NATIONAL ENVIRONMENTAL POLICY ACT

32. Plaintiffs incorporate by reference paragraphs 1 through 31.

33. The Army and DOD have failed to complete an adequate Environmental Impact Statement (EIS) as required by National Environmental Protection Act (NEPA) and Supplemental EIS as required by NEPA to fully and properly evaluate all feasible alternatives to, and all significant impacts on the environment and public health from, the proposed nerve and blister agent incineration, as well as the failure to address the comparative risks and impacts of the alternatives versus the proposed incineration plan. NEPA at inter alia 42 U.S.C. § 4332 requires an adequate EIS to be prepared prior to commitment of resources for a major federal action such as this which significantly affects the quality of the environment.

34. As noted supra, the TOCDF chemical weapons incineration process will actually create a host of poisonous chemicals not even present in the chemical weapons waste currently on-site and will release these chemicals, in addition to a significant fraction of the nerve agent and other chemical poisons in the waste on site, directly into the surrounding environment. Many of these chemical poisons emitted have not even been identified by the Army, DOD and EG&G, and others of these emissions that have been identified, and their degradation by-products, have unknown toxicity. The DOD, Army and EG&G remain ignorant of even the identity of most of the chemical poisons that will be emitted into the environment from the TOCDF incinerators, let alone having assessed the impacts to be expected from these yet to be identified but certain to be present poisons.

35. The following observation from an EPA study is applicable: "One present concern for application of incineration technology is that the hazard associated with a waste stream may

not be removed even though the original waste compounds are destroyed. Transformation of the waste into hazardous products of incomplete combustion (PICs) can potentially aggravate the hazard associated with the waste stream. For example, a hazardous but nontoxic waste can be partially transformed into chlorinated dibenzo-p-dioxins or dibenzofurans upon incineration" (Kramlich et al., 1989). Chlorinated dioxins and furans are formed when carbon and chlorine are present in the waste fed into incinerators and other combustion systems. Polyhalogenated dioxins and furans and other dioxin-like chemicals will undoubtedly be among the products of incomplete combustion released during the incineration of chemical weapons components, just as they are among the "thousands of different compounds" that are, according to EPA, typically found in the stack emissions of hazardous waste incinerators (EPA, 1990). The nerve agents and other materials to be fed into the Army's incinerator system contain the elements that are the basic building blocks for these complex, highly persistent, bioaccumulative organohalogens.

36. The problem of chlorinated dioxin emissions is compounded by the presence of additional dioxin-like compounds in stack emissions. When other halogens, such as bromine and fluorine, are present in the materials burned, other halogenated dioxins and furans are also formed. When both chlorine and sulfur are present in the waste, the sulfur analogs of the polyhalogenated dioxins and furans are released in stack emissions (see, e.g., Buser et al., 1991). The nerve agent GB (Sarin) contains both carbon and the halogen, fluorine, in its molecular structure. HD (mustard) contains carbon, chlorine and sulfur. The decontamination and stabilization solutions, which are also fed into the TOCDF liquid incinerators with the nerve agents, may also contain chlorine. The dioxin-like chemicals which the scientific literature

indicates will likely be present in the TOCDF incinerators' emissions and which should have been addressed in addition to the chlorinated dioxins and furans include:

* co-planer PCBs (dioxin-like PCBs)

* sulfur analogs of the chlorinated dioxins

* sulfur analogs of the chlorinated furans (thiophenes)

* brominated dioxins

* brominated furans

* co-planer PBBs (dioxin-like brominated biphenyls)

* sulfur analogs of the brominated dioxins

* sulfur analogs of the brominated furans (thiophenes)

* chloro/bromo dioxins

* chloro/bromo furans

* sulfur analogs of the chloro/bromo dioxins

* sulfur analogs of the chloro/bromo furans (thiophenes)

* dioxin-like chorobenzenes

* chlorinated biphenylenes (not to be confused with PCBs)

* brominated biphenylenes

37. NEPA's directive to the federal government is clear:

all agencies of the federal government shall-
* * * * * *
(C) include in every recommendation or report on ... major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on-

(i) the environmental impact of the proposed action,
(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of [the human] environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented ....

42 U.S.C. § 4332(2)(C). The federal Council for Environmental Quality ("Council") was charged with establishing the detailed regulations that would drive the NEPA process. 42 U.S.C. § 4344. These regulations are published in the Code of Federal Regulations (C.F.R.). See, 40 C.F.R. Part 1500.

38. The NEPA implementing regulations clarify the requirements set forth in the statute. The NEPA process is suppose to be used to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects upon the quality of our environment. 40 CFR §1500.2(e). The federal agency is required to inform the public on these alternatives. 40 CFR §1502.1 Federal agencies are required, not only to consider alternatives but to emphasize them. 40 CFR §1500.2(b). The section on alternatives is the "heart of the environmental impact statement." 40 CFR §1502.14.

39. The regulations require that the information given by the federal agency on alternatives, like all the information in a environmental impact statement (EIS), be of high quality and supported by evidence that the agency has made the necessary environmental analyses. 40 CFR §1500.1(b), 1502.1. Finally, a draft EIS is required to meet the requirements of a final EIS. 40 CFR §1502.9(a).

40. A federal agency is required to, "[r]igorously explore and objectively evaluate all reasonable alternatives[.]" 40 CFR §1502.14(a). See Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519 (1978); Natural Resources Defense Council v. Morton, 458 F.2d 827 (D.C. Cir. 1972). A "perfunctory and conclusory statement that there are no alternatives does not meet the agency's statutory obligation." Trinity Episcopal School v. Romney, 523 F.2d 88, 94 (2nd Cir. 1975).

41. Once a federal agency determines that an alternative is reasonable the agency must, "[d]evote substantial treatment to [the] alternative . . . including the proposed action so that reviewers may evaluate their comparative merits." 40 CFR §1502.14(b). An EIS should " go beyond mere assertions by providing sufficient information and reasoning to enable readers to consider and evaluate the comparative merits of the alternatives[.]" Druid Hills Civic Ass'n v. Federal Highway Administration, 772 F.2d 700, 713 (11th Cir. 1985) quoting Natural Resources Defense Council, Inc. v. Callaway, 524 F.2d 79, 83 (2nd Cir. 1975).

42. The alternatives section of an EIS should, "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 CFR §1502.14.

43. 40 CFR §1502.2(c) requires an agency to discuss how alternatives will advance the polices set forth in NEPA such as assuring the people in the United States safe, healthful, and aesthetically and culturally pleasing surroundings.

44. 40 CFR §1502.2(g) states that the EIS "shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made."

45. The Army and DOD have failed in their initial NEPA analyses both in the EIS

performed for TOCDF and the programmatic EIS, to speak to, let alone satisfy these requirements for thorough analysis of alternatives.

46. In addition to NEPA's specific requirement to fully evaluate environmental impacts, adverse effects, and alternatives, the Council's regulations specify that draft or final EISs must be supplemented when significant new information becomes available. The regulation states:

> (c) Agencies:
>
> (1) **Shall** prepare supplements to either draft or final environmental impact statements if:
> * * * * * *
> (ii) There are **significant new circumstances or information** relevant to environmental concerns and bearing on the proposed action or its impacts.

40 C.F.R. § 1502.9(c) (emphasis added).

47. The Department of Defense requires that the Army follow the mandatory requirement to supplement as stated in the Council's regulations.

> DoD Components shall prepare a supplement to either the draft or final environmental impact statement in accordance with ... 1502.9(c).

32 C.F.R. Part 188, Encl. 1(D)(4).

48. Since the mid-1980s when the Army selected incineration as the method for disposal of the components of demilitarized chemical weapons and U.S. Environmental Protection Agency ("EPA") issued the original RCRA permit for the Johnston Atoll Chemical Agent Disposal System ("JACADS"), numerous studies and reports have been published, describing various limitations of incinerator performance and the potential environmental impacts of incineration. JACADS is supposed to be the proving ground for chemical weapons incineration systems proposed for the continental U.S.

49. The recent scientific studies indicate and the history of the Army's operation of the JACADS facility clearly demonstrates that incineration is inappropriate for the detoxification/disposal of the components of demilitarized chemical weapons. The effort to demilitarize chemical weapons at JACADS was accompanied by myriad problems, ranging from basic design flaws to repeated mechanical failures. Detoxification/disposal by incineration suffered from a broad range of problems. Many of the problems are due to the inherent limitations of combustion technology.

50. Incinerators inevitably release unburned wastes, metals and products of incomplete combustion (PICs) in stack gases, ashes and residues of pollution control systems. In addition to harmful levels of toxic organohalogens and metals, the JACADS facility has released unburned chemical warfare agents into the environment and will continue to do so for as long as the facility is permitted to operate. This release of nerve gas and other toxins threatens public health and the environment and defeats the purpose of the Army's disposal program and the Chemical Weapons Convention (CWC). Both are intended to prevent the release of chemical warfare agents and the resulting human exposure to chemical warfare agents. No supplemental EIS has been performed to address the recent studies of incineration and the performance problems experienced at JACADS.

51. The Army and DOD have failed to assess the dramatic new information on dioxin exposure released by EPA in 1994 in the Dioxin Health Assessment reports and companion volumes. It is now clear from these EPA reports that the nation cannot afford additional dioxin exposure and that such additional exposure as will result from the TOCDF operation will cause

harm to human health. This new information along with recently developed alternative technologies should have been but has not been the subject of a supplemental EIS.

52. Further, the Army has failed to explore and evaluate reasonable alternatives to incineration such as:

(1) Gas-phase (hydrogen) chemical reduction;

(2) Electrochemical Silver (II) processing;

(3) Solvated electron chemistry processing; and

(4) Molten Metals processing.

This is far from an exhaustive list of alternatives that the Army has failed to explore and evaluate. In fact, the Army has failed to explore and evaluate any reasonable alternative technologies for TOCDF.

53. The failure to address alternatives to incineration for TOCDF is a particularly significant omission given that the Army is currently engaged, along with the NRC, in formally examining alternative technologies for chemical weapons stockpile sites in Maryland and Indiana. The Army has identified four feasible alternatives for destruction of nerve agents at these sites, yet none are incorporated in the Army TOCDF NEPA documents.

54. The Army fails to recognize the failures at JACADS and relies far too heavily on optimistic assertions and/or incorrect information regarding the JACADS experience.

55. The Army's NEPA analysis in general fails to properly and fully consider the human health impacts from toxic and persistent chemicals and unburned agent that will be emitted from the TOCDF incineration facility. This is dramatically apparent in the lack of a dioxin impact analysis and failure to consider the EPA's dioxin reassessment work.

56. The Army and DOD similarly fail to adequately assess the ecological impacts of incineration operations.

57. The Army and DOD have failed to prepare a supplemental EIS to address the inadequacies noted herein, as required by NEPA. Further effort toward committing resources for work on incineration at TOCDF should halt. See, 42 U.S.C. § 4332(2)(C); 40 C.F.R. § 1502.9(c).

COUNT 3: VIOLATION OF THE FEDERAL AND UTAH HAZARDOUS WASTE DESTRUCTION REQUIREMENTS

58. Plaintiffs incorporate by reference paragraphs 1 through 57.

59. Defendants have failed to demonstrate compliance with the legal requirements for treating and disposing of hazardous waste via incineration.

60. The chemical weapons wastes to be incinerated at the TOCDF are admitted by EPA and the Utah DEQ to be Resource Conservation and Recovery Act (RCRA) regulated hazardous wastes subject to at least a 99.99% DRE requirement. RCRA requires via federal regulations which are adopted by Utah that a 99.99% destruction and removal efficiency (DRE) be achieved on the key hazardous constituents (the principal organic hazardous constituents or POHCs) including in the wastes during the post-trial burn incineration process, in addition to requiring a demonstration of a 99.99% DRE during a trial burn. See 40 C.F.R. §§ 264.342, 264.343.

61. As a result of a recently discovered but poorly understood scientific phenomenon, chemicals in the waste feed in low concentration are difficult to destroy at high destruction efficiencies. Chemicals present in the waste feed to an incinerator at concentrations of less than

1,000 parts per million (ppm) will not be incinerated at a 99.9999% DRE and chemicals in the incinerator waste feed at concentrations of less than 100 ppm will not achieve a 99.99% DRE.

62. This is a phenomenon which EPA has studied, documented and acknowledges (EPA, Kramlich 1993).

63. The TOCDF dunnage incinerator and metal parts furnace will be burning nerve agent contaminated materials that have a concentration of nerve agent of less than 1000 ppm in some cases and less than 100 ppm in some cases.

64. Consequently, Defendants will be unable to consistently destroy the nerve agents, which are POHCs in the TOCDF chemical weapons wastes, to the 99.99% destruction and removal efficiency (DRE) required by law using the currently proposed incineration technology for the TOCDF metal parts furnace and the TOCDF dunnage incinerator. The excess nerve and blister agent emissions resulting from this failure to achieve a 99.99% DRE during the production burn violate the DRE regulation, as well as pose a health threat to workers and the public.

COUNT 4: VIOLATION OF PCB DESTRUCTION EFFICIENCY REQUIREMENTS OF THE TOXIC SUBSTANCES CONTROL ACT

65. Plaintiffs incorporate by reference paragraphs 1 through 64.

66. Defendants are proceeding to incinerate PCB contaminated waste, some of which is contaminated with PCBs at concentrations greater than 50 ppm and regulated under the Toxic Substances Control Act.

67. The Toxic Substances Control Act requires that the PCBs in the TOCDF waste be incinerated to a destruction and removal efficiency of 99.9999%. Such a demonstration is

required pursuant to 15 U.S.C. §2601 et seq., and the TSCA regulations at 40 C.F.R. part 761.

68. Due to the scientific phenomenon described supra where chemicals in the waste feed in low concentration are difficult or impossible (depending on the concentration) to incinerate at even the 99.99% DRE, and given that some of the PCB waste to be burned has PCB concentrations of less than 1,000 ppm, Defendants are not capable of consistently achieving the 99.9999% DRE on the PCBs in the TOCDF wastes using the technology currently installed at TOCDF.

69. Nonetheless, Defendants plan to proceed to burn the PCB waste in violation of the TSCA 99.9999% DRE requirement.

COUNT 5: VIOLATION OF FEDERAL AND STATE REQUIREMENTS TO PREVENT AND MINIMIZE THE RELEASE OF HAZARDOUS WASTES AND HAZARDOUS WASTE CONSTITUENTS

70. Plaintiffs incorporate by reference paragraphs 1 through 69.

71. RCRA and its Utah counterpart, including 42 U.S.C. §§ 6924 and 6925 and 40 C.F.R. Part 264 (e.g. 40 C.F.R. §§ 264.15; 264.31; 264.347; UAC R315-8-2.6; UAC R315-8-3.2; UAC R315-8-15.7), require Defendants to take all necessary actions to prevent and minimize releases of hazardous wastes and hazardous waste constituents into the environment.

72. The Army, DOD and EG&G have failed to take the required measures to prevent release of nerve and blister agent from the TOCDF facility in light of the problematic performance of the JACADS and CAMDS prototype facilities and confirmed releases of live nerve agent, for which the Army was fined by EPA at JACADS, and the numerous unexplained

"false" alarms from the Army's air and emissions monitoring systems signaling the release of live nerve agent.

73. The risk assessments prepared for TOCDF as well as for the proposed Anniston, Alabama chemical weapons incineration facility report a significant risk of harmful acute exposures to nerve agent released from the facilities.

74. Recent disturbing disclosures have been made by former TOCDF chief safety officer Steve Jones regarding numerous safety and environmental violations and problems at TOCDF which could lead to releases of nerve and blister agent, that remain uncorrected.

COUNT 6: VIOLATION OF FEDERAL AND UTAH EMERGENCY PREPAREDNESS REQUIREMENTS

75. Plaintiffs incorporate by reference paragraphs 1 through 74.

76. Defendants are not in compliance with the emergency preparedness and contingency plan requirements of RCRA. 42 U.S.C. Subpart C and D; UAC R315-8-3.1, 3.7, 4.1, 4.2, 4.3, 4.6. Also see RCRA Permit for TOCDF, § II.H.4.b. The Army, DOD and EG&G are ill prepared to respond to a release of nerve agent at TOCDF in terms of planning, equipment, personnel training, off-site treatment capability and coordination with hospitals and emergency response personnel. The required personnel training has not been completed. The required cooperative agreements with emergency response agencies have not been effected, and the requisite off-site treatment capability does not exist.

77. The required emergency response plans for TOCDF, both on-site and off-site, must be designed around the reasonable worst case event or release of nerve agent and hazardous

chemicals (maximum credible event). However, the Defendants have yet to identify or reveal the nature of such a reasonable worst case event and have not designed their emergency response plans to deal with such an event.

78. The Defendant Army had initiated such an analysis of a maximum credible incinerator stack release of unburned nerve agent which indicated that even at 40 miles beyond the TOCDF boundary that 10,000 fatalities would occur per million population (one percent fatalities). Former Army Inspector General's Office inspector and former Chief TOCDF safety officer Steve Jones observed work in progress on this analysis during a past inspection at TOCDF but the Army has acted as if such an analysis does not exist.

COUNT 7: NUISANCE

79. Plaintiffs incorporate by reference paragraphs 1 through 78.

80. As detailed supra, the TOCDF incinerators will disperse toxic chemicals into the environment and onto Plaintiffs' members' property, causing harm to the health of Plaintiffs' members, their families, visitors, and animals, and contaminating their food, soil and water.

81. There are reasonable alternative treatment technologies, alternatives to incineration, that can be used to treat the chemical weapons waste at TOCDF that will not result in such releases of dioxin and nerve agents into the environment.

82. Defendants are, in operating the incinerators at the TOCDF, unreasonably interfering with Plaintiffs' use and enjoyment of their property and injuring Plaintiffs' health in violation of the Utah Code, Annotated Code of Utah 78-38-1, and the Utah Common Law of Nuisance.

COUNT 8: VIOLATION OF DEFENSE REAUTHORIZATION ACT MANDATE THAT CHEMICAL WEAPONS BE DISPOSED OF IN A MANNER THAT PROVIDES MAXIMUM PROTECTION TO PUBLIC HEALTH

83. Plaintiffs incorporate by reference paragraphs 1 through 82.

84. Section 1521 (c) of the Chemical and Biological Warfare Program requires the Secretary of Defense to provide for "maximum protection for the environment, the general public, and the personnel who are involved in the destruction of the United States' stockpile of lethal chemical agents and munitions. 50 USC § 1521 (c).

85. The Secretary of Defense and the Army have implemented section 1521 (c) in a process, by which the technology chosen for the chemical demilitarization program is proven at the prototype JACADS facility. After operational verification is completed, the technology is implemented at the other chemical demilitarization facilities. The process by which the technology at JACADS is proven and implemented at other facilities is called Operational Verification Testing (OVT), required under section 1521 (k), and a further procedure, known as the implementation of "Lessons Learned." Through OVT and Lessons Learned, the Army identifies deficiencies in the technology at JACADS, attempts to devise remedies, and communicates the deficiencies and remedies to other chemical demilitarization facilities, including the TOCDF, for implementation.

86. The OVT and Lessons Learned process has failed to provide for "maximum protection" required under 50 USC § 1521 (c) in three ways."

87. First, deficiencies identified in the prototype technology at JACADS have not been corrected in the corresponding technology at the TOCDF.

88. Second, deficiencies in the prototype technology at JACADS have not been identified in the OVT and Lessons Learned process and have not been corrected at TOCDF.

89. Third, the technology implemented at TOCDF has not conformed, in several important respects, with the prototype technology that has been evaluated at JACADS.

90. In addition to the OVT and Lessons Learned failures, the Secretaries of Defense and the Army have failed to provide for "maximum protection" in the following ways.

91. The design of TOCDF and the off-site emergency plans have not been designed to accommodate a "Maximum Credible Event" contrary to standard engineering principles.

92. Known hazards have been accepted as acceptable risks, rather than having been corrected.

93. The emergency plans to protect the public from off-site contamination rely primarily (or totally) upon evacuation and not protective devices. Evacuation will not generally be capable of protecting the public.

94. The Secretary of Defense and the Army have not successfully addressed the list of imminent hazards cited by the Plaintiffs in Count 1 above. The said list of hazards is specifically incorporated into this count.

95. The Secretary of Defense and the Army have failed to design, build and operate the TOCDF to provide the "maximum protection for the environment, the general public, and the personnel who are involved in the destruction of the lethal chemical agents and munitions" at the TOCDF, in violation of 50 USC § 1521 (c).

96. The Defendants are acting in reckless disregard of this mandate as evidenced by the facts that JACADS has yet to finish its experimentation or develop a system that works,

problems at JACADS continue, JACADS has not been proven successful notwithstanding contrary representations to Congress, TOCDF has not incorporated all of the lessons that have been learned at JACADS and has design and operation components not proven out at JACADS, and as evidenced by the facts alleged supra under the imminent hazard, destruction efficiency violation, failure to minimize releases, and emergency preparedness violation counts.

97. Consequently, the Army, DOD and EG&G are not in compliance with 50 U.S.C. § 1521(k).

COUNT 9: VIOLATION OF DEFENSE REAUTHORIZATION ACT MANDATE THAT THE METHODS TO BE USED FOR CHEMICAL WEAPONS DISPOSAL BE PROVEN OUT AT THE JOHNSTON ATOLL FACILITY IN THE PACIFIC, AND VALIDLY CERTIFIED AS PROVEN OUT, PRIOR TO USE IN THE CONTINENTAL UNITED STATES

98. Plaintiffs incorporate by reference paragraphs 1 through 97.

99. The Defense Reauthorization Act at 50 U.S.C. § 1521(k) places a rigid restriction against operational verification and prove out of technology for chemical weapons disposal at facilities other than at JACADS in the Pacific on Johnston Atoll.

100. Congress established the Chemical and Biological Warfare Program in 1983, in part, to provide for the destruction of the United States' stockpile of lethal chemical agents and munitions that existed on November 8, 1995. 50 USC 1521 (k). Section 1521 (a) directed the Secretary of Defense to carry out that responsibility, and section 1521 (e) further directed the Secretary of Defense to provide for the establishment of a management organization within the Department of the Army to be responsible for the management of the destruction of agents and munitions under the program. 50 USC 1521 (a), (k).

101. Section 1521 (k) of the Chemical and Biological Warfare Program prohibits the Secretary of Defense from conducting "any activity" for equipment prove out and systems testing precedent to the introduction of live chemical agents at TOCDF and other continental chemical demilitarization facilities "[u]ntil the Secretary of the Army successfully completes (through the prove-out work to be conducted at Johnston Atoll) operational verification of the technology to be used for the destruction of live chemical agents and munitions." 50 USC 1521 (k) (1). Section 1521 (k) states, further, that "[u]pon the successful completion of the prove out of the equipment and facility at Johnston Atoll, the Secretary of Defense shall submit to the Committees on Armed Services of the Senate and House of Representatives a report certifying that the prove out is completed." 50 USC 1521 (k) (2).

102. The Secretary of the Army has not, to this date, successfully completed the operational verification of the technology to be used for the destruction of the United States' stockpile of live chemical agents and munitions. The Secretary of Defense has submitted a report certifying that the prove out is completed., but the Secretary's report is inaccurate. It was inaccurate at the time of its submission to Congress, omitting reference to serious deficiencies in the technology, and it has become increasingly inaccurate since the date of its submission, as additional deficiencies have been discovered.

103. The Army has conducted limited operations at the TOCDF since at least 1994 for the purpose of equipment proveout and systems testing precedent to the introduction of live chemical agent and plans to conduct further such operations in the imminent future.

104. The prior and imminent testing of the facilities at the TOCDF violates the requirements of 50 USC § 1521 (k) (1).

105. JACADS has yet to finish its experimentation and has yet to develop a system that works. Problems at JACADS continue. JACADS has not been proven successful notwithstanding contrary representations to Congress.

106. TOCDF has not incorporated all the lessons that have been learned at JACADS.

107. TOCDF has design and operation components not proven out at JACADS.

108. For all these reasons as well as for the reasons stated supra under the prior counts, the Army, DOD and EG&G are not in compliance with 50 U.S.C. § 1521(k).

COUNT 10: VIOLATION OF RCRA REQUIREMENT THAT AN OPERATOR OF A HAZARDOUS WASTE FACILITY OBTAIN A PERMIT

109. Plaintiffs incorporate by reference paragraphs 1 through 108.

110. Section 19-6-108 (3) (a) of the Utah Solid and Hazardous Waste Act provides that "[n]o person may own, construct, modify, or operate any facility or site for the purpose of disposing of nonhazardous waste of treating, storing, or disposing of hazardous waste without first submitting and receiving the approval of the executive secretary for a nonhazardous solid or hazardous waste operation plan for that facility or site." Utah Code Ann. 19-6-108 (3) (a).

111. Section R315-3-1 of the Utah Administrative Code, which was promulgated pursuant to the Solid and Hazardous Waste Act, similarly prohibits the operation of a "facility for the purpose of treating, storing, or disposing of hazardous waste without first submitting, and receiving the approval of the Executive Secretary for, a hazardous waste operation plan for that facility." UAC R315-3-1 (a).

112. EG&G entered into a contract with the Army to construct and operate the TOCDF on September 6, 1989 and began operations of the TOCDF in 1993. EG&G has since continued to operate the facility.

113. EG&G has not received a permit nor obtained approval of a hazardous waste operation plan for the TOCDF.

114. EG&G's operation of the TOCDF without receiving the approval of a hazardous waste operation plan violates section 19-6-108 (a) of the Utah Code Annotated and section R315-3-1 of the Utah Administrative Code.

115. Violations of the Solid and Hazardous Waste Act and regulations adopted thereunder are subject to civil penalties in an amount not to exceed $10,000 per day. Utah Code Ann. 19-6-113.

116. The District Court has the authority to issue injunctive relief to enforce the statutory and regulatory requirements being violated. 42 USC 6972 (a).

117. EG&G has been and continues to be in violation of the federal and state RCRA permit requirements.

PLAINTIFF'S PRAYER FOR RELIEF

WHEREFORE, as the Defendants have violated and threaten to violate numerous statutory and regulatory standards and have created an imminent hazard to the Plaintiffs' health, the general public's health, and the environment, as well as a nuisance, the Court should issue a declaratory judgment that Defendants are in violation of the requirements of the Resource Conservation and Recovery Act, the National Environmental Policy Act, the Toxic Substances

Control Act and the Administrative Procedures Act, Order the Defendants to cease all activities at the TOCDF contributing to those violations, hazards and nuisances, pay civil penalties for each past and current violation of hazardous waste laws and regulations in the maximum amount provided by law, award Plaintiffs the costs of this litigation including reasonable attorney and expert witness fees, and provide all other just and proper relief.

Respectfully submitted,

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COMMENTS OF CITIZENS FOR ENVIRONMENTAL QUALITY G.A.S.P. AND GREENLAW REGARDING THE ARMY'S REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE UMATILLA DEPOT ACTIVITY, OREGON

MARCH 15, 1996

INTRODUCTION

Citizens for Environmental Quality (CEQ), G.A.S.P. and GreenLaw (jointly referred to as "Commentors") hereby provide comments to the Disposal of Chemical Agents and Munitions Stored at Umatilla Depot Activity, Oregon -- Revised Draft Environmental Impact Statement ("RDEIS") prepared by the U.S. Army's Program Manager for Chemical Demilitarization ("PMCD"), dated December, 1995. Since the mid-1980s, the Army has engaged in a series of environmental analyses in an effort to determine how to destroy the nation's stockpile of deadly chemical weapons and comply with the requirements of the National Environmental Policy Act ("NEPA"). The Army's Final Programmatic Environmental Impact Statement ("FPEIS") identified on-site incineration as the preferred method for disposing of the chemical weapons stockpiled at the Umatilla Depot Activity ("UMDA") and seven other sites in the U.S. This determination was reflected in the Army's Record of Decision ("ROD"), dated February, 1988. As noted in the RDEIS, the ROD stated in part:

> The [eight] site-specific [NEPA] reviews will focus both on the implementation of the programmatic decision and on specific issues and concerns at each site. **Additional study may uncover information that would warrant the reconsideration of the programmatic decision.**

RDEIS at 1-4 (emphasis added). The RDEIS further states that in light of the quoted language from the ROD the Army went on to perform a Phase I Environmental Report for UMDA, dated February, 1990. This Phase I report determined that "[n]o new or unique information was found that would change or contradict the conclusions of the FPEIS." RDEIS at 1-4. Content with this finding, the Army ignored significant developments in 1) non-incineration destruction technologies for chemical weapons, 2) human health risk assessment, 3) ecological risk assessment, and 4) the assessment of incineration as a waste disposal technology. As will be more fully addressed below, the failure of the RDEIS to incorporate and consider these critical developments is a fatal flaw rendering the Army's decision-making regarding the UMDA stockpile inadequate under NEPA.

STATUTORY AND REGULATORY BACKGROUND

NEPA's directive to the federal government is clear.

> all agencies of the federal government shall-
> * * * * * *
> (C) include in every recommendation or report on ... major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on-
>
> (i) the environmental impact of the proposed action,
> (ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,
>
> (iii) alternatives to the proposed action,
>
> (iv) the relationship between local short-term uses of [the human] environment and the maintenance and enhancement of long-term productivity, and
>
> (v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented ....

42 U.S.C. § 4332(2)(C). The federal Council for Environmental Quality ("Council") was charged with establishing the detailed regulations that would drive the NEPA process. 42 U.S.C. § 4344. These regulations are published in the Code of Federal Regulations (C.F.R.). See, 40 C.F.R. Part 1500.

In addition to NEPA's specific requirement to fully evaluate environmental impacts, adverse effects, and alternatives, the Council's regulations specify that draft or final EISs must be supplemented when significant new information becomes available. The regulation states:

> (c) Agencies:
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> (1) **Shall** prepare supplements to either draft or final environmental impact statements if:
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> (ii) There are **significant new circumstances or information** relevant to environmental concerns and bearing on the proposed action or its impacts.

40 C.F.R. § 1502.9(c) (emphasis added). The Department of Defense requires that the Army follow the mandatory requirement to supplement as stated in the Council's regulations.

> DoD Components shall prepare a supplement to either the draft or final environmental impact statement in accordance with ... 1502.9(c).

32 C.F.R. Part 188, Encl. 1(D)(4). The Army's **failure to consider any disposal technology other than incineration** and to address the issues detailed below in a supplement to the FPEIS and/or the RDEIS clearly violates the letter and spirit of NEPA and Department of Defense regulations.

I. THE RDEIS FAILS TO ADDRESS THE WELL-DOCUMENTED DANGERS OF INCINERATION AND THE FAILURE OF THE EXPERIMENTAL JACADS FACILITY

The underlying premise of the Army's decision to use incineration for the disposal of nerve agents and the detoxification of other residuals from demilitarization of chemical weapons was based, in large part, on the then-common assumption that hazardous waste incineration was a well-defined, mature technology. A mature technology is, of course, a technology that is productive, safe for workers and protective of human and environmental health. At the time of the Army's decision, there was an obvious dearth of documentation on incinerator performance, safety and impacts. Incineration was, and still is, practiced and promoted, not because it is a proven, mature technology, but because it is expeditious, relatively inexpensive and liability-free for the generators of the materials incinerated (i.e., the pollutants emitted from incinerator stacks and those deposited in the ashes and residues of pollution control systems cannot be traced back to the generators of the waste).

However, since the mid-1980s when the Army selected incineration as the method for detoxification/disposal of the components of demilitarized chemical weapons and U.S. Environmental Protection Agency ("EPA") issued the original RCRA permit for the Johnston Atoll Chemical Agent Disposal System ("JACADS"), numerous studies and reports have been published, describing various limitations of incinerator performance and, to a much smaller extent, impacts. JACADS is supposed to be the proving ground for incineration systems proposed for the continental U.S.

The history of the Army's operation of the JACADS facility demonstrates clearly that incineration is inappropriate for the detoxification/disposal of the components of demilitarized chemical weapons. The effort to demilitarize chemical weapons at JACADS was accompanied by myriad problems, ranging from basic design flaws to repeated mechanical failures. Detoxification/disposal by incineration suffered from a broad range of problems. Many of the problems are due to the inherent limitations of combustion technology. Incinerators inevitably release unburned wastes, metals and products of incomplete combustion (PICs) in stack gases, ashes and residues of pollution control systems. In addition to harmful levels of toxic organohalogens and metals, the JACADS facility has released unburned chemical warfare agents into the environment and will continue to do so for as long as the facility is permitted to operate. This release of nerve gas and other toxins threatens public health and the environment and defeats the purpose of the Army's disposal program and the Chemical Weapons Convention (CWC). Both are intended to prevent the release of chemical warfare agents and the resulting human exposure to chemical warfare agents.

A. THE THREAT OF RELEASE OF CHEMICAL WARFARE AGENTS IS INADEQUATELY ADDRESSED IN THE RDEIS

Major malfunctions during the separation process at JACADS led to incinerator upsets with accompanying increases in stack emissions of unburned agent. Other combustion upsets would be expected to occur frequently and increase emission of agent. EPA risk assessment guidance acknowledges that upsets are frequent and significantly increase emissions. EPA researchers have noted the impossibility of predicting incinerator performance and preventing incinerator upsets: "The complexity of the incineration process, the differences

in incinerator designs, and the difficulties in monitoring operating conditions make the accurate prediction of absolute incineration performance an essentially impossible task ... Only a very small fraction of the total volume of waste needs to experience ... less than optimum conditions to result in significant deviations from the targeted destruction efficiencies." (Dellinger and Lee, 1986). The lower the destruction efficiency, the greater the stack emissions of unburned nerve agent.

According to the analyses of JACADS performance by Greenpeace senior scientist Pat Costner, the JACAD System was shut down almost twice as often as it was functional. The average "mean time between failures" for JACADS, as a whole, was 5.6 hours (Menke et al., 1991). The JACADS demilitarization systems accounted for only 3.6 percent of JACADS' downtime, while more than 50 percent of downtime was attributed to the incinerators -- LIC and DFS only, since DUN was operated only in test and start-up mode. The "mean time between failures" for the LIC was 28.9 hours and, for the DFS, 6.26 hours (Menke et al., 1991). According to EPA's Science Advisory Board, "Even relatively short-term operation of incinerators in upset conditions can greatly increase the total incinerator-emitted loadings to the environment" (EPA, 1985). Among the factors leading to incinerator upsets are sudden variations in waste feed rates, including waste feed cutoffs and startups (Costner and Thornton, 1991). These occurrences were so frequent as to be the standard operating mode at the JACADS incinerators.

During the 500-hour operating period when agent GB was burned, the network of monitors for detecting GB releases triggered 776 major process alarms, an average of 22 per day. Major process alarms are those "that are so important that agent or spent decon processing is stopped" (Menke et al., 1991). The MITRE report explained these alarms as follows: "The majority of these alarms were for high CO concentration in the [LIC] secondary chamber exhaust gases. There was no significant change in the number of alarms throughout the campaign" (Menke et al., 1991). The concentration in stack gases of carbon monoxide (CO) is commonly used as a surrogate indicator of incinerator performance because high CO levels increase during major upset conditions, which are also accompanied by high PIC emissions. High CO levels are associated with high rates of PIC emissions (EPA, 1990). However, one EPA contractor warns, "Under some failure conditions, PIC yields may be high while CO formation has yet to reach its maximum" (Dellinger and Lee, 1990). According to the MITRE report, the LIC also suffered 90 burner lockouts and

40 fuel flow shutdowns during the GB campaign (Menke et al., 1991). In other words, the LIC operated frequently in upset condition during the GB campaign.

Even if major upsets at incinerators could be avoided by flawless maintenance and consistent operating conditions, localized and short-term variations from ideal combustion would still occur constantly within the incinerators. These transient departures from ideal conditions can decrease an incinerator's destruction efficiency, increasing releases of both unburned agent and products of incomplete combustion..

The difficulties the Army encountered with the JACADS incinerators are, in many ways, entirely typical of the problems encountered by U.S. hazardous waste incinerators and inherent in the technology. In a report released jointly by EPA and the Occupational Safety and Health Administration in May, 1991, EPA reported a "significant number of automatic waste feed cutoffs at half of the hazardous waste incinerators inspected." As at JACADS, automatic waste feed cutoffs at these facilities are commonly triggered by excessive CO levels and by oxygen levels that are too low: "The number of waste feed cutoffs reported during a 30-day period varied from 0 to 13,325 (at a facility with four incinerators), with an average, among 16 incinerators, of 38 waste feed cutoffs per day per incinerator." (OSHA/EPA, 1991) At some incinerators, EPA also found a high rate of opening of emergency by-pass systems: stack gases were vented directly to the emergency by-pass systems, circumventing pollution control systems. These "dump" stacks are often opened when excessive pressure builds up in incinerator combustion chambers. During a 6-month period, the number of times emergency by-passes were opened at the facilities inspected ranged from 0 to 867 (at a facility with four incinerators), with an average, among 12 incinerators, of 80 times in 6 months, or approximately once every three days (OSHA/EPA, 1991). The use of such by-pass systems indicates the occurrence of significant upset conditions.

Uncontrolled releases of hazardous wastes from hazardous waste incinerators were documented in a 1990 report by the U.S. General Accounting Office (GAO). GAO reported that, among the 115 hazardous waste incinerators thus far assessed by EPA, the Agency has found "sufficient evidence of a release or potential release of hazardous waste to warrant an RFI [investigation] to confirm the release and/or characterize the hazardous release" (GAO, 1990). Allowing the Army to extend its operation incinerating nerve agent is inviting inevitable further releases of nerve agent into the environment.

Also of great importance to the incineration of chemical weapons is an extensive study by the EPA of hazardous waste incinerators, which documented their limited ability to destroy chemicals present at relatively low concentrations (Kramlich et al., 1989). For those chemicals present in wastes at concentrations of 10,000 parts per million (ppm) -- 1.0 percent by weight -- or below, incinerators do not achieve a destruction and removal efficiency (DRE) of 99.9999 percent. For those chemicals present in wastes at concentrations of 1,000 ppm or below, incinerators had difficulties in achieving a DRE of 99.99 percent. For those chemicals present in wastes at concentrations of 100 ppm or less, no incinerator was able to achieve a DRE of 99.99 percent. These limitations are especially pertinent to performance of the Deactivation Furnace System (DFS) and the Dunnage Incinerator (DUN), in which relatively low concentrations of agent, propellants, etc. are burned.

Some states, including Indiana and Kentucky, have carefully considered detailed legal requirements for chemical weapons and nerve gas incineration that require, inter alia, 99.9999% destruction of actual agent during the full operational life of the facility and no releases of chemicals that could harm human health or the environment. The evidence indicates that JACADS has not and cannot comply with such requirements.

During the GB campaign, the Army failed numerous times in its efforts to isolate active nerve agent from the work environment and public domain: on 32 occasions, active agent was released into the corridors frequented by workers; on 15 occasions, active agent was detected in the life support air system; on five occasions, identified as "likely" false positives, active agent was detected by perimeter monitors; on at least one occasion, active agent was evidently released from the incinerator stack, although the stack monitor was not functional during this event. EPA recently fined the Army for the release of live nerve agent at JACADS.

The continual instability of the LIC during the 500-hour operational period was demonstrated by numerous releases of nerve agent GB. According to the MITRE report, "[t]he control of the LIC primary chamber pressure was difficult throughout the GB campaign. On page 3-73, the MITRE report describes the release of agent from the LIC on 32 occasions: "[P]ressure fluctuations when the LIC was processing agent allowed agent to be released into the LIC room and adjacent observation corridor on fifteen separate occasions." (Menke et al., 1991: page 3-73) "On 17 separate occasions [during

agent purging operations] the pressure in the primary chamber [of the LIC] fluctuated sufficiently to enable agent to enter the LIC furnace room and subsequently migrate into the adjacent observation corridor" (Menke et al., 1991: page 3-76).

Analytical systems used to detect unburned nerve agent in the incinerator stack, other on-site monitors and monitors at the perimeter of the facility had high rates of various malfunctions. Consequently, no means were available for providing sound estimates of stack emissions or fugitive emissions of active nerve agent nor were means available for adequate identification and quantification of other chemicals released from the stack.

Among 62 alarms from the stack monitors at JACADS, the following causes were detailed for 41 of the alarms (Menke et al., 1991): 6 furnace transients, 14 interferents, 7 malfunctions, 10 electronic, 3 unexplained, 1 confirmed agent release. These data suggest that the air monitoring systems suffer from high rates of dysfunction and a disconcertingly high susceptibility to non-agent influences. During the one confirmed and admitted agent release listed above, the "stack ACAMS (ACAMS-129) was effectively not reading agent during the incident" (Menke et al., 1991).

Other alarms signaling potential release of agent outside containment areas were reported during the 500-hour operating period as follows:

* Heating, ventilation and cooling (HVC): 3 alarms, all false positives;

* Lab Vent: 3 alarms, 1 agent release, 2 false positives;

* Perimeter: 5 double positives, but cited as "likely" false positives; and

* Unpacking Area: 2 "false positives."

As the data indicate, false positives (false alarms) have occurred with considerable frequency at JACADS. Although the MITRE report describes several mechanisms for identifying false positives, no such information is offered for identifying false negatives (failures of monitors to detect agent).

Even if the Army's three-incinerator system at JACADS were able to achieve a DRE of seven nines (99.99999 percent) continuously, which has not

been demonstrated, with all nerve agents fed into each of the incinerators, the quantities of unburned agents released in stack emissions are sufficient cause for concern for public health and the environment. For example, at this seven nines DRE, at least 3.5 grams of active agent GB were released in the LIC stack emissions at JACADS when 75,000 pounds of GB were burned. Based on an acute lethal dose of 140 micrograms per adult (Picardi et al., 1991), 3.5 grams of GB, if delivered directly, is a lethal dose for 24,000 people. If six nines DRE is achieved on average, 10 times more lethal doses were released and if only four nines DRE was achieved on average then 1,000 times more lethal doses were released during this aspect of JACADS operation alone.

Unburned agent, in addition to release via stack emissions, will be distributed among the incineration system's ashes and the residues of pollution control devices. These ashes and residues will not be agent free.

B. THE RDEIS FAILS TO ADEQUATELY ADDRESS THE THREAT FROM THE RELEASE OF TOXIC ORGANOHALOGEN COMPOUNDS

In addition to the release of nerve agent, routinely occurring combustion upsets are expected to increase the emissions of toxic products of incomplete combustion from the incinerators by 200% or more, effectively tripling the emissions. This phenomena is acknowledged by recent EPA guidance on incinerator risk assessment (EPA, November 1993). According to one analysis, deviations from intended combustion conditions are caused as follows: "[They] usually are a consequence of a rapid perturbation in the incinerator operation resulting from a rapid transient in feed rate or composition, failure to adequately atomize a liquid fuel, excursions in operating temperature, instances where the combustible mixture fraction is outside the range of good operating practice, or inadequate mixing between the combustibles and the oxidant... The amount and composition of PICs will depend in a complex and unpredictable way on the nature of the perturbation" (EPA, 1989a).

The JACADS experience demonstrates that incineration of nerve agent is likewise subject to the problem of upset conditions. During the JACADS trial burn to demonstrate compliance with federal incinerator regulations, the feeding of GB to the LIC was interrupted because of major process alarms. Stack sampling was discontinued with each interruption and resumed only after the incinerator had achieved a steady state. (SRI, 1991) Consequently, the concentrations of PICs in the stack gases were not determined for those periods

when their concentrations could be expected to be highest. As a result, the quantities and types of PICs identified during the LIC trial burn are not representative of those emitted during normal operations which, at JACADS, includes frequent cutoffs and restarts of the nerve agents fed into the incinerator. In an assessment of incineration, EPA found, "Very few tests have been conducted to identify and quantify PICs from hazardous waste combustors under nonoptimum conditions." (EPA, 1989b) The relationship between incinerator performance during brief trial burns and that achieved during routine operations has been characterized as follows: "The trial burn data only indicate how well the incinerator was operating during the time that the data were being taken, typically only a period of a few days. No information is obtained on how the incinerator might respond if fuel, or especially waste, conditions change. ... It is difficult to generalize the results of a trial burn to predict how the composition of the incinerator exhaust will change under these varying conditions" (Staley, 1986).

The following observation from an EPA study is applicable: "One present concern for application of incineration technology is that the hazard associated with a waste stream may not be removed even though the original waste compounds are destroyed. Transformation of the waste into hazardous products of incomplete combustion (PICs) can potentially aggravate the hazard associated with the waste stream. For example, a hazardous but nontoxic waste can be partially transformed into chlorinated dibenzo-p-dioxins or dibenzofurans upon incineration" (Kramlich et al., 1989). Chlorinated dioxins and furans are formed when carbon and chlorine are present in the waste fed into incinerators and other combustion systems. Polyhalogenated dioxins and furans and other dioxin-like chemicals will undoubtedly be among the products of incomplete combustion released during the incineration of chemical weapons components, just as they are among the "thousands of different compounds" that are, according to EPA, typically found in the stack emissions of hazardous waste incinerators (EPA, 1990). The nerve agents and other materials to be fed into the Army's incinerator system contain the elements that are the basic building blocks for these complex, highly persistent, bioaccumulative organohalogens.

This problem is compounded by the presence of additional dioxin-like compounds in stack emissions. When other halogens, such as bromine and fluorine, are present in the materials burned, other halogenated dioxins and furans are also formed. When both chlorine and sulfur are present in the waste, the sulfur analogs of the polyhalogenated dioxins and furans are released in

stack emissions (see, e.g., Buser et al., 1991). The nerve agent GB (Sarin) contains both carbon and the halogen, fluorine, in its molecular structure. HD (mustard) contains carbon, chlorine and sulfur. The decontamination and stabilization solutions, which are also fed into the LICs with the nerve agents, may also contain chlorine. The dioxin-like chemicals which the scientific literature indicates will likely be present in the UMDA incinerators' emissions and which should have been addressed in addition to the chlorinated dioxins and furans include:

* co-planer PCBs (dioxin-like PCBs)
* sulfur analogs of the chlorinated dioxins
* sulfur analogs of the chlorinated furans (thiophenes)
* brominated dioxins
* brominated furans
* co-planer PBBs (dioxin-like brominated biphenyls)
* sulfur analogs of the brominated dioxins
* sulfur analogs of the brominated furans (thiophenes)
* chloro/bromo dioxins
* chloro/bromo furans
* sulfur analogs of the chloro/bromo dioxins
* sulfur analogs of the chloro/bromo furans (thiophenes)
* dioxin-like chorobenzenes
* chlorinated biphenylenes (not to be confused with PCBs)
* brominated biphenylenes

The PICs identified during the LIC trial burn were limited to only a fraction of those chemicals on EPA's Appendix VIII list, some 300 manufactured chemicals that are listed because of their production quantities and toxicities, not because of their occurrence in incinerator stack gases (SRI, 1991). There has been no full identification of the mass of pollutants known to be present in stack gases in any trial burn at any hazardous waste incinerator, nor is this likely to be achieved: "PIC emissions are composed of thousands of different compounds, some of which are in very minute quantities and cannot be detected and quantified without very elaborate and expensive sampling and analytical [S&A] techniques. Such elaborate S&A work is not feasible in trial burns for permitting purposes and can only be done in research tests. Very few research tests have been conducted to date to identify and quantify all the PICs in a typical emissions sample, and whenever done were unsuccessful because sampling and analysis techniques are not available to identify or quantify many

of the potential compounds emitted, nor are toxicity data available for all the compounds" (EPA, 1990).

Incinerators have had only about 15% of their emissions of products of incomplete combustion (PICs) identified (by EPA or other parties conducting approved testing). The bulk of the organic emissions from JACADS, as with other incinerators, remain unknown and must be presumed to be at least as toxic and persistent as the PIC emissions that have been identified. The products of incomplete combustion that result from burning nerve gas and the other agents have never been completely characterized. The Army has not fully characterized the emissions including PIC emissions from JACADS and completed a full direct and indirect multi-pathway risk assessment as part of the RDEIS.

Incinerators' documented limited ability to destroy chemicals present at relatively low concentrations (Kramlich et al., 1989) virtually ensures that the proposed UMDA incinerators will not destroy the PCBs present in the waste at the 99.9999% destruction and removal efficiency required by the federal Toxic Substances Control Act (TSCA). As noted above, for those chemicals present in wastes at concentrations of 10,000 parts per million (ppm) or 1.0 percent, the efficiency (DRE) of 99.9999 percent. For those chemicals present in wastes at concentrations of 1,000 ppm or below, incinerators had difficulties in achieving a DRE of 99.99 percent. For those chemicals present in wastes at concentrations of 100 ppm or less, no incinerator was able to achieve a DRE of 99.99 percent.

Based on EPA data on dioxin emissions from hazardous waste incinerators and EPA's latest Dioxin Reassessment report (EPA, September 1994) which reports research and analysis on the levels of toxicity and carcinogenicity of dioxin, the UMDA incinerators are expected to emit millions of toxic doses of dioxin. The extent to which such massive amounts of emitted poison are captured in the food chain, inhaled, or otherwise result in human exposure and harm is a critical unaddressed issue regarding UMDA. This is particularly true in light of the EPA Reassessment findings that national exposure to dioxin from existing sources is already orders of magnitude greater than any virtually safe dose or RfD EPA might calculate for dioxin, see *EPA* 1994 Health Assessment for Dioxin, Vol. III, p. 9-82 to 9-86, and in light of the now indisputable scientific evidence that incinerator emitted dioxins and other

persistent poisons including toxic metals are transported hundreds of miles and accumulate in sensitive aquatic and terrestrial ecosystems and foodchains. The omission of this food chain dioxin risk in the RDEIS and the preceding Army NEPA documents is a fatal flaw in the Army's attempt to comply with NEPA.

In the 1994 Dioxin Reassessment reports, the EPA clearly identified the dangers of dioxin and dioxin-like chemicals. Outlined below are key conclusions reached by EPA regarding dioxin in addition to the one just noted. EPA's 1994 analysis is totally ignored by the Army in its 1995 RDEIS. EPA stated:

- Chlorinated dibenzo-p-dioxins and related compounds (commonly known simply as dioxins) are contaminants present in a variety of environmental media. This class of compounds has caused great concern in the general public as well as intense interest in the scientific community. Much of the public concern revolves around the characterization of these compounds as among the most potent "man-made" toxicants ever studied. Indeed, these compounds are extremely potent in producing a variety of effects in experimental animals based on traditional toxicology studies at levels hundreds or thousands of times lower than most chemicals of environmental interest.[1]

- There are 75 individual compounds comprising the CDDs, depending on the positioning of the chlorine(s), and 135 different CDFs. These are called individual congeners. Likewise, there are 75 different positional congeners of BDDs and 135 different congeners of BDFs ... There are 209 PCB congeners ... Mixed chlorinated and brominated congeners also exist increasing the number of compounds considered dioxin-like.[2]

- Extensive evidence has accumulated over the past 20 years to

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[1] Health Assessment Document for 2,3,7,8-Tetrachlorodibenzo-p-Dioxin (TCDD) and Related Compounds, EPA/600/BP-92/001c, U.S. EPA, August 1994 at 9-1. Hereafter this document will be referred to as "EPA 1994."

[2] EPA 1994 at 9-6 to 9-7.

demonstrate that the immune system is a target for toxicity of ... TCDD ... and structurally related halogenated aromatic hydrocarbons (HAHs), including the polychlorinated dibenzofurans (PCDFs), polychlorinated biphenyls (PCBs), and polybrominated biphenyls (PBBs). This evidence was derived from numerous studies in various animal species, primarily rodents, but also guinea pigs, rabbits, monkeys, marmosets, and cattle. Epidemiological studies also provide evidence for the immunotoxicity of HAHs in humans. [EPA 1994 at 4-1].

- The potential for dioxins and related compounds to cause reproductive and developmental toxicity has been recognized for many years. Recent laboratory studies have broadened our [EPA's] knowledge in this area and suggest that altered development may be among the most sensitive TCDD endpoints. [EPA 1994 at 5-1].

- There have been several long-term studies designed to determine if TCDD is a carcinogen in experimental animals. All of these studies have been positive and demonstrate that TCDD is a multisite carcinogen, is a carcinogen in both sexes and in several species including the Syrian hamster, is a carcinogen in sites remote from the site of treatment, and increases cancer incidence at doses well below the MTD. [EPA 1994 at 6-38].

  The mechanistic basis for interindividual variation is unclear, and this lack of knowledge complicates approaches to estimate human risks from experimental animal data. However, several studies indicate that, for the most part, humans appear to respond like experimental animals for biochemical and carcinogenic effects. [EPA 1994 at 6-39 - 6-40].

- TCDD alters a number of other pathways involved in the regulation of cell differentiation and proliferation. The specific relationships of these effects to multistage carcinogenesis are not known, but the broad array of effects on hormone systems, growth factor pathways, cytokines, and signal transduction components is consistent with the notion that TCDD is a powerful growth dysregulator. [EPA 1994 at 6-38].

Human exposure to ... TCDD ... has been associated with non-cancer effects in most systems. The majority of effects have been reported among occupationally exposed groups, such as chemical production workers, pesticide users, and individuals who handled or were exposed to materials treated with ... TCDD-contaminated pesticides, and among residents of communities contaminated with tainted waste oil (Missouri, USA) and industrial effluent (Seveso, Italy). [EPA 1994 at 7-87].

- Estimates of exposure to dioxin-like CDDs and CDFs based on dietary intake are in the range of 1-3 pg TEQ/kg body weight/ day. Estimates based on the contribution of dioxin-like PCBs to toxicity equivalents raise the total to 3-6 pg TEQ/kg body weight/day. This range is used throughout this characterization [EPA reassessment] as an estimate of average background exposure to dioxin-like CDDs, CDFs, and PCBs. This average background exposure leads to body burdens in the human population that average 40-60 pg TEQ/ g lipid (40-60 ppt [parts per trillion]) when all dioxins, furans, and PCBs are included. High-end estimates of body burden of individuals in the general population (approximately the top 10% of the general population) may be greater than three times higher. [EPA 1994 at 9-77 - 9-78].

  With regard to average intake, humans are currently exposed to background levels of dioxin-like compounds on the order of 3-6 pg TEQ/kg body weight/day, including dioxin like PCBs. This is more than 500 fold higher than EPA's 1985 risk-specific dose associated with a plausible upper bound, ... and several hundredfold higher than revised risk specific dose estimates ... Plausible upper-bound risk estimates for general population exposures to dioxin and related compounds, therefore, may be as high as ... one in ten thousand to one in a thousand ... [EPA 1994 at 9-86].

- ... TCDD is the most potent form of a broad family of xenobiotics that bind to an intracellular protein known as the Ah receptor. Other members of this family include halogenated hydrocarbons such as the PCBs, naphthalenes, and dibenzofurans, as well as nonhalogenated species such as 3-methylcholanthrene and B-naphthaflavone. The biological properties of dioxins have been

investigated extensively in over 5,000 publications and abstracts since the identification of TCDD as a chloracnegen ... [in 1957]. [EPA 1994 at 8-1].

From the complex picture that evolves from the ... data, it is amply evident that TCDD elicits a plethora of toxic responses, both after short term and long term exposure. [EPA 1994 at 3-34].

... based on the results of two or more studies, recent evidence suggests that chloracne, elevated GGT[3] levels, an increased risk of diabetes, and altered reproductive hormone levels (luteinizing hormone, follicle-stimulating hormone, and testosterone) appear to be long-term consequences of exposure to ... TCDD ... [EPA 1994 at 7-238].

Based on all of the data reviewed in this reassessment and scientific inference, a picture emerges of TCDD and related compounds as potent toxicants in animals with the potential to produce a spectrum of effects. Some of these effects may be occurring in humans at very low levels and some may be resulting in adverse impacts on human health. [emphasis in original] [EPA 1994 at 9-87].

- **With regard to carcinogenicity, a weight-of-the-evidence evaluation suggests that dioxin and related compounds (CDDs, CDFs, and dioxin-like PCBs) are likely to present a cancer hazard to humans.** [emphasis in original] [EPA 1994 at 9-85].

In stark contrast to these 1994 EPA findings, the Army in the UMDA RDEIS, in part, concluded "... most researchers have found no serious, long-term health problems from exposure to dioxins and furans, even at the highest levels of reported exposure and even after ten to thirty years after exposure occurred." RDEIS at 4-14. Comparing EPA's dioxin reassessment with the quoted RDEIS statement vividly demonstrates the gross inadequacy of the Army's NEPA assessment.

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[3] Gamma glutamyl transpeptidase.

C. THE RDEIS FAILS TO ADEQUATELY ADDRESS THE THREAT FROM THE RELEASE OF TOXIC METAL COMPOUNDS

The incineration of nerve agents and other chemical weapons components will also result in the direct dispersal into the surrounding environment, including dispersal into the sensitive ecosystems of the Johnston Atoll Wildlife Refuge and sensitive areas around Umatilla and other sites, of toxic metals, including nickel, copper and lead. The RDEIS fails to address the potential impacts of toxic metals, particularly food chain impacts, in clear violation of NEPA.

D. THE RDEIS FAILS TO ADEQUATELY ADDRESS RISKS TO WORKERS

EPA and OSHA require that workers at hazardous waste facilities be protected from dangerous exposures and injuries. While achieving 500 hours of demilitarization and incineration, the JACADS workforce accumulated 1944 hours of lost-time accidents. In other words, every hour of active demilitarization was accompanied by 3.9 hours of injury-related lost-time among the workers. No OSHA inspections are reported for JACADS. However, during 62 inspections of 29 hazardous waste incinerators, OSHA inspectors identified 320 violations. More than 66 percent of these were regarded by the agency as "serious" (OSHA/EPA, 1991). Numerous violations of worker safety standards were also reported by OSHA at the EPA operated Vertac CERCLA site hazardous waste incinerator, including some intentional violations. EPA's 1991 joint report with OSHA documents numerous problems at a variety of hazardous waste incinerators. At JACADS, active agent GB escaped from the LIC into corridors routinely used by workers on fifteen to seventeen occasions. Also on fifteen occasions, agent GB was detected in the life support air system (Menke et al., 1991). The potential for worker exposure at UMDA is real and the need for a thorough assessment of such potential is emphasized by the recent and disturbing disclosures by Mr. Steve Jones, the recent former chief safety officer at the Army's Tooele nerve gas incinerator facility. Mr. Jones' disclosures of hundreds of unaddressed safety concerns should have been a central focus in the RDEIS but was notably omitted. The RDEIS cannot be considered complete without a thorough analysis of this new evidence provided by Mr. Jones.

II. THE ARMY FAILED TO ADEQUATELY EVALUATE THE ECOLOGICAL RISKS POSED BY THE PROPOSED UMDA INCINERATION FACILITY

In evaluating the possible adverse effects of the proposed UMDA incinerator, the Army barely considered ecological impacts. See, RDEIS at 4-5 to 4-6, 4-14 to 4-21, and 4-29 to 4-31. Of primary concern are impacts from operations and accidents.

The discussion of impacts from "incident-free" operation negligently fails to assess impacts from the release of dioxins, furans, dioxin-like chemicals, lead, mercury, and other PICs. Moreover, the idea of operating an incinerator incident-free is ridiculous and ignores the basic literature and EPA findings which conclude that incinerator malfunctions and upsets occur frequently. [OSHA/EPA 1991]. The recent events at the EPA run Superfund incinerator at the Vertac site in Arkansas, and at the ThermalKEM hazardous waste incinerator in South Carolina (both recently shut down) undercut validity of the Army's approach which assumes incident free operation in the absence of accidents.

The EPA has begun to study the broad ecological impacts, for example, of dioxin. Some summary findings from a recent report conclude:

- Because of its lipophilicity, and low rates of chemical and biological degradation in aquatic environments, TCDD[4] does accumulate in biota to detectable levels. When interpreting and comparing TCDD residue accumulation in aquatic organisms, it is important to realize that exposure occurs through combinations of water, sediment, and dietary routes that are influenced by species-specific differences in physiology, bioenergetic condition and habitat, as well as site-specific TCDD bioavailability. [EPA 1993 at xii].

- In general, toxicity test results with aquatic organisms indicate that TCDD ... can cause delayed adverse effects, days, weeks or even months after exposure ... concentrations as low as .05 to 1 ng/L

[4] "TCDD" refers to 2,3,7,8- tetrachlorinated-dibenzo-p-dioxin, the most potent member of the dioxin family.

caused 50% mortality to rainbow trout ... and northern pike.. fry, respectively. [EPA 1993 at xiii].

- ... the mink is one of the most sensitive mammals [to TCDD exposure] evaluated thus far.[5] [EPA 1993 at xvi].

- ... it appears that gallinaceous birds are the most sensitive to TCDD. Of these birds, the ring-necked pheasant ... and the chicken are the most sensitive ... The available evidence suggests that effects on reproduction are of particular concern ...[6] [EPA 1993 at xvi]

- ... fish survey results and wildlife effects data does raise significant concerns about the present risk of TCDD to piscivorous wildlife. [EPA 1993 at xviii].

- ... the high bioaccumulation potential and toxicity of TCDD result in water concentrations of concern that are below ordinary analytical detection limits [EPA 1993 at 5-1].

Analysis of dioxin's impact on local plants, wildlife, and ecosystems is absent from the RDEIS. Such a deficiency renders the RDEIS and the Army's attempts to comply with NEPA invalid.

Since 1988, EPA has been working on the development of guidelines for assessing ecological effects. In 1992, EPA published the report, *Framework for Ecological Risk Assessment*, which was the agency's "first step in a long-term program to develop risk assessment guidelines for ecological effects." [EPA 1992 at vii]. Presently, EPA is in the process of preparing to publish formal guidelines.

The RDEIS approached the assessment of the ecological risks that will occur during "incident-free" operation in a rather incomplete manner. Although the RDEIS recognized that "small amounts of toxic materials (for example,

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[5] Mink are one of the animal resources in the Umatilla area. RDEIS at 3-33.

[6] The ring-necked pheasant is common in the Umatilla area. RDEIS at 3-33.

dioxins and furans) could be created and released," it concluded that "no significant deposition of ... pollutants should occur that would affect aquatic or terrestrial resources in the vicinity of UMDA." RDEIS at 4-18 and 4-21.

The RDEIS is obviously inadequate in its attempt to assess the ecological risks associated with incinerator operations at UMDA. None of the basic steps required for a thorough ecological assessment are attempted in the RDEIS. For example, the EPA has described the steps in ecological risk assessment as follows.

- The first phase of the framework is problem formulation. Problem formulation includes a preliminary characterization of exposure effects, as well as examination of scientific data and data needs, policy and regulatory issues, and site-specific factors to define the feasibility, scope, and objectives for the ecological risk assessment ... this systematic planning phase is proposed because ecological risk assessments often address the risks of stressors to many species as well as risks to communities and ecosystems. [EPA 1992 at 3].[7]

- The second phase ... consists of two activities, characterization of exposure and characterization of ecological effects. The purpose of characterization of exposure is to predict or measure the spatial and temporal distribution of a stressor and its co-occurrence or contact with the ecological components of concern, while the purpose of characterization of ecological effects is to identify and quantify the adverse effects elicited by a stressor and, to the extent possible, to evaluate cause-and-effect relationships.

- The third phase ... is risk characterization. Risk characterization uses the results of the exposure and ecological effects analyses to evaluate the likelihood of adverse ecological effects associated with exposure to a stressor. [EPA 1992 at 5].

Although the RDEIS recognizes the rich ecological resources of the UMDA

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[7] A "stressor" is "[a]ny physical, chemical, or biological entity that can induce an adverse response." EPA 1992 at 38.

area, including endangered species,[8] it fails to analyze the impacts of emissions of dioxins, furans, PCBs, toxic metals, and unburned agent on these species and ecosystems. This failure plainly violates NEPA.

The RDEIS addresses accidental releases of nerve agent in some detail. The RDEIS notes that some animal species are more sensitive than humans to chemical agents. RDEIS at 4-31. It notes that human and wildlife fatalities may occur if certain types of accidents occur. RDEIS at 4-23 to 4-34, Appendix G. Coupling this analysis, without specifically critiquing its adequacy, with the acute and chronic impacts associated with the emission of toxic and persistent chemicals and unburned agent demonstrates that incineration is a poor choice as a disposal technology for UMDA's chemical agent stockpile. Moreover, serious problems indicated in the JACADS data establish the Army's inability to detect escaping chemical agents and provide adequate emergency preparedness and response programs.

III. FAILURE TO ADEQUATELY ADDRESS ALTERNATIVES TO INCINERATION

The National Environmental Policy Act (NEPA), 42 U.S.C. §4321 et seq., requires that responsible officials for major federal actions that significantly affects the quality of the environment prepare a detailed statement on alternatives to the proposed action. 42 U.S.C. §4332(2)(C)(iii). NEPA further requires responsible officials to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources[.]" 42 U.S.C. §4332(2)(E). See also 32 CFR §188.4(b)(4).

The NEPA implementing regulations clarify the requirements set forth in the statute. The NEPA process is suppose to be used to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects upon the quality of our environment. 40 CFR §1500.2(c). The federal agency is required to inform the public on these alternatives. 40 CFR §1502.1 Federal agencies are required, not only to consider alternatives but to emphasize them. 40 CFR §1500.2(b). The section on alternatives is the "heart of the environmental impact statement." 40 CFR §1502.14

The regulations require that the information given by the federal agency

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[8] See, RDEIS at 3-26 to 3-36, Appendix J.

on alternatives, like all the information in a environmental impact statement (EIS), be of high quality and supported by evidence that the agency has made the necessary environmental analyses. 40 CFR §1500.1(b), 1502.1. Finally, a draft EIS is required to meet the requirements of a final EIS. 40 CFR §1502.9(a).

A federal agency is required to, "[r]igorously explore and objectively evaluate all reasonable alternatives[.]" 40 CFR §1502.14(a). See Vermont Yankee Nuclear Power Corp. v. Natural Resources Defense Council, Inc., 435 U.S. 519 (1978); Natural Resources Defense Council v. Morton, 458 F.2d 827 (D.C. Cir. 1972). A "perfunctory and conclusary statement that there are no alternatives does not meet the agency's statutory obligation." Trinity Episcopal School v. Romney, 523 F.2d 88, 94 (2nd Cir. 1975).

The Army has failed to explore and evaluate reasonable alternatives to incineration such as:

(1) Gas-phase (hydrogen) chemical reduction;
(2) Electrochemical Silver (II) processing;
(3) Solvated electron chemistry processing; and
(4) Molten Melt processing.

This is far from an exhaustive list of alternatives that the Army has failed to explore and evaluate. In fact, the Army has failed to explore and evaluate any reasonable alternative technologies.

Once a federal agency determines that an alternative is reasonable the agency must, "[d]evote substantial treatment to [the] alternative . . . including the proposed action so that reviewers may evaluate their comparative merits." 40 CFR §1502.14(b). An EIS should " go beyond mere assertions by providing sufficient information and reasoning to enable readers to consider and evaluate the comparative merits of the alternatives[.]" Druid Hills Civic Ass'n v. Federal Highway Administration, 772 F.2d 700, 713 (11th Cir. 1985) quoting Natural Resources Defense Council, Inc. v. Callaway, 524 F.2d 79, 83 (2nd Cir. 1975).

The Army has failed to devote substantial treatment to any of the alternatives listed in the preceding comment or to any other alternative. Thus, it is impossible to apply the rule of reason to the Army's decision.

The alternatives section of an EIS should, "present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public." 40 CFR §1502.14

The Revised Draft EIS does not present, nor does its predecessor documents, alternatives in comparative forms nor does it present alternatives at all. Thus, the Revised Draft EIS is missing its "heart" and is rendered useless.

40 CFR §1502.14(a) further requires federal agencies to briefly discuss the reason for eliminating alternatives from a rigorous exploration and objective evaluation. The Draft EIS is lacking a coherent discussion of why specific alternatives were excluded, other than a blind reliance on outdated and inadequate analyses in 1988 and 1990.

40 CFR §1502.2(c) require an agency to discuss how alternatives will advance the polices set forth in NEPA such as assuring the people in the United States safe, healthful, and esthetically and culturally pleasing surroundings. However, the Revised Draft EIS does not discuss how alternatives, such as the low pressure, low temperature, closed loop treatment technologies will achieve the goals of NEPA. The Revised Draft EIS is completely silent on the benefits of the variety of alternative technology available today.

40 CFR §1506.3(a) allows an agency to adopt another EIS or portion thereof, but only if that statement or portion thereof meets the standards for an adequate statement under the rest of the regulations. If the Army's justification for not exploring alternative analysis is that it incorporated the Final Programmatic Environmental Impact Statement's (FPEIS) into the Draft EIS, incorporation is inappropriate in this situation

Adoption is inappropriate because the FPEIS' discussion of alternatives, like the Draft EIS does not meet the statutory and regulatory requirements. Furthermore, the age of the FPEIS makes it inappropriate for adoption. As the National Resource Council (NRC) recognized, the area of alternative treatment technologies is rapidly maturing. Many more viable alternatives exist today they when the FPEIS was prepared.

If the Army wishes to rely on the FPEIS, it is required to prepare a supplemental EIS to the FPEIS because there are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action. 40 CFR §1502.9(c)(1)(ii), 32 CFR 188, Encl. 1 D.4. These significant new circumstances and relevant information are the new technologies discussed as well as the Army's own Alternative Technologies Program. This Program will result in the selection in October, 1996, of an alternative treatment system that is has far less environmental impacts than incineration.

If the Army's justification for not considering technology alternatives to incineration in the Draft EIS is that the Draft EIS is the second phase of a tiering analysis, this justification is inappropriate. The consideration of alternatives is a site-specific decision and thus must be included in this Draft EIS.

The Army has acknowledged the site-specific nature of alternatives by choosing alternative technologies at the Maryland and Indiana facilities while

proceeding with incineration in Utah. The United States Environmental Protection Agency (EPA), among others has also recognized the site-specific nature of treatment technologies. Alternative technologies are site-specific because they dramatically effect emissions. Emissions have different effects depending on the site. Thus, alternative technologies need to be evaluated in light of the specific nature of a site. Furthermore, even if alternative technologies was not a site-specific determination, as explained, the FPEIS requires a supplemental EIS.

40 CFR §1501.6(a)(2) requires the lead agency to use the expertise of cooperating agencies to the maximum extent possible, consistent with the lead agencies responsibility as lead agency. In this case, the Army is the lead agency and the Environmental Protection Agency (EPA) is a cooperating agency. EPA, under its Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and Resource Conservation and Recovery Act (RCRA) has several programs to assess and develop alternative treatment technologies hazardous waste. One example of an EPA program is the Superfund Innovative Technology Evaluation (SITE). There is no evidence that the Army has consulted with these EPA programs.

The Army is required to make every effort "to disclose and discuss at appropriate points in the draft statement all major points of view on the environmental impacts of the alternatives[.]" 40 CFR §1502.9(a). The Army has not only failed to include all points of view on the impacts of alternatives, it has failed to include any points of view except its own point of view in 1988. Even this point of view is no longer valid as it has changed as evidenced by the Army's current Alternative Technologies Program.

Similarly, 40 CFR §1502.2(g) states that EIS's "shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." The lack of an adequate discussion in the Draft EIS of alternatives to incineration, at a minimum, creates an appearance that this Draft EIS is merely a post hoc rationalization in violation of 40 CFR §1502.2(g).

Furthermore, even if the Army was not required to consider alternatives to incineration in the Draft EIS, 42 U.S.C. §4332(2)(E) would require the Army to consider alternatives, independently of the EIS process. Trinity Episcopal School v. Romney, 523 F.2d 88 (2nd Cir. 1975) rev'd on other grounds sub nom. Strycker's Bay Neighborhood Council Inc. v. Karlen, 444 U.S. 223 (1980).

This Draft EIS is so inadequate on the issue of alternatives to incineration that it precludes meaningful analysis. Therefore the Army is required to prepare and circulate a revised draft on the alternatives analysis. 40 CFR §1502.9(a).

CONCLUSIONS

The RDEIS fails to meet the requirements of NEPA in several important respects. First, consistent with the Army's flawed NEPA analyses to date, the RDEIS ignores alternatives to on-site incineration. This is a particularly significant omission given that the Army is currently engaged, along with the NRC, in formally examining alternative technologies for sites in Maryland and Indiana. The Army has identified five feasible alternatives for destruction of nerve agents, yet none are incorporated in the RDEIS or other Army NEPA documents. Second, the Army fails to recognize the failures at JACADS and relies far too heavily on optimistic assertions and/or incorrect information regarding the JACADS experience. Third, the RDEIS and the Army's NEPA [illegible] from toxic and persistent chemicals and unburned agent that will be emitted from the proposed UMDA incineration facility. This is dramatically apparent in the RDEIS's lack of a dioxin impact analysis and failure to consider the EPA's dioxin reassessment work. Fourth, the RDEIS similarly fails to adequately assess the ecological impacts of incineration operations.

At a minimum, the Army must prepare a supplemental EIS to address the inadequacies noted herein. Commentors urge the Army to undertake supplemental analyses immediately and halt any effort toward committing [illegible] 4332(2)(C); 40 C.F.R. § 1502.9(c).

Respectfully submitted,

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E-3

Issue Update

Confederated Tribes of the
Umatilla Indian Reservation
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Phone 541-276-3165, FAX 541-276-3095

Contact: Debra Croswell, 541-278-5255
May 15, 1996 JR Wilkinson, 541-278-5205

Tribes Continue to Call For "Time-out" on Chemical Weapons Incineration

The Confederated Tribes of the Umatilla Indian Reservation (CTUIR) support a delay on plans to build five incinerators for burning chemical weapons stored at the Umatilla Army Depot. This site, located in northeastern Oregon, is 30 miles directly upwind of Tribe's reservation which has been their ancestral homeland since time immemorial.

The CTUIR requested last February that Oregon Governor Kitzhaber, and others, support "time-out" by delaying or modifying the Army's pollution permit requests. The Tribes are not necessarily opposed to incineration but want to ensure that the Army uses the safest method to dispose of the deadly chemicals at the Army Depot.

During "time-out" the following activities, at a minimum, should be completed:

1) The Army, Oregon, CTUIR, and EPA conduct an analysis of the comparative risks, costs and benefits of continued storage, transportation, alternative disposal methods and incineration of the weapons.
2) The Army, Oregon, CTUIR, and appropriate federal agencies coordinate to produce effective plans for responding to routine and emergency chemical agent releases from the Depot.
3) The Army, Oregon, CTUIR, EPA, and Centers for Disease Control and Prevention establish an adequate human and environmental sampling and testing network that measures contaminant levels before, during, and after the disposal of the chemical weapons.
4) A proper government-to-government relationship has been established between appropriate federal and state agencies and the CTUIR -- a relationship which recognizes the important stake the CTUIR has in Depot actions.

With regard to the first concern CTUIR Board of Trustees Chairman Sampson recently stated that, "the Army has not adequately considered the health and safety of our tribal members. They have not clearly demonstrated to the residents of northeastern Oregon that incineration is the safest way to dispose of these chemical weapons in light of recent documentation regarding applicable alternative technologies."

- MORE-

Given the recent confusion regarding the Tribes' reservation being targeted by the Army as a refugee camp for non-Indians, the overall perception of emergency response capability is not positive. The Tribes maintain a limited hazardous response team and equipment and are capable of entering mutual aid agreements with other response agencies to provide support during an incident. Unfortunately, these types of considerations have not been integrated.

Board of Trustees Member Armand Minthorn stated, "We know that continued storage of the Army's chemical weapons at the Umatilla Depot poses a serious long-term risk to us all. More than anyone, we want to see these horrible weapons destroyed." He continued, "The permit should not proceed until applicable alternative technologies are thoroughly evaluated."

Routine emissions from the facility are a separate but critical consideration in the permitting process. Minthorn pointed out that the incineration project could have drastic impacts on the region's resources and agricultural industries. "No one will buy these products if they even suspect that the incinerators are poisoning the produce of northeastern Oregon," he stated. Proximity to the facility is one consideration, the Tribes also question the proposal because airborne pollution settling on the reservation from routine Depot operations could impact tribal economic, natural, and cultural resources.

Lastly, the Tribes are concerned about the lack of recognition of the CTUIR as a sovereign tribal government with its own responsibilities and resources that are often separate from other governmental organizations. The Tribe's government wants the identified technical and political concerns addressed by Department of Army and the State of Oregon before further actions proceed..

Chairman Sampson and Board Member Minthorn urge local and county governments, the State of Oregon, and northeastern Oregon residents to join them in holding the Army accountable for Depot actions. "Together, we can ensure that decisions made about the future of chemical weapons at the Umatilla Army Depot will be made rationally and will be based upon what is truly best for the residents of northeastern Oregon," Sampson said.

For further information, please contact:

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Environmental Quality Commission

☒ Rule Adoption Item
☐ Action Item
☐ Information Item

Agenda Item F
Meeting May 17, 1996

Title:

Oregon Title V Operating Permit Program Fee Increase

Summary:

The Air Quality Division's Oregon Title V Operating Permit program is entirely fee supported. Increased program costs must be offset by an increase in fee revenue. This revision would increase fees in an amount equal to the increase in the Consumer Price Index (2.845 percent), as allowed by ORS 468A.315. Per ton emission fees would rise from $30.07 per ton to $30.93. The base fee would rise from $2,569 to $2,642.

Department Recommendation:

The Department recommends that the Commission adopt the fee increase revisions to the Oregon Title V Operating Permit program.

Benjamin M. Allen — Report Author
Gregory A. Green — Division Administrator
Langdon Marsh — Director

Accommodations for disabilities are available upon request by contacting the Public Affairs Office at (503)229-5317(voice)/(503)229-6993(TDD).

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

Date: May 6, 1996
To: Environmental Quality Commission
From: Langdon Marsh
Subject: Agenda Item F, Oregon Title V Operating Permit Program Fee Increase, EQC Meeting May 17, 1996

Background

On February 8, 1996, the Director authorized the Air Quality Division to proceed to a rulemaking hearing on proposed rules that would increase Oregon Title V Operating Permit program fees by an amount equal to the annual increase in the Consumer Price Index, as allowed by ORS 468A.315. Pursuant to the authorization, hearing notice was published in the Secretary of State's Bulletin on March 1, 1996. The Hearing Notice and informational materials were mailed to the mailing list of those persons who have asked to be notified of rulemaking actions, and to a mailing list of persons known by the Department to be potentially affected by or interested in the proposed rulemaking action on February 16, 1996.

A Public Hearing was held March 22, 1996 with Benjamin Allen serving as Presiding Officer. Written comment was received through March 22, 1996. The Presiding Officer's Report (Attachment C) summarizes the oral testimony presented at the hearing and lists all the written comments received. (A copy of the comments is available upon request.)

Department staff have evaluated the comments received (Attachment D). Based upon that evaluation, no modifications to the initial rulemaking proposal are being recommended.

The following sections summarize the issue that this proposed rulemaking action is intended to address, the authority to address the issue, the process for development of the rulemaking proposal including alternatives considered, a summary of the rulemaking proposal presented for public hearing, a summary of the significant public comments and the changes proposed in response to those comments, a summary of how the rule will work and how it is proposed to be implemented, and a recommendation for Commission action.

Issue this Proposed Rulemaking Action is Intended to Address

Federal law requires that the Oregon Title V Operating permit program be entirely fee supported. Increased program costs must be offset by an increase in fee revenue. The Department's costs have increased over the past year in an amount comparable to inflation generally. The Department must continue to demonstrate that fee revenues will meet program expenses in order to retain delegation of this program.

Relationship to Federal and Adjacent State Rules

The 1990 Clean Air Act and 40 CFR Part 70 promulgated by the EPA require that this operating permit program be wholly supported by fees levied on the regulated industries. Adjacent states face the same requirements.

Authority to Address the Issue

ORS 468.020, 468A.025, 468A.315.

Process for Development of the Rulemaking Proposal (including Advisory Committee and alternatives considered)

When this fee structure was initially developed, the determination of staff resources needed to accomplish the required tasks was based on the Department's experience with similar activities. The Federal "presumptive minimum" of $25 per ton of emissions, coupled with an annual base fee and specific user fees, was determined to be adequate revenue to support this level of effort. The 1993 Legislature recognized that inflationary pressures would gradually drive up the cost of implementing this program and therefore included in the program's fee authorization statute a provision allowing the Department to increase fees annually, based on the increase in the U.S. Consumer Price Index. The Department has evaluated its financial needs and believes the inflation-linked increase in fees is necessary to maintain the functions of the Title V program, comply with federal requirements.

Summary of Rulemaking Proposal Presented for Public Hearing and Discussion of Significant Issues Involved.

The Oregon Title V Operating Permit program must be entirely fee supported. Costs have increased over the past year, and the rule revision would raise fees accordingly. As allowed by ORS 468A.315, fees would be increased in an amount equal to the increase in the Consumer Price Index (2.845 percent). Per ton emission fees would rise from $30.07 per ton to $30.93. The base fee would rise from $2,569 to $2,642.

Summary of Significant Public Comment and Changes Proposed in Response

Commenters requested an explanation of how fee revenues have been used over the first year of the program, and how such use compares with the projected workload analysis on which the initial fees were based. One comment suggested that the Department eliminate the annual base fee, which is provided for by statute. No changes are proposed.

Summary of How the Proposed Rule Will Work and How it Will be Implemented

After adoption of this rule, major industrial facilities which have applied for an Oregon Title V Operating Permit would be billed at the new fee rate by the Department in June. This new fee rate must be effective before the Department's June 1996 invoicing so that adequate revenues are collected to maintain the program.

Recommendation for Commission Action

The Department recommends that the Commission adopt the rule amendments regarding the Oregon Title V Operating Permit program fee increase [Info1]as presented in Attachment A of the Department Staff Report.

Attachments

A. Rule (Amendments) Proposed for Adoption
B. Supporting Procedural Documentation:
   1. Legal Notice of Hearing
   2. Fiscal and Economic Impact Statement
   3. Land Use Evaluation Statement
   4. Questions to be Answered to Reveal Potential Justification for Differing from Federal Requirements
   5. Cover Memorandum from Public Notice
C. Presiding Officer's Report on Public Hearing
D. Changes to Proposal and Department's Evaluation of Public Comment
E. Rule Implementation Plan

Reference Documents (available upon request)

Written Comments Received (listed in Attachment C)

Approved:

Section: Gregg E. Lande

Division: Gregory A. Green

Report Prepared By: Benjamin M. Allen

Phone: (503) 229-6828

Date Prepared: May 6, 1996

BMA
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April 9, 1996

Proposed Rule Amendments

Federal Operating Permit Fees

Purpose, Scope And Applicability

340-28-2560

(1) The purpose of OAR 340-28-2560 through 340-28-2740 is to provide owners and operators of major sources and the Department with the criteria and procedures to determine emissions and fees based on air emissions and specific activities.

(2) OAR 340-28-2560 through 340-28-2740 apply to major sources as defined in OAR 340-28-110.

(3) The owner or operator may elect to pay emission fees for each assessable emission on:
   (a) actual emissions, or
   (b) permitted emissions.

(4) If the assessable emission is of a regulated air pollutant listed in OAR 340-32-130 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) Major sources subject to the federal operating permit program defined in 340-28-110, are subject to the following fees:
   (a) Emission fees, (OAR 340-28-2590~~2610~~), and
   (b) Annual base fee ~~of $2,500 per source~~ (OAR 340-28-2580).

(6) Major sources subject to the federal operating permit program may also be subject to user fees (OAR 340-28-2600 and 340-28-1750).

(7) The Department shall credit owners and operators of major sources subject to the first year of the Federal Operating Permit Fees for Annual Compliance Determination Fees paid for any period after October 1, 1994.

Stat. Auth.: ORS Ch. 468 & 468A
Hist.: DEQ 20-1993(T), f. & ef. 11-4-93; DEQ 13-1992, f. & ef. 5-19-94

Annual Base Fee

340-28-2580

(1) The Department shall assess an annual base fee of $2,642 ~~2569~~ for each major source subject to the federal operating permit program.

(2) The annual base fee shall be paid to cover the period from November 15 of the current calendar year to November 14 of the following year.

Stat. Auth.: ORS Ch. 468 & 468A
Hist.: DEQ 13-1993, f. & ef. 9-24-93; DEQ 20-1993(T), f. & ef. 11-4-93; DEQ 13-1992, f. & ef. 5-19-94; DEQ 12-1995, f. & ef. 5-1-95

Emission Fee

340-28-2590

(1) Based on the Federal Operating Permit Program Budget, prepared by the Department and approved by the 1993 Oregon Legislature, the Commission determines that an emission fee of $\$30.93$~~30.07~~ per ton is necessary to cover all reasonable direct and indirect costs of implementing the federal operating permit program.

(2) The emission fee shall be applied to emissions from the previous calendar year based on the elections made according to OAR 340-28-2640.

Stat. Auth.: ORS Ch. 468 & 468A

Hist.: DEQ 13-1993, f. & ef. 9-24-93; DEQ 20-1993(T), f. & ef. 11-4-93; DEQ 13-1994, f. & ef. 5-19-94; DEQ 12-1995, f. & ef. 5-1-95

NOTICE OF PROPOSED RULEMAKING HEARING

Department of Environmental Quality AQ

OAR Chapter 340-28-2560, 2580, 2590

DATE:	TIME:	LOCATION:
March 22, 1996	11:00 AM	811 SW Sixth Ave., Room 10A, DEQ Headquarters, Portland

HEARINGS OFFICER(s): Benjamin M. Allen

STATUTORY AUTHORITY: ORS 468.020, 468.035
or **OTHER AUTHORITY:**
STATUTES IMPLEMENTED: **ORS 468A.315**

ADOPT:
AMEND: 340-28-2560, 2580, 2590
REPEAL:
RENUMBER: **AMEND & RENUMBER:**
(prior approval from Secretary of State REQUIRED)

☒ This hearing notice is the initial notice given for this rulemaking action.
☐ This hearing was requested by interested persons after a previous rulemaking notice.
☐ Auxiliary aids for persons with disabilities are available upon advance request.

SUMMARY:

Costs of implementing and administering the Federal Operating Permit program in Oregon have increased as a result of increased costs for staff, services, and supplies. This permitting program must remain 100% self-supporting through fees assessed on the facilities regulated in order for Oregon to retain its federal approval status. An increase in the fees charged is necessary to maintain this self-sufficiency.

When this rule was initially developed the determination of staff resources needed to accomplish the required tasks was based on the Department's experience with similar activities. The Federal "presumptive minimum" of $25 per ton of emissions, coupled with an annual base fee and specific user fees was determined to be adequate revenue to support this level of effort.

The rule amendments will raise the Annual Base Fee from $2500/yr to $2569/yr and the Emissions Fee from $29.26/ton to $30.07/ton based on an increase of 2.7% in the U.S. Consumer Price Index since the last rule adoption. These fees are charged to regulated major industrial sources.

LAST DATE FOR COMMENT: March 22, 1996

AGENCY RULES COORDINATOR: Susan M. Greco, (503) 229-5213
AGENCY CONTACT FOR THIS PROPOSAL: Benjamin M. Allen
ADDRESS: 811 S. W. 6th Avenue
Portland, Oregon 97204
TELEPHONE: (503) 229-6828/1-800-452-4011

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments will also be considered if received by the date indicated above.

Benjamin M. Allen
Signature

Feb. 13, 1996
Date

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rulemaking Proposal
for

Oregon Title V Operating Permit Fee Increase

Fiscal and Economic Impact Statement

Introduction

Costs of implementing and administering the Federal Operating Permit program in Oregon have increased as a result of increased costs for staff, services, and supplies. This permitting program must remain 100 percent self-supporting through fees assessed on the facilities regulated in order for Oregon to retain its federal approval status. An increase in the fees charged is necessary to maintain this self-sufficiency.

As a result of the increase in fees, regulated facilities will pay more for each ton of air pollution released. This may provide some incentive for reducing the quantities emitted. To the extent that a facility can avoid these higher fees by reducing their emissions they will enjoy a competitive advantage over other facilities with greater emissions.

In 1995, the Annual Base Fee was charged to 146 major industrial sources, with an additional 6 sources expected to enter the program in the next year. This fee would increase from $2,569/yr to $2,642/yr if the proposed rule amendment were made. The proposed rule amendment will increase the fee paid per ton of pollution from $30.07 to $30.93.

<u>General Public</u>

Higher regulatory costs are likely to affect consumers through higher costs of goods and services.

<u>Small Business</u>

Some industrial sources which are defined to be major sources of air pollution by rule may be small businesses. In general, these companies tend to emit less than 100 tons per year of air pollutants. The fee increase proposed would raise the fees of a 100 ton/yr source by a total of $159/yr (from $5,576 to $5,735).

<u>Large Business</u>

Most industrial manufacturing facilities are major sources of air pollution and are subject to Federal Operating Permits and the associated fees. The largest source of air pollution in the

state has approximately 8,600 tons/yr of assessable emissions, and will pay about $280,000 in fees in 1996 (exact numbers will not be available until late February). The proposed fee increase would raise this by 2.845 percent, (about $8,000). The second largest source has emissions of less than 3,800 tons/yr, and the vast majority of sources fall in the 100 to 1000 tons/yr range.

Local Governments

At this time Coos County, the Port of Portland, Oregon State University, and the Oregon Health Sciences University are the only public agencies required to receive Federal Operating Permits. Their permitting fees would also increase by 2.845 percent. These agencies will pay fees in 1996 ranging from about $3,600 to $14,000 (35 tons to 380 tons). These would rise to $3,700 to $14,500.

The Lane Regional Air Pollution Authority is the only other air permitting agency in Oregon. They must also demonstrate to the EPA that their Federal Operating Permit program is self-supporting, but they establish their own fee schedule and this rule amendment will not necessarily affect them.

State Agencies

Costs of implementing and administering the Federal Operating Permit program in Oregon have increased as a result of increased costs for staff, services, and supplies. This permitting program must remain 100 percent self-supporting through fees assessed on the facilities regulated in order for Oregon to retain its federal approval status. The proposed increase in fees is intended to offset the increased costs in order to maintain self-sufficiency without any increase in staff. Expenditures are projected to increase by 2.845 percent over 1995 levels.

Assumptions

Estimated expenditures are based on the assumption that almost all facilities subject to this program have been identified. It is also assumed that the workload analysis completed in September 1992 by the Air Quality Division is accurate. Revenue forecasts are also based on the assumption that the number of sources subject to this program are known, and that air emissions did not change significantly in 1995 (each billing is based on the previous year's emissions).

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rulemaking Proposal
for

Oregon Title V Operating Permit Fee Increase

Land Use Evaluation Statement

1. **Explain the purpose of the proposed rules.**

   Costs of implementing and administering the Federal Operating Permit program in Oregon have increased as a result of increased costs for staff, services, and supplies. This permitting program must remain 100% self-supporting through fees assessed on the facilities regulated in order for Oregon to retain its federal approval status. An increase in the fees charged is necessary to maintain this self-sufficiency.

   The rule amendments will raise the Annual Base Fee from $2,569/yr to $2,642/yr and the Emissions Fee from $30.07/ton to $30.93/ton based on a 2.845% increase in the U.S. Consumer Price Index since the last rule adoption.

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:**

   Oregon's Federal Operating Permit and Air Contaminant Discharge Permit programs which regulate air emissions from industrial sources.

   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):**

   Current procedures require local governments to determine land use compatibility before a Notice of Construction is approved or an air permit is issued.

   c. **If no, apply specified criteria to the proposed rules.**

In the space below, state if the proposed rules are considered programs affecting land use. State the criteria and reasons for the determination.

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.**

Gregory A. Green — Division Representative

Intergovernmental Coord.

1/11/96 — Date

Questions to be Answered to Reveal Potential Justification for Differing from Federal Requirements.

1. Are there federal requirements that are applicable to this situation? If so, exactly what are they?

Retaining Federal approval of Oregon's Federal Operating Permit program is the primary reason for this fee increase. Costs of implementing and administering the Federal Operating Permit program in Oregon have increased as a result of increased costs for staff, services, and supplies. This permitting program must remain 100 percent self-supporting through fees assessed on the facilities regulated in order for Oregon to retain its federal approval status. An increase in the fees charged is necessary to maintain this self-sufficiency.

2. Are the applicable federal requirements performance based, technology based, or both with the most stringent controlling?

As mentioned above, one of the requirements for Federal approval of a state's Federal Operating Permit program is to have adequate funding to carry out that program (**40 CFR Part 70.9**).

3. Do the applicable federal requirements specifically address the issues that are of concern in Oregon? Was data or information that would reasonably reflect Oregon's concern and situation considered in the federal process that established the federal requirements?

Yes. The Oregon Legislature agreed that this program should be self-supporting and provided for increases in fees to compensate for increased expenses caused by inflation.

4. Will the proposed requirement improve the ability of the regulated community to comply in a more cost effective way by clarifying confusing or potentially conflicting requirements (within or cross-media), increasing certainty, or preventing or reducing the need for costly retrofit to meet more stringent requirements later?

No.

5. Is there a timing issue which might justify changing the time frame for implementation of federal requirements?

No.

6. Will the proposed requirement assist in establishing and maintaining a reasonable margin for accommodation of uncertainty and future growth?

No.

7. Does the proposed requirement establish or maintain reasonable equity in the requirements for various sources? (level the playing field)

Equity is maintained since the fees are being increased by the same percentage for all Oregon facilities.

8. Would others face increased costs if a more stringent rule is not enacted?

No.

9. Does the proposed requirement include procedural requirements, reporting or monitoring requirements that are different from applicable federal requirements? If so, Why? What is the "compelling reason" for different procedural, reporting or monitoring requirements?

No.

10. Is demonstrated technology available to comply with the proposed requirement?

Yes.

11. Will the proposed requirement contribute to the prevention of pollution or address a potential problem and represent a more cost effective environmental gain?

The fee structure is designed to allow market pressures to be brought to bear on facilities emitting air pollutants. As a result of the increase in fees, regulated facilities will pay more for each ton of air pollution released, which may provide some incentive for reducing the quantities emitted. Higher regulatory costs are likely to be passed on to consumers through higher costs of goods and services. To the extent that a facility can avoid these higher fees by reducing their emissions they will enjoy a competitive advantage over other facilities with greater emissions.

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

Date: February 9, 1996

To: Interested and Affected Public

Subject: Rulemaking Proposal and Rulemaking Statements - Oregon Title V Operating Permit Fee Increase

This memorandum contains information on a proposal by the Department of Environmental Quality (DEQ) to amend rules regarding permit fees for sources required to have Oregon Title V Operating Permits. Pursuant to ORS 183.335, this memorandum also provides information about the Environmental Quality Commission's expected action to adopt a rule.

This proposal would increase the Annual Base Fee and the Emissions Fee for Title V sources by an amount equal to the increase in the Consumer Price Index since the last rule adoption (2.845 percent).

The Department has the statutory authority to address this issue under ORS 468.020, 468A.025, and 468A.315.

What's in this Package?
Attachments to this memorandum provide details on the proposal as follows:

Attachment A	The official statement describing the fiscal and economic impact of the proposed rule.
Attachment B	A statement providing assurance that the proposed rules are consistent with statewide land use goals and compatible with local land use plans.
Attachment C	Questions to be Answered to Reveal Potential Justification for Differing from Federal Requirements.
Attachment D	The actual language of the proposed rule amendments.

Hearing Process Details
You are invited to review these materials and present written or oral comment in accordance with the following:

Date: March 22, 1996
Time: 11:00 AM
Place: Room 10 A, 811 SW 6th Ave., Portland, OR 97204

Deadline for submittal of Written Comments: 5:00 PM, March 22, 1996

In accordance with ORS 183.335(13), no comments from any party can be accepted after the deadline for submission of comments has passed. Thus if you wish for your comments to be considered by the Department in the development of these rules, your comments must be received prior to the close of the comment period. The Department recommends that comments be submitted as early as possible to allow adequate review and evaluation of the comments submitted.

Benjamin Allen will be the Presiding Officer at this hearing. Following the close of the public comment period, the Presiding Officer will prepare a report which summarizes the oral testimony presented and identifies written comments submitted. The Environmental Quality Commission (EQC) will receive a copy of the Presiding Officer's report and all written comments submitted. The public hearing will be tape recorded, but the tape will not be transcribed.

If you wish to be kept advised of this proceeding and receive a copy of the recommendation that is presented to the EQC for adoption, you should request that your name be placed on the mailing list for this rulemaking proposal.

What Happens After the Public Comment Period Closes?

The EQC will consider the Department's recommendation for rule adoption during one of their regularly scheduled public meetings. The targeted meeting date for consideration of this rulemaking proposal is May 17, 1996. This date may be delayed if needed to provide additional time for evaluation and response to testimony received in the hearing process. You will be notified of the time and place for final EQC action if you present oral testimony at the hearing or submit written comment during the comment period or ask to be notified of the proposed final action on this rulemaking proposal.

The EQC expects testimony and comment on proposed rules to be presented **during** the hearing process so that full consideration by the Department may occur before a final recommendation is made. In accordance with ORS 183.335(13), no comments can be accepted by either the EQC or the Department after the public comment period has closed. Thus the EQC strongly encourages people with concerns regarding the proposed rule to communicate those concerns to the Department prior to the close of the public comment period so that an effort may be made to understand the issues and develop options for resolution where possible.

Background on Development of the Rulemaking Proposal

Why is there a need for the rule?

Costs of implementing and administering the Federal Operating Permit program in Oregon have increased as a result of increased costs for staff, services, and supplies.

This permitting program must remain 100 percent self-supporting through fees assessed on the facilities regulated in order for Oregon to retain its federal approval status. The Federal Clean Air Act requires that fees be increased to maintain this self-sufficiency.

How was the rule developed?

When this fee structure was initially developed, the determination of staff resources needed to accomplish the required tasks was based on the Department's experience with similar activities. The Federal "presumptive minimum" of $25 per ton of emissions, coupled with an annual base fee and specific user fees, was determined to be adequate revenue to support this level of effort. The 1993 Legislature recognized that inflationary pressures would gradually drive up the cost of implementing this program and therefore included in the program's fee authorization statute a provision allowing the Department to increase fees annually, based on the increase in the U.S. Consumer Price Index.

Whom does this rule affect (including the public, the regulated community, and other agencies), and how does it affect these groups?

If fees are increased, regulated facilities will pay more for each ton of air pollution released. This may provide some incentive for reducing the quantities emitted. Higher regulatory costs are likely to affect consumers through higher costs of goods and services. To the extent that a facility can avoid these higher fees by reducing their emissions, they will enjoy a competitive advantage over other facilities with greater emissions.

How will the rule be implemented?

After adoption of this rule, major industrial facilities which have applied for, or are anticipated to apply for a Federal Operating Permit, will be billed at the new fee rate by the Department in June. Currently unidentified major sources will be billed at this new rate when their Federal Operating Permit application is received.

Are there time constraints?

This new fee rate must be effective prior to the Department's June 1996 invoicing so that adequate revenues are collected to maintain the program.

Contact for more information:

If you would like more information on this rulemaking proposal, or would like to be added to the mailing list, please contact:

Benjamin M. Allen
811 SW 6th Ave., Portland, OR 97204-1390
(503) 229-6828

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

Date: March 25, 1996

To: Environmental Quality Commission

From: Benjamin Allen

Subject: Presiding Officer's Report for Rulemaking Hearing

Hearing Date and Time: March 22, 1996, beginning at 11:00 AM

Hearing Location: Room 10 A, 811 SW 6th Ave., Portland, OR 97204

Title of Proposal: Oregon Title V Operating Permit Program Fee Increase

The rulemaking hearing on the above titled proposal was convened at 11:10 AM. People were asked to sign witness registration forms if they wished to present testimony. People were also advised that the hearing was being recorded and of the procedures to be followed.

One person attended. No one signed up to give testimony.

Prior to receiving testimony, Mr. Allen briefly explained the specific rulemaking proposal, the reason for the proposal, and responded to questions from the audience.

Written Testimony

The following people turned in written comments during the comment period but did not present oral testimony:

1. Rick Hess, Portland General Electric
2. Kathryn VanNatta, Northwest Pulp and Paper Association
3. Maureen A. Healey, Society of the Plastics Industry

There was no testimony, and the hearing was closed at 11:30.

Changes to Proposal and Department's Evaluation of Public Comment

on

Oregon Title V Operating Permit Program Fee Increase

Based on staff comment, the following additional change to the draft revisions is proposed:

Purpose, Scope And Applicability
340-28-2560

. . .

(5) Major sources subject to the federal operating permit program defined in 340-28-110, are subject to the following fees:

(a) Emission fees, (OAR 340-28-2590~~2610~~), and

. . .

No other changes to the draft revisions are proposed.

Comment: (1,2,3)

The commenters expressed no opinion regarding the proposed increase in fees, but asked for documentation of how Title V fees have been used, staffing levels for the program, number of permits issued, and other data relevant to costs and fees. The commenters also asked for a comparison between actual costs and revenue and the workload and revenue analysis prepared when the Title V program was first adopted.

Response: Oregon's Title V Operating permit program remains one of the few programs actively implementing the federal Title V requirements, and stands practically alone in having issued Title V permits. At this time we have issued twenty six permits, are working on another twenty five, and have an additional ninety applications waiting to be processed. We have also issued sixty five Synthetic Minor permits, which relieve potentially major sources from the requirement to get a Title V permit by modifying their existing state Air Contaminant Discharge permit.

It now appears certain that Oregon will not issue 300 Title V permits as originally estimated. Our analysis of the work required for this program was presented to the 1993 Legislature. In that analysis we included such other activities as airshed planning, technical assistance, rulemaking, emissions tracking, compliance, enforcement, and program administration. Some of these activities are developmental, laying the foundation for administering this legally complex program, and the same level of effort is required regardless of the number of sources in the program. While twenty six Title V permits have been finalized it is still too early to evaluate the efficiency of our overall effort. Permit issuance comprises only a portion of the workload associated with effectively implementing the Title V program and many of

the other activities, such as compliance tracking, have not yet taken on the complexity that this program demands.

It is also clear that the level of effort required to implement some program activities is far greater than anticipated. At this time we estimate that the permit processing component of the program is taking about three times longer than the 110 hours per permit we initially estimated. Much of this has to do with working through administrative and legal problems in the existing state permits, answering questions about rule applicability, and sorting out past actions. We anticipate that as we become more knowledgeable the time required for permit processing will be reduced. It seems likely, though, that we will encounter similar increases, over our early estimates, in the effort required when compliance tracking begins in earnest.

The Department is tracking how time is being spent in eight separate activity categories within the Title V program, an example of the administrative oversight that has been required of this program. In the future, as other portions of this program are implemented more fully, we will be able to provide more detail about resource requirements needed to sustain the program.

Comment: (3)
The commenter requested that the Department publish a detailed explanation of the fee increase in the Oregon Bulletin prior to the close of the comment period on the proposed rule.

Response: The comment was received at the end of the comment period. The Department has attached an explanation of the fee increase to this report, a copy of which is mailed to all commenters. The Department does not believe it is necessary to publish the explanation in the Oregon Bulletin.

Comment: (3)
The commenter suggested that the Department eliminate the annual base fee, saying that other states rely solely on per ton emission fees, and do not use base fees.

Response: The statutory authority for the Title V program, ORS 468A.315, specifies that the Department shall use a base fee. Title V operating fees are required to provide 100 percent of the funds needed to maintain the program. If there were no base fee, per ton emission fees would have to increase in order to fully fund the program.

Comment: (3)

The commenter suggested that the Department adopt provisions requiring Title V fees to be placed in an interest bearing account, with funds not expended by the end of the fiscal year credited against fees in the succeeding year.

Response: As discussed above, the Department does not anticipate having excess revenue. However, any excess revenues would be handled by procedures currently in place for dealing with carryover revenue from dedicated funds.

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

Rulemaking Proposal
for

Oregon Title V Operating Permit Program Fee Increase

Rule Implementation Plan

Summary of the Proposed Rule
The Oregon Title V Operating Permit program is entirely fee supported. Increased program costs must be offset by an increase in fee revenue. Fees would be increased in an amount equal to the increase in the Consumer Price Index (2.845 percent). Per ton emission fees would rise from $30.07 per ton to $30.93. The base fee would rise from $2,569 to $2,642.

Proposed Effective Date of the Rule
The rule would be effective when filed.

Proposal for Notification of Affected Persons
The Department would send invoices with the revised fees to the affected sources. The next invoices are issued in June of 1996.

Proposed Implementing Actions
After adoption of this rule, major industrial facilities which have applied for an Oregon Title V Operating Permit would be billed at the new fee rate by the Department in June. This new fee rate must be effective prior to the Department's June 1996 invoicing so that adequate revenues are collected to maintain the program.

Proposed Training/Assistance Actions
None.

State of Oregon
Department of Environmental Quality Memorandum

Date: May 1, 1996

To: Environmental Quality Commission

From: Langdon Marsh, Director

Subject: Agenda Item G, Variance Request - William and Rosemary Bones, EQC Meeting May 17, 1996

Background

William and Rosemary Bones (hereinafter "Applicants") submitted an application to Malheur County in January, 1994 for a permit to repair a failing on-site sewage system. Malheur County allowed certain temporary emergency measures to be taken but denied the permit since a sewage system was both legally and physically available through the City of Ontario within 300 feet of the property. The estimated cost of hook-up to the city sewage system is approximately $19,000. Emergency measures in the form of a temporary pit were installed.

The property is located within the Ontario Urban Growth Area and is less than 0.4 acre. It has been assessed at $14,500. The property pre-exists the current agreement whi ch requires a minimum lot size of 5 acres within the Growth Area. The property is bordered on 3 sides by similarly developed properties. A well on the property makes installation of a replacement sewage system impossible within the required setbacks from the well. The setback requirements would only allow an area of approximately 30-50 square feet.

On January 30, 1994, the applicants submitted an application for a variance for the installation of a new drainfield. The applicant proposed 3 options as a replacement system.
(1) The applicant would continue to utilize the existing septic tank. A seepage trench would be installed. The drainfield would be installed within 100 feet from the well on the property.
(2) The applicant would install a new dosing septic tank system with a new seepage trench drainfield. The drainfield would be installed within 100 feet from the well on the property.
(3) The existing well along with the existing septic tank would be abandoned. A new well and system would be installed to allow installation of a trench to maximum depth and in conformance with well setback rules.

The 3 options presented by the applicants would require variance from the following rules:
(1) OAR 340-71-160(5)(f)(A)(i) and (B) - "Upon receipt of a completed application the Agent shall deny the permit if a sewerage system which can serve the proposed flow is both legally and physically available for a single family dwelling, or other establishment ... and is within three hundred (300) feet. A sewerage system shall be deemed legally available if the

system is not under a Department connection permit moratorium, and the sewerage system owner is willing or obligated to provide sewer service."
(2) OAR 340-71, Table 1, item 1 - requires that there be a minimum of 100 feet for setback between groundwater supply and sewage disposal area;
(3) OAR 340-71-280(3)(a) - "The seepage trench may have a maximum depth of forty-two (42) inches."

The variance officer found that the proposed trench depth and well setback under Options 1 and 2 would jeopardize the quality of the groundwater systems surrounding the property. By a letter dated January 18, 1995, the variance officer proposed that the applicants further explore Option 3 (referenced as Option 2 in that letter) in further detail since it would "provide the greatest area for installing a disposal field that would meet required well setbacks." The applicants failed to provide any further details regarding this option.

On March 28, 1995, the variance officer denied the application for a variance. The applicants appealed the denial on April 19, 1995. The appeal was referred to a hearings officer for issuance of a Preliminary Order and Opinion. The hearings officer held that there were "no circumstances that would establish that strict compliance with the rule or standard is inappropriate or that special physical conditions render strict compliance unreasonable, burdensome, or impractical" since the rule does not mention cost as a factor that would make connection to the sewerage system unavailable.

On April 8, 1996, the applicants were informed that the Environmental Quality Commission would be considering the variance application at its May 17, 1996 meeting. Any objections to the Preliminary Order and Opinion were to be received by April 25, 1996. The Department has not received any such objections from the applicants.

Authority of the Commission with Respect to the Issue

ORS 454.605 to 454.745; OAR 340-71-415

Alternatives and Evaluation

The Commission may either uphold or reverse the hearings officer's Preliminary Order and Opinion, in whole or in part.

Department Recommendation

It is recommended that the Commission adopt the Preliminary Order and Opinion, denying the variance application.

Attachments

1. Letter to Mr. and Mrs. William Bones, dated April 8, 1996 from Susan M. Greco
2. Preliminary Order and Opinion, dated 4/2/96
3. Letter to Mr. and Mrs. William Bones, dated May 24, 1995 from Richard J. Nichols
4. Letter to Chris Rich, dated April 19, 1995 from Mrs. William P. Bones
5. Variance Denial, dated March 28, 1995
6. Letter to Mr. and Mrs. William Bones, dated January 18, 1995 from Daryl Johnson
7. Variance application, dated January 30, 1994
8. Variance Fact and Findings Report

Reference Documents (available upon request)

ORS Chapter 454; OAR Chapter 340, Division 71

Report Prepared By: Susan M. Greco
Phone: (503) 229-5213
Date Prepared: April 30, 1996

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

April 8, 1996

Mr. and Mrs. William Bones
402 King Avenue
Nyssa OR 97913

RE: Variance Application
Tax Lot 4100 and 4400
Malheur County

Dear Mr. and Mrs. Bones:

The Environmental Quality Commission will be considering the Preliminary Order and Opinion of the hearings officer in your variance application for the property located in Malheur County at their regularly scheduled meeting to be held May 17, 1996. The meeting will be held at 811 S.W. 6th Avenue, Portland, Oregon in Conference Room 3A and will begin at 8:30 a.m. Your application will be heard in the regular course of the meeting. At this meeting the Commission will be making a final determination on your variance application.

If you do not agree with the hearings officer's order, I will need to receive, in writing, any objections that you have to the proposed order prior to April 25, 1996. Please forward to the Environmental Quality Commission, c/o Susan M. Greco, 811 S.W. 6th Avenue, Portland, Oregon, 97204.

If you should have any questions or require special accomodations for the meeting, please feel free to call me at (503) 229-5213 or (800) 452-4011 extension 5213 within the state of Oregon.

Sincerely,

Susan M. Greco
Rules Coordinator

cc: Sherm Olson, WQ
Bob Baggett, Pendleton DEQ

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

Regarding the variance application of:

PRELIMINARY ORDER AND OPINION

MR. AND MRS. WILLIAM BONES
402 King Avenue
Nyssa, Oregon

WQ-IOSWW-VARIANCE
Tax Lot 4100 and 4400;
Section 10; Township 18 South
Range 47 East, W.M.
Malheur County

HISTORY

The Department of Environmental Quality received an application from William Bones (hereinafter, applicant) dated January 5, 1994 for a permit to repair an on-site sewage system. A variance hearing was conducted August 11, 1994. Variance Officer Daryl Johnson issued a variance denial on March 28, 1995. On April 19, 1995, applicant appealed the denial.

The Environmental Quality Commission (EQC) referred the appeal to Hearings Officer Linda B. Lee for initial review and preliminary order under ORS 454.660 and OAR 340-71-440. This preliminary order is based on a complete review of the file.

The documents considered were:, Land Use Compatibility Statement For on-Site Sewage Disposal Systems, January 18, 1994; Letter from Ontario City Attorney/Planner, January 19, 1994; Letter from William Bones regarding Application for Variance, January 30, 1994; Letter from Sherman Olson, Jr. regarding Incomplete Variance Application, March 4, 1994; Supplemental Information in Support of Variance Application (undated); Letter from Daryl Johnson Requesting Supplemental Information Regarding Option 2, January 18, 1995 ; Variance Fact and Findings Report (undated); Variance Decision Letter March 28, 1995; Letter from Daryl Johnson listing appeal rights available to applicant, March 29, 1995; Letter of Appeal, April 14, 1995.

ISSUE

Whether the application for variance should be denied.

OPINION

The application for variance is denied.

DISCUSSION

ORS 454.657 states in part:

> (1) After hearing the Environmental Quality Commission may grant to applicants for permits required under ORS 454.655 specific variances from the particular requirements of any rule or standard pertaining to subsurface sewage disposal systems for such period of time and upon such conditions as it may consider necessary to protect the waters of the state, as defined in ORS 468B.005. The commission shall grant such specific variance only where after hearing it finds that strict compliance with the rule or standard is inappropriate for cause or because special physical conditions render strict compliance unreasonable, burdensome or impractical.

Section (2) of this statute allows for variance based on hardship. The applicant did not request such a variance.

OAR 340-71-415(3) states:

> No variance may be granted unless the Commission or a special variance officer finds that:
> (a) Strict compliance with the rule or standard is inappropriate for cause; or
> (b) Special physical conditions render strict compliance unreasonable, burdensome, or impractical.

By seeking a variance, applicant concedes that its application cannot meet the requirements of a particular rule or standard. Applicant is the proponent of a certain fact (a variance from the rules and/or standards), so applicant has the burden of proof.

As of January 5, 1994, the applicant had an on-site sewage system serving the house on the subject property, Township 18, R 47, Section 10; Tax Lot 4100 and 4400, 1250 S.E. 13th Avenue, Ontario, Oregon; Malheur County. As of the date of application for the variance the sewage system was in need of emergency repair. Emergency repairs consisting of a small pit adjacent to the septic tank were approved. The parcel is .36 acres and is situated in the Ontario Urban Growth Area and is zoned residential. The property pre-exists the current Urban Growth Area agreement which requires a minimum lot size of 5 acres. The property is bordered on three sides by similar developed properties and fronted by 13th Street. A well is located on the property such that a 100 foot setback from the well encompasses almost the entire lot area.

As of January 30, 1994, the assessed value of the property was $14,550. The City of Ontario sewerage system is legally and physically available within 300 feet of the property. As of April 1995, the estimated cost for sewage hookup was $19,300. Instead of connecting to the City's system, the applicant proposed three options for replacing the failing system on the property. The first option proposed utilization of the existing septic tank and installation of a seepage trench drainfield approximately 120 feet in length and at a depth of 69 inches. The second option (listed in the variance report as Sub-option 1A) proposed installation of a new dosing septic tank system to serve a new seepage trench drainfield approximately 120 feet in length to a depth not to exceed 42 inches. The entire drainfield for both these options would be installed within the required 100 foot setback from the well on the subject property. The third option (listed in the variance report as Option 2) proposed abandonment of the existing well, construction of a new well and relocation or abandonment of the existing septic tank. Although the applicant was asked to provide more information concerning the third option, no detailed information was provided.

OAR 340-71-220(5) states in part:

> Upon receipt of a completed application the Agent shall deny the permit if:
> * * * *
> (f) A sewerage system which can serve the proposed sewage flow is both legally and physically available, as described below:
> (A) Physical Availability. A sewerage system shall be deemed physically available if its nearest connection point from the property to be served is:
> * * * *
> (iii) For a single family dwelling, or other establishment with a maximum projected daily sewage flow of not more than four hundred fifty (450) gallons, within three hundred (300) feet; * * * *
> (B) Legal Availability. A sewerage system shall be deemed legally available if the system is not under a Department connection permit moratorium, and the sewerage system owner is willing or obligated to provide sewer service.

Sewerage services are available to the applicant through the City of Ontario. The rule speaks to physical and legal availability, cost is not mentioned in the rule as a factor that would cause sewerage to be unavailable.

Applying the rule to the facts presented, the hearings officer finds no circumstances that would establish that strict compliance with the rule or standard is inappropriate or that special physical conditions render strict compliance unreasonable, burdensome, or impractical.

ORDER

The applicant's variance request is denied under ORS 454.657.

ENVIRONMENTAL QUALITY COMMISSION

Linda B. Lee

Linda B. Lee, Hearings Officer

This Proposed Order and Opinion was mailed to DEQ and the applicant on April 2, 1996.

FURTHER REVIEW

If the applicant and DEQ agrees with this preliminary order and opinion, the director of the Environmental Quality Commission (EQC) will enter a final order. If the applicant and/or DEQ disagrees with this preliminary order and opinion, the proposed order will be sent to the EQC for review and action. You will be notified of the EQC meeting date when this preliminary order and opinion will be considered.

STATEMENT OF MAILING

AGENCY CASE NO. WQ-IOSWW-Variance
HEARINGS CASE NO. 95-DEQ-017

I certify that the attached Proposed Order was served through the mail to the following parties in envelopes addresssed to each at their respective addresses, with postage fully prepaid:

William and Rosemary Bones
402 King Avenue
Nyessa, Oregon 97913

Sherman Olson
Water Quality Division, DEQ
811 SW Sixth Avenue
Portland, Oregon 97204

Susan Greco
DEQ
811 SW Sixth Avenue
Portland, Oregon 97204

Mailing/Delivery Date: 04-02-96
Hearings Clerk: ah

STATE OF OREGON - EMPLOYMENT DEPARTMENT

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

EASTERN REGION
Bend Office

May 24, 1995

William and Rosemary Bones
402 King Avenue
Nyssa, Oregon 97913

Re: Variance Denial Appeal

Dear Mr. and Mrs. Bones:

This is in response to your telephone call yesterday concerning the appeal of a variance denial for your property near Ontario, Oregon. Unfortunately, your appeal has not been scheduled for action by the Environmental Quality Commission (EQC) and it is uncertain when it might be scheduled. In consideration of this delay, the 90 day time frame specified in the variance denial letter for abandoning the existing, failing on-site system is hereby extended until 90 days after the EQC takes action on your appeal.

The Department discussed your situation with Mr. Ray Huff of the Malheur County Department of Environmental Health. Mr. Huff stated that the existing failing septic system, while unacceptable for the long term, is an acceptable means of sewage disposal for the short term while you wait for action on your appeal.

If you have questions on this matter, please contact me in this office at (503) 388-6146 X251.

Sincerely,

Richard J. Nichols, Manager
Bend Water Quality Section
Eastern Region

RJN:rjn

cc: Eastern Region - Pendleton
Ray Huff - Malheur County Department of Environmental Health
WQ Division - DEQ

2146 NE 4th Street
Suite 104
Bend, OR 97701
(503) 388-6146

Dear Mr. Rich:

This letter is to appeal the decision Re:
WQ-IOSW Variance Denial
TWP 18, R. 47, Sec. 10;
Tax Lot 4100 and 4400
1250 S.E. 13th Ave., Ontario

as allowed by OAR 340-71-440

We feel that we should be allowed to use the current drainfield. We have been advised that we can rout out and backflush the existing drainpipe and pump out the septic tank to render it serviceable. We would fill in the temporary pit, returning to our existing system. We would have done this when the problem first occurred but were seeking to improve the property and did not expect our request for variance to take so long to be answered. Digging a new well poses the additional problem of its location being in an area that would be under the street at such a time as street improvements occur. Hooking up to city services has been estimated at $19,300. Our property has been assessed at $14 550. Should our existing system fail, we would then have to abaandon it and remove the house from the property as we can neither afford nor justify an investment which is more than the value of the property and which would not increase the value of the property.

Sincerely,

Mrs. William P. Bones Jr.

Mrs William P. Bones Jr.

Oregon

March 28, 1995

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

EASTERN REGION
Bend Office

William and Rosemary Bones
402 King Avenue
Nyssa, Oregon 97913

Re: WQ-IOSWW-Variance Denial
Twp.18, R.47, Sec.10; Tax Lot 4100 & 4400
1250 S.E. 13th Ave., Ontario

This correspondence confirms that a variance hearing was held regarding your application for variance from the Oregon Administrative Rules (OAR) for On-Site Sewage Disposal pertaining to the above referenced property.

The subject property is within a subdivision located along the southeast part of the City of Ontario. The lot is 0.4 acre in size and is bordered on three sides by similar developed properties and fronted by 13th street. A well is located on the property such that a 100 foot setback from the well encompasses almost the entire lot area, leaving virtually no area in which to install a sewage disposal system that would satisfy setback requirements to the existing well.

The City of Ontario sewerage system is both legally and physically available within 300 feet of the property.

The old, existing system has failed in the past. The house is currently served by a substandard seepage pit type system as an interim emergency repair system authorized by the Malheur County Health Department.

The hearing was conducted on August 11, 1994 to consider your request for the Department to waive certain rules which govern the proposed construction of a replacement sewage system on the subject property. Your proposed options sought variance from the following rules:

Option 1, Sub-option 1A and Option 2:

OAR 340-71-160 (5) (f) (A) (i) and (B); which states: "Upon receipt of a completed application the Agent shall deny the permit if a sewerage system which can serve the proposed flow is both legally and physically available for a single family dwelling, or other establishment with a maximum projected daily sewage flow of not more than four hundred fifty (450) gallons, and is within three hundred (300) feet. A sewerage system shall be deemed legally available if the system is not under a Department connection permit moratorium, and the sewerage system owner is willing or obligated to provide sewer service".

2146 NE 4th Street
Suite 104
Bend, OR 97701
(503) 388-6146

Option 1 and Sub-option 1A:

OAR 340-71, Table 1, item 1; which requires that there be a minimum setback of 100 feet between a sewage disposal area and groundwater supplies.

Option 1

OAR 340-71-280 (3) (a); which states: "The seepage trench may have a maximum depth of forty-two (42) inches".

Also germane to this variance request is the consideration of Oregon Revised Statute 454.655 (4); which states: "No permit (on-site sewage system construction permit) shall be issued if a community or area-wide sewerage system is available which will satisfactorily accommodate the proposed sewage discharge".

In accordance with your written application, your variance proposal consists of the following options:

Option 1: Utilize the existing septic tank. Install a seepage trench drainfield approximately 120 feet in length and at a depth of 69 inches.

Sub-option 1A: Install a new dosing septic tank system to serve a new seepage trench drainfield approximately 120 feet in length to a depth not to exceed 42 inches.

It is proposed that the entire drainfield for these options would be installed within the required 100 foot setback from the well on the subject property. That is, the required setback of 100 feet could not be met.

Option 2: The existing well would be abandoned. A new well would be constructed at a location which would "allow for expansion of the street to city width specifications". The existing septic tank would be relocated or abandoned. The elevation and location of the new tank would allow for the installation of a seepage trench to maximum depth allowed and "in compliance with well setback rules".

During our discussion at the hearing you advised that your primary proposal was Option 1. However, for the purposes of this variance hearing, all options were considered.

Issuance of variance to the pertinent sections of OAR Chapter 340, Division 71 and ORS 454.655 must be predicated upon sound and convincing arguments that strict compliance with rule or standard is inappropriate for cause or special physical conditions render strict compliance unreasonable, burdensome or impractical.
My decision to deny your variance request is based upon the following reasons:

Installing the seepage trench system as proposed in Option 1 would subject the local groundwater system to less than the minimum protection requirements as prescribed by applicable rules. The proposed trench depth of 69 inches and the resulting well setback of approximately 50 feet would jeopardize the quality of the local groundwater system associated with the well serving the lot.

Installing the seepage trench system as proposed in Sub-option 1A would also subject the local groundwater system to less than minimum protection as required by rule and would jeopardize the quality of the local groundwater system associated with the well serving the lot.

Option 2 was not explored or presented in sufficient detail in order to thoroughly evaluate the option in terms of placement of a new well or placement and design of a satisfactory drainfield in relation to neighboring wells and drainfields.

The subject lot is very limited in size with respect to proper and adequate placement of water supplies and on-site sewage facilities. The relative placement of neighboring facilities also imposes limitations on the amount of available area.

Adherence to the pertinent regulations of Oregon Administrative Rules, Chapter 340, Division 71 and The Oregon Revised Statute 454.655 provides for adequate protection to the local groundwater system and provides for an adequate sewage system to serve the subject lot.

There is not sufficient reason or cause to suggest that allowing the variances would be justified, or that strict compliance with rule or standard is inappropriate for cause or special physical conditions render strict compliance unreasonable, burdensome or impractical.

Due to the denial of this your variance request, you must abandon use of the sewage system that now serves the dwelling on the subject lot within 90 days of receipt of this letter. In order to continue use of the house as a residence you must provide for connection to the City sewer system that is available.

If you have any questions, please give me a call at 388-6146.

Sincerely,

Daryl Johnson R.S. Env. Spec.
Variance Officer

DJ/ns

c. Ray Huff, Malheur Co.

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

EASTERN REGION
Bend Office

March 29, 1995

William and Rosemary Bones
402 King Avenue
Nyssa, Oregon 97913

Re: WQ-IOSWW-Variance Denial
Twp.18, R.47, Sec.10;
Tax Lot 4100 & 4400
1250 S.E. 13th Ave., Ontario
Letter Addendum to Decision Letter

I neglected to include the following paragraph in my variance decision letter dated March 28, 1995.

Pursuant to OAR 340-71-440, my decision to deny your variance request may be appealed to the Environmental Quality Commission. Requests for appeal must be made by letter, and must clearly state the grounds for the appeal. The appeal must be directed to the Environmental Quality Commission, in care of Mr. Christopher Rich, Management Services Division, Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, Oregon, 97204-1390, within twenty (20) days of the certified mailing date of this letter.

Sincerely,

Daryl Johnson R.S.
Variance Officer

DJ/ns

c. Ray Huff, Malheur Co. Envir. Health

2146 NE 4th Street
Suite 104
Bend, OR 97701
(503) 388-6146

Oregon

DEPARTMENT C
ENVIRONMENTA
QUALITY

EASTERN REGION
Bend Office

January 18, 1995

William and Rosemary Bones
402 King Avenue
Nyssa, Oregon 97913

Re: WQ-IOSWW-Variance Application
Twp.18, R.47, Sec.10;
Tax Lot 4100 & 4400
1250 S.E. 13th Ave., Ontario
Malheur County

I apologize for the delay in my response to you regarding my decision to your variance request. I am endeavoring to consider all available options in light of the requested variance to the governing rules.

The purpose of this letter is to offer you the opportunity to further explore your proposed "Option 2" which included abandonment of the existing well and installing a new well. It appears that this option warrants close scrutiny as it seems to provide the greatest area for installing a disposal field that would meet required well setbacks. The placement of a new well must consider all setbacks from neighboring sewage systems, including any that may be located across 13th Avenue.

In order for me to fully consider this option, you need to provide me with a plan for the accomplishment of this option. Include the exact placement of the new well, abandonment procedures for the existing well, resulting setback boundaries, exact placement and design of the sewage system including septic tank, drainfield, and pump system if appropriate.

Please respond as soon as possible.

Sincerely,

Daryl Johnson R.S.
Environmental Specialist
Variance Officer

DJ/ns

2146 NE 4th Street
Suite 104
Bend, OR 97701
(503) 388-6146

January 30, 1994

Department of Environmental Quality
Sewage Disposal Section
811 S.W. Sixth Avenue
Portland, Oregon 97204

Dear Sirs;

Enclosed is an application for a variance for the installation of a new drainfield on our property located at 1250 S.E. 13th Avenue in Ontario. We talked with Ontario city officials and found the cost of hooking up to city sewer and water would be $25,000 plus the cost of street improvements. This is considerably more than the value of the property which is assessed at $14,550.

The present drainfield is plugged and needs immediate repairs. We appreciate your attention in this matter.

Sincerely,

CITY OF ONTARIO

444 S.W. FOURTH STREET • ONTARIO, OREGON 97914 • 503/889-7684

January 19, 1994

Re: Land Use Compatability Statement for Tax Map 18-47-10DA, Tax Lots 4100, 4400.

I have reviewed the relevant lots and have determined that the lots currently are situated within the Ontario Urban Growth Area and are zoned residential. The Ontario Urban Growth Area Agreement specifies in section 10-14-7(D)1.a. "All parcels shall require a minimum lot size of 5 acres with the following exceptions:

(1) Lots and parcels legally existing as of the effective date of this provision of Title 10 and being less than five acres in size shall retain the right ot a single family dwelling or a mobile home provided the lot or parcel meets all other standards of this ordinance and, if utilized, is approved by the responsible agency for on-site subsurface sewage disposal. . ."

The parcel in question is only .36 acres. However, it pre-exists the current Urban Growth Area agreement. Therefore, it is grandfathered in and residential use is permitted on the property.

Very Truly Yours;

Michael W. Franell
City Attorney/Planner

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY
522 S. W. FIFTH AVENUE
P.O. BOX 1760
PORTLAND, OR 97207

FOR DEQ USE ONLY

LAND USE COMPATIBILITY STATEMENT
FOR ON-SITE SEWAGE DISPOSAL SYSTEMS

APPLICANT'S NAME	MAILING ADDRESS	PHONE
William Bones	402 King Avenue Nyssa OR 97913 CITY STATE ZIP	

PROPERTY LOCATION

TOWNSHIP	RANGE	SECTION	TAX LOT OR ACCT NO
18S	47	10	4100 - 4400
SUBDIVISION/PROJECT	LOT	BLOCK	COUNTY
			Malheur

X PROPERTY IS A LOT OF RECORD CREATED BEFORE AUGUST 1, 1981.

PROPOSED LAND USE

STATEMENT OF COMPATIBILITY FROM APPROPRIATE LAND USE AUTHORITY
(An equivalent statement may be provided in lieu of this form)

PROPERTY'S ZONING DESIGNATION

Ontario UGA-Residential

THE ABOVE PROPOSAL HAS BEEN REVIEWED AND FOUND TO BE:

X COMPATIBLE WITH THE LCDC ACKNOWLEDGED COMPREHENSIVE PLAN
☐ NOT COMPATIBLE WITH THE LCDC ACKNOWLEDGED COMPREHENSIVE PLAN

OR

☐ CONSISTENT WITH THE STATEWIDE PLANNING GOALS
☐ NOT CONSISTENT WITH THE STATEWIDE PLANNING GOALS

REASON FOR FINDING OF COMPATIBILITY/INCOMPATIBILITY

PROPERTY IS LOCATED (CHECK ONE)

☐ INSIDE CITY
X INSIDE URBAN GROWTH BOUNDARY OUTSIDE CITY LIMITS
☐ OUTSIDE URBAN GROWTH BOUNDARY

LAND USE AUTHORITY

Malheur County and City of Ontario

SIGNED	TITLE	DATE
Jon D Beal	Planning Director	1/18/94

☐ CITY/COUNTY CONCURRENCE IF INSIDE URBAN GROWTH BOUNDARY

SIGNED	TITLE	DATE
X See attached		

DEQ-1C 5/83

Included with this soil in mapping were about 10 percent Garbutt soils, about 5 percent Quincy soils, and about 5 percent Cencove soils.

Runoff is slow, and the hazard of erosion is moderate. Capability unit IIe-2.

Umapine series

The Umapine series consists of somewhat poorly drained soils that formed on bottom lands and low terraces in medium textured old alluvium. Slopes are 0 to 2 percent. Elevation is 2,100 to 2,600 feet. The native vegetation was saltgrass, giant wildrye, and greasewood. Average annual precipitation is 9 to 11 inches, average annual air temperature is 48 degrees to 54 degrees F, and the frost-free period is 120 to 170 days.

In a representative profile, the surface layer is pale brown silt loam about 11 inches thick. The upper part of the underlying material, to a depth of 23 inches, is very pale brown silt loam, and the lower part is light gray silt loam to a depth of 60 inches. The soil is very strongly alkaline above a depth of 6 inches, strongly alkaline between depths of 6 and 23 inches, and moderately alkaline below a depth of 23 inches.

Permeability is moderately slow. Available water capacity is 7 to 12 inches. Effective rooting depth is 60 inches or more. A seasonal water table is at a depth of 2 to 5 feet in winter and spring. Rare flooding occurs during spring runoff.

These soils are used for irrigated small grain, alfalfa hay, pasture, and wildlife habitat.

Representative profile of Umapine silt loam about 20 feet northeast of 1/16 corner SE1/4NE1/4 section 1, T. 19 S., R. 44 E.:

A11—0 to 2 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 3/3) moist; weak very fine granular structure; soft, very friable, nonsticky and plastic; many fine and coarse roots; many fine round pores; strongly calcareous; very strongly alkaline; abrupt smooth boundary.

A12—2 to 6 inches; pale brown (10YR 6/3) silt loam, dark brown to brown (10YR 4/3) moist; strong thin platy structure; soft, very friable, slightly sticky and plastic; many fine and coarse roots; many fine tubular pores; strongly calcareous; very strongly alkaline; abrupt smooth boundary.

A13—6 to 11 inches; pale brown (10YR 6/3) silt loam, dark brown to brown (10YR 4/3) moist; moderate thick platy structure; soft, very friable, slightly sticky and plastic; many fine and coarse roots; many fine tubular pores; strongly calcareous; strongly alkaline; gradual wavy boundary.

C1—11 to 23 inches; very pale brown (10YR 7/3) silt loam, dark brown to brown (10YR 4/3) moist; weak coarse prismatic structure; soft, very friable, slightly sticky and plastic; many fine and coarse roots; many fine tubular pores; strongly calcareous; strongly alkaline; abrupt smooth boundary.

C2—23 to 30 inches; light gray (10YR 7/2) silt loam, dark brown (10YR 3/3) moist; massive; hard, friable, slightly sticky and plastic; few fine roots; few fine tubular pores; 50 percent rounded 1/4- to 1/2-inch silica- and calcium-cemented nodules; strongly calcareous; moderately alkaline; gradual wavy boundary.

C3—30 to 60 inches; light gray (10YR 7/2) silt loam, dark brown (10YR 3/3) moist; massive; hard, friable, slightly sticky and plastic; few fine roots; few fine tubular pores; strongly calcareous; moderately alkaline.

The A horizon has a value of 5 or 6 when dry and 4 or 5 when moist and a chroma of 2 to 3. It is silt loam, very fine sandy loam, or fine sandy loam. The upper 40 inches is moderately to very strongly alkaline. Content of exchangeable sodium exceeds 15 percent in the upper 20 inches. These soils are calcareous in all parts between depths of 10 and 20 inches.

34—**Umapine silt loam.** This soil is in irregularly shaped areas on bottom lands and low terraces.

Included with this soil in mapping were about 10 percent Stanfield soils and about 5 percent Powder soils.

Runoff is slow, and the hazard of erosion is slight. Capability unit IIIw-1.

Virtue series

The Virtue series consists of well drained soils that formed on terraces in medium textured old alluvial material over a cemented hardpan. Slopes range from 0 to 20 percent but are generally less than 8 percent. Elevation is 2,300 to 2,600 feet. The native vegetation was bluebunch wheatgrass, Sandberg bluegrass, and big sagebrush. Average annual precipitation is 9 to 11 inches, average annual air temperature is 48 degrees to 52 degrees F, frost-free period is 110 to 140 days.

In a representative profile, the surface layer is light brownish gray and pale brown silt loam about 14 inches thick. The subsoil is yellowish brown silty clay loam about 12 inches thick. An indurated, silica-lime hardpan is at a depth of about 26 inches. The soil is neutral in the upper 5 inches, mildly alkaline between depths of 5 and 24 inches, and moderately alkaline below a depth of 24 inches.

Permeability is moderately slow. Available water capacity is 5 to 8.5 inches. Effective rooting depth is 20 to 40 inches.

These soils are used for irrigated small grain, alfalfa seed, alfalfa hay, occasional row crops, and wildlife habitat.

Representative profile of Virtue silt loam, 0 to 2 percent slopes, about 400 feet west of gravel pit, 200 feet south of fence, NW1/4NW1/4 section 12, T. 17 S., R. 43 E.:

A1—0 to 5 inches; light brownish gray (10YR 6/2) silt loam, dark brown (10YR 3/3) moist; moderate fine to medium platy structure; soft, very friable, slightly sticky and slightly plastic; many fine roots; many fine tubular pores; neutral abrupt smooth boundary.

A3—5 to 14 inches; pale brown (10YR 6/3) silt loam, dark brown (10YR 4/3) moist; weak coarse prismatic structure parting to weak medium subangular blocky; soft, very friable, slightly sticky and slightly plastic; many fine roots; many fine tubular pores; mildly alkaline; clear smooth boundary.

B21t—14 to 19 inches; yellowish brown (10YR 5/4) silty clay loam, dark brown (10YR 4/3) moist; light gray (10YR 7/2) coatings; moderate medium prismatic structure parting to moderate fine subangular blocky; hard, firm, sticky and plastic; few coarse roots; few fine tubular pores; few thin clay films on surfaces of peds and in pores; mildly alkaline; clear wavy boundary.

B22t—19 to 24 inches; yellowish brown (10YR 5/4) silty clay loam, dark brown (10YR 3/3) moist; moderate medium subangular blocky structure; hard, firm, sticky and plastic; few coarse roots; few fine tubular pores; few thin clay films on surfaces of peds and in pores; mildly alkaline; clear wavy boundary.

William Bones - Option #1

This option would require a variance to several rules:

1. Variance to hooking up to the city.

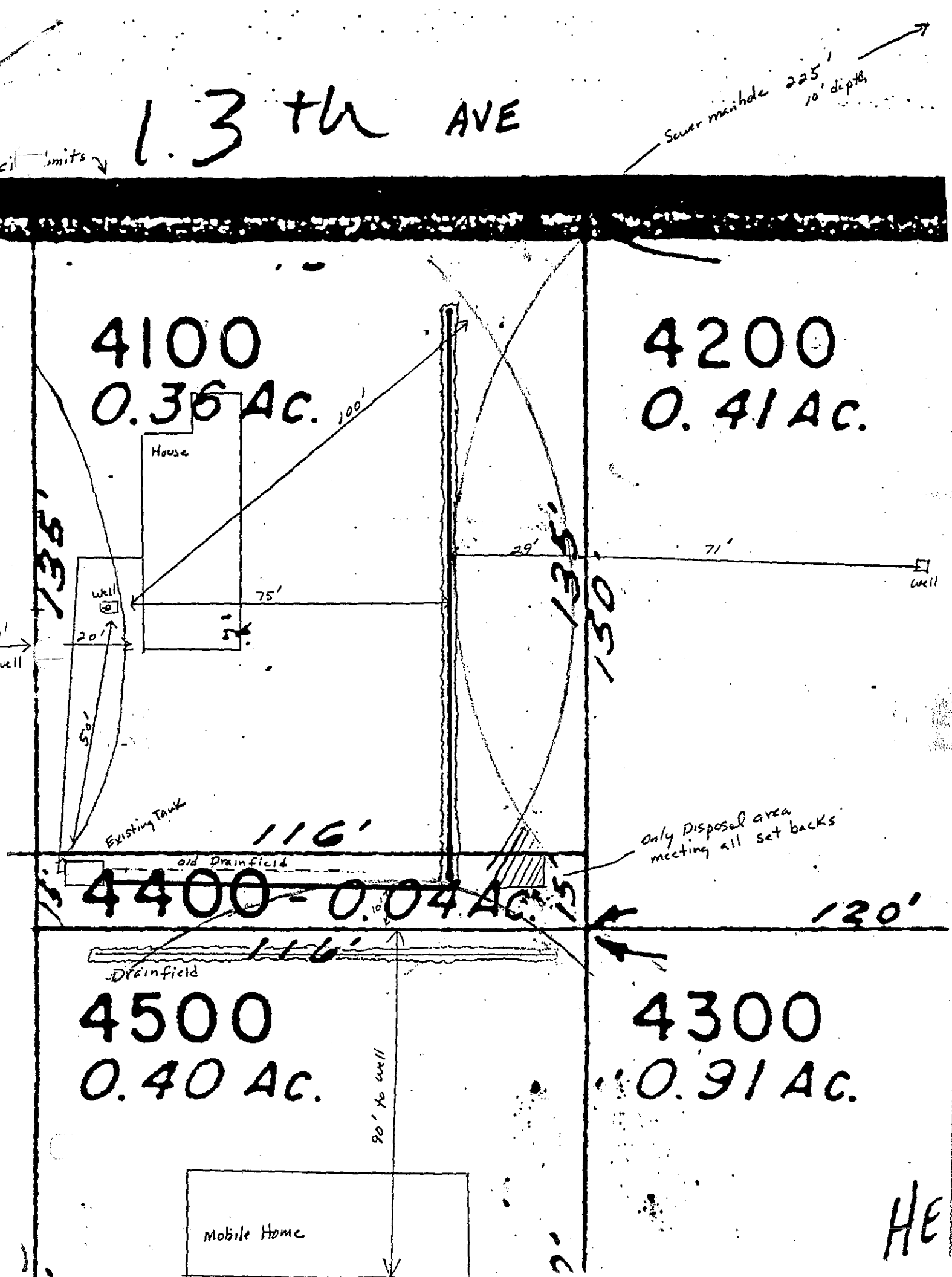
2. Variance to the 100' setback.

3. Variance to maximum depth of 42" on seepage trenches.

77 feet of solid line would be constructed to the proposed location of the seepage trench. 120' of seepage trench using 24" of rock under the pipe would be constructed. Because of existing tank elevation, the loss in grade to achieve transport of septage to the trench location would result in a maximum depth of 69".

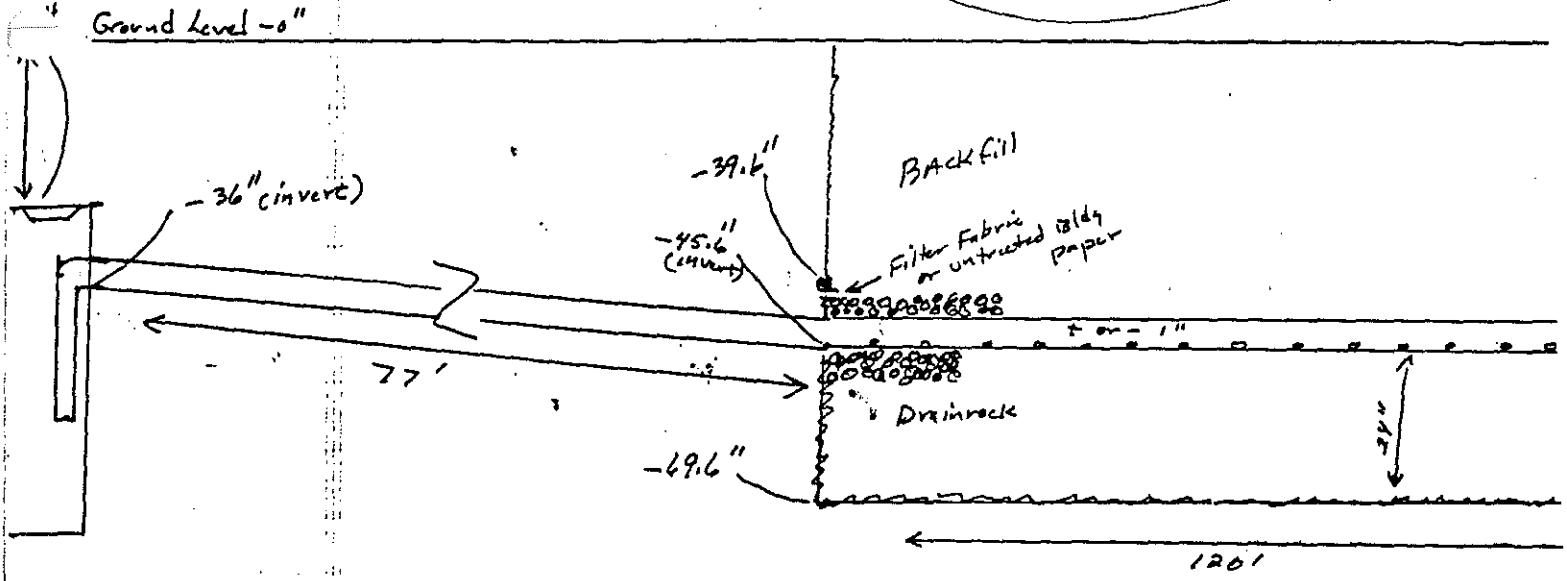
Sub-option 1A (If other variances were allowed).

Would require a dosing tank and a pump to be installed (behind the existing septic tank) allowing the seepage trench depth to be installed to meet the 42" maximum depth requirements. (See profile attachment)

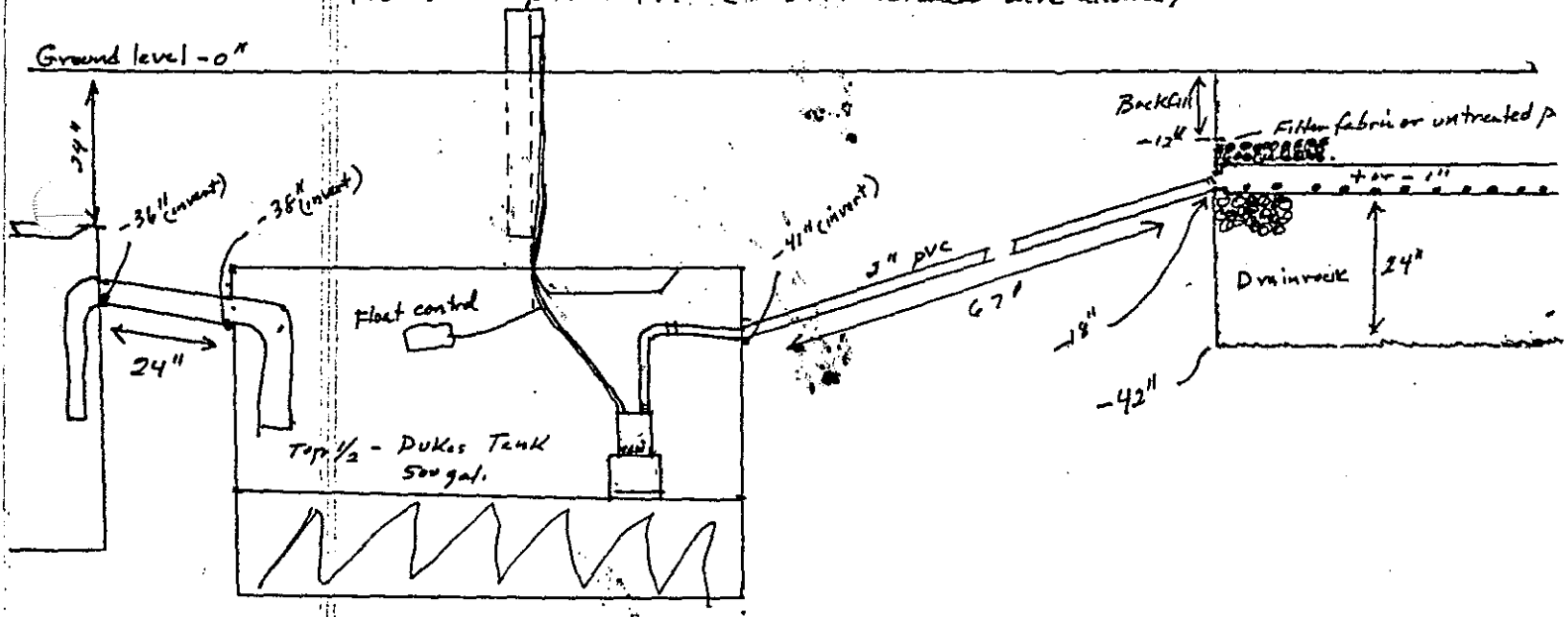

13th AVE
Sewer manhole 225' 10' depth
4100
0.36 Ac.
House
100'
135'
well
75'
20'
5'
Existing Tank
116'
old Drainfield
4400 - 0.04 Ac.
10'
Drainfield
116'
4500
0.40 Ac.
90' to well
Mobile Home
4200
0.41 Ac.
29'
71'
well
135'
130'
Only Disposal area meeting all set backs
130'
4300
0.31 Ac.
HE

D. Box

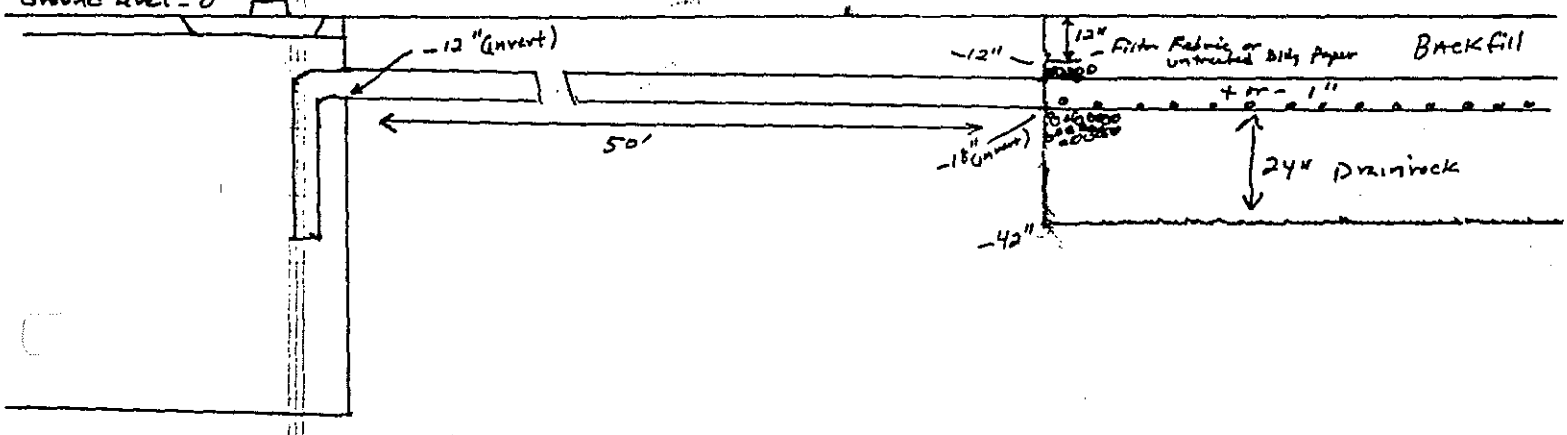
Profile - option 1 1"=30"



Profile - Option 1-A (If other variances were allowed)



Profile - Option - 2 - (Top of Tank level w/ ground surface)

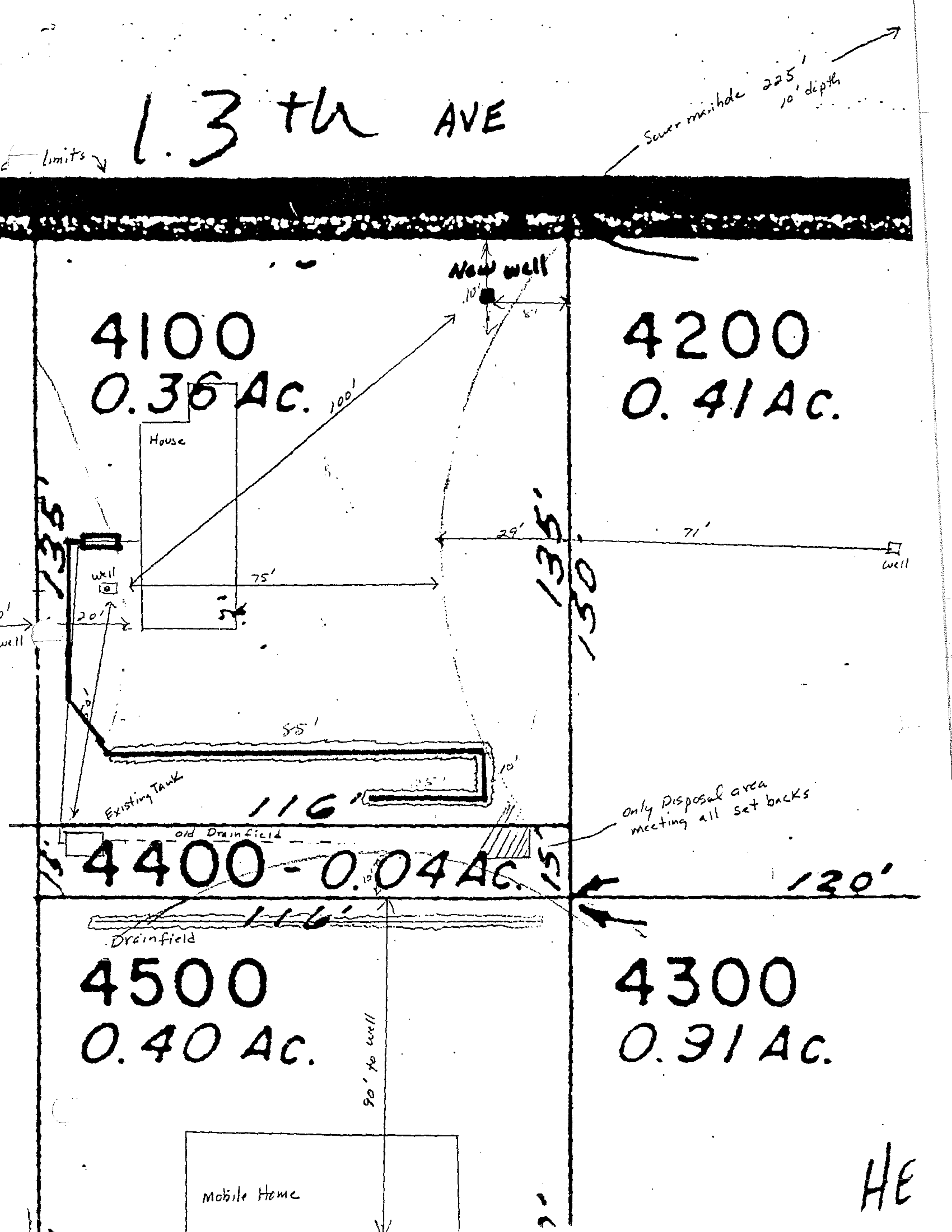


William Bones - Option 2

This option would require a variance only to hooking up to the city.

The existing water well would be abandoned. A new well would be constructed at a location prescribed to allow for expansion of the street to city width specifications.

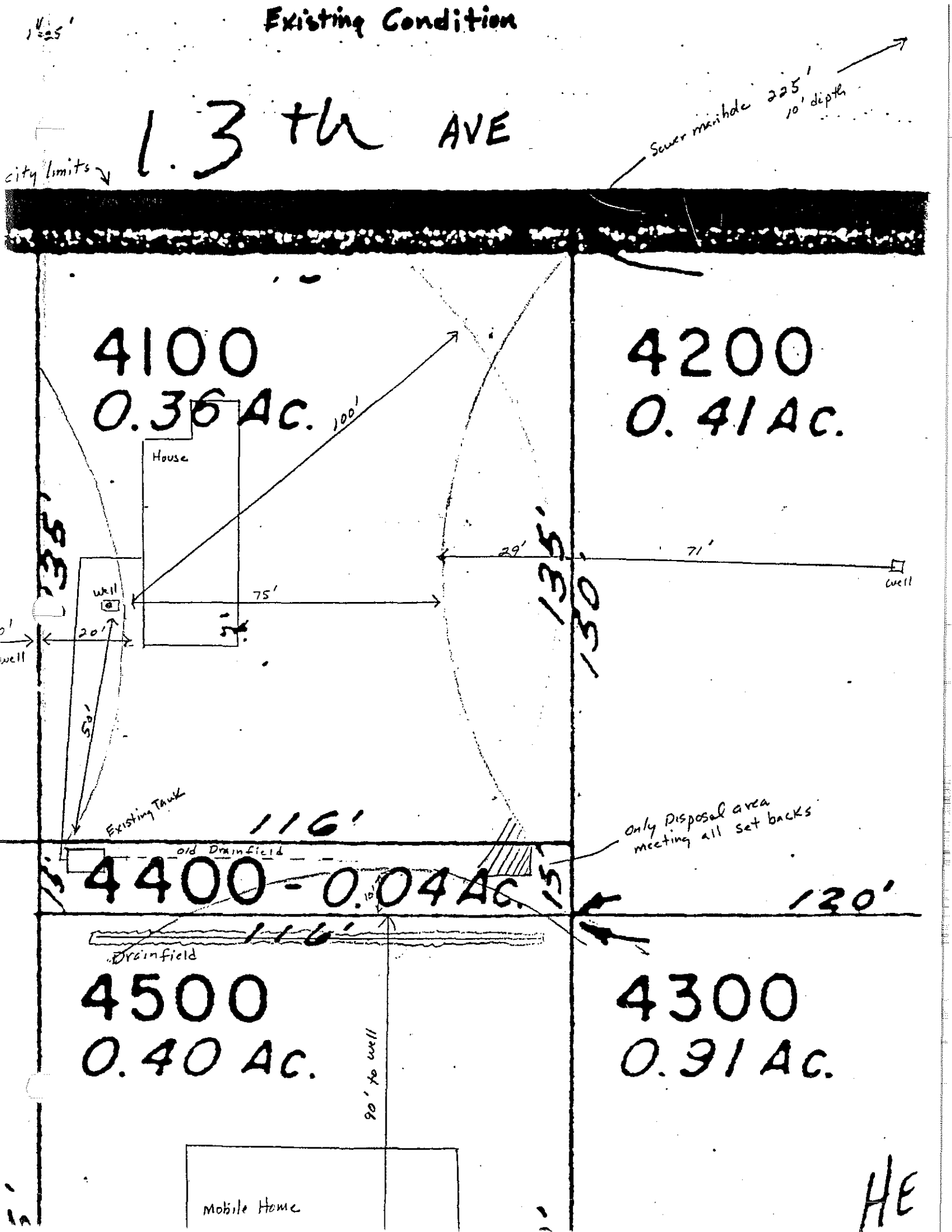
The existing septic tank would be relocated or abandoned depending on its capabilities. The elevation of the new tank location installation would be sufficiently high to allow installation of a seepage trench to maximum depth allowed and in compliance with well setback rules.
(See profile attachment)



13th AVE
limits
Sewer manhole 225'
10' depth
New well
10'
8'
4100
0.36 Ac.
100'
House
4200
0.41 Ac.
29'
71'
well
well
75'
20'
5'
135'
130'
55'
10'
35'
Existing Tank
116'
Only Disposal area meeting all set backs
old Drainfield
4400 - 0.04 Ac.
15'
120'
116'
Drainfield
4500
0.40 Ac.
4300
0.31 Ac.
90' to well
Mobile Home
HE

1" = 25'

Existing Condition



VARIANCE FACT AND FINDINGS REPORT

Re: WQ-IOSWW-Variance Denial

Name of Applicant: William and Rosemary Bones

Subject Property Description: Twp.18, R.47, Sec.10; Tax Lot 4100 & 4400
Ontario, Oregon; Malheur County

Variance Officer: Daryl Johnson

Date Application Completed: Feb. 28, 1994

Date of Variance Hearing: Aug. 11, 1994

Date of Variance Decision: March 28, 1995

Historical Site Evaluation Information:

- William Bones submitted an application, dated Jan. 5, 1994, for a permit to repair the on-site sewage system serving the house on the subject property.
- Ray Huff, Malheur Co. Environmental Health, responded to that application by letter, dated Jan, 6, 1994, stating that certain emergency measures could be taken in the form of excavating a "small pit adjacent to the septic tank to alleviate waste drainage until this problematical situation can be resolved". The letter also stated that a sewerage system is legally and physically available within 225 feet of the subject property line and that issuance of a repair permit must be denied in accordance with "OAR 340-71 (5) (f)", meaning, OAR-71-160 (5) (A) (i) and (B).
- An emergency relief measure was taken in the form of constructing a temporary pit as allowed by Malheur County.

Summary of Variance Officer's Site Observations:

- Examination of the property indicated that there was insufficient area available on the lot in which to install a replacement sewage system that would meet required setbacks from the well serving the property and from facilities on adjacent properties. Setback requirement from all concerned wells left only an area of approximately 30-50 square feet.

Summary of Applicants Proposal:

- The applicant proposed three "options" as a repair/replacement system:

Option 1: Utilize the existing septic tank. Install a seepage trench drainfield approximately 120 feet in length and at a depth of 69 inches.

Sub-option 1A: Install a new dosing septic tank system to serve a new seepage trench drainfield approximately 120 feet in length to a depth not to exceed 42 inches.

It was proposed that the entire drainfield for these options would be installed within the required 100 foot setback from the well on the subject property.

Option 2: The existing well would be abandoned. A new well would be constructed at a location which would "allow for expansion of the street to city width specifications". The existing septic tank would be relocated or abandoned. The elevation of the new tank location installation would be "sufficiently high" to allow installation of a seepage trench to maximum depth allowed and "in conformance with well setback rules ."

Summary of Rules To Be Considered For Variance:

Option 1, Sub-option 1A and Option 2:

OAR 340-71-160 (5) (f) (A) (i) and (B); which states: "Upon receipt of a completed application the Agent shall deny the permit if a sewerage system which can serve the proposed flow is both legally and physically available for a single family dwelling, or other establishment with a maximum projected daily sewage flow of not more than four hundred fifty (450) gallons, and is within three hundred (300) feet. A sewerage system shall be deemed legally available if the system is not under a Department connection permit moratorium, and the sewerage system owner is willing or obligated to provide sewer service."

Option 1 and Sub-option 1A:

OAR 340-71, Table 1, item 1; which requires that there be a minimum setback of 100 feet between a sewage disposal area and groundwater supplies.

Option 1:

OAR 340-71-280 (3) (a); which states; "The seepage trench may have a maximum depth of forty-two (42) inches."

Variance Officer's Evaluation:

Installing the seepage trench system as proposed in Option 1 would subject the local groundwater system to less than the minimum protection as prescribed by groundwater supply setback requirements in applicable rules. The proposed trench depth of 69 inches and the resulting well setback of approximately 50 feet suggests that the quality of the local groundwater system would be jeopardized.

Installing the seepage trench system as proposed in Sub-option 1 would likewise subject the local groundwater system to less than the minimum protection as prescribed by setback requirements in the applicable rules and jeopardize the quality of the local groundwater system.

The applicant was informed, by letter dated Jan. 18, 1995, that an opportunity was being afforded to the applicant to further explore the option 2 as the most viable option. This letter requested that the applicant provide the following additional information in support of this option.

- The exact placement of the new well, abandonment procedure for the existing well, resulting setback boundaries, exact placement and design of the sewage system and septic tank, drainfield and pump system. As of the date of this report and the variance decision letter, there has been no response from the applicant in this regard.

Option 2 was not explored or presented in sufficient detail by the applicant for thorough evaluation of the option in terms of placement of a new well or placement and design of a satisfactory drainfield in relation to neighboring wells and drainfields.

The subject lot is insufficient in size with respect to adequate placement of water supplies and on-site sewage facilities. The relative placement of neighboring facilities also imposes extreme limitations on the amount of available area.

Adherence to the pertinent regulations of Oregon Administrative Rules, Chapter 340, Division 71 and The Oregon Revised Statute 454.655 provides for adequate protection to the local groundwater system and provides for an adequate sewage system to serve the subject lot. There is not sufficient reason or cause to suggest that allowing the variances would be justified, or that strict compliance with rule or standard is inappropriate for cause or special physical conditions render strict compliance unreasonable, burdensome or impractical.

State of Oregon

Department of Environmental Quality Memorandum

Date: May 2, 1996

To: Environmental Quality Commission

From: Langdon Marsh, Director

Subject: Agenda Item H, Calvin and Annette Van Der Veen dba C&A Dairy, Case No. WQAW-NWR-93-126 - Appeal of Hearing Order Regarding Violation and Assessment of Civil Penalty, EQC Meeting May 17, 1996

Background

Calvin and Annette Van Der Veen (hereinafter "Appellant") have owned a dairy farm in Yamhill County since 1973. In 1990, appellant received a Confined Animal Feeding Operation Permit. The permit does not allow discharge of waste into the waters of the state. The farm has a seasonal stream flowing through it, which empties into Baker Creek. The stream is spanned by a bridge used for cattle crossing, on appellant's property. The cattle crossing is approximately 800 feet from the manure tank.

On April 29, 1993, an inspector from Yamhill County Soil and Water Conservation District inspected appellant's property after receiving a complaint from a neighbor. The inspector took samples from the stream including where the stream left appellant's property and several places downstream. The inspector did not take a sample of the water as it entered appellant's property nor did he take any samples above the cattle crossing. The fecal coliform counts increased significantly as the stream flowed through the appellant's downstream neighbor's property.

The inspector returned to the property the next day. The inspector walked the property with the appellant and inspected the manure storage tank and stream through the farm. The inspector also noticed that either the storage tank or pipeline has overflowed at some time and left manure residue on the ground. After this visit, the inspector completed a Confined Animal Feeding Operation Investigation Report which stated that the water leaving the farm was greenish brown or brown in color and that the water in the stream above the cattle crossing was clear.

The appellant's property is downstream from several residences which rely on septic systems for disposal of human waste. During the month of April, 1993, Yamhill County received 6.29 inches of rain. The average rainfall for the same period in the area is 2.44 inches.

During February 1993, the manure storage tank and the aboveground waste transfer line leaked or overflowed due to heavy rainfall. A Notice of Permit Violation was issued on April 21, 1993. The appellant informed the Department that the discharge was a one time event and that the necessary repairs were made immediately after the leak was discovered.

On July 22, 1993, a Notice of Assessment of Civil Penalty was sent to the appellant regarding the April 29th and 30th inspection of the property. Since a Notice of Permit Violation was issued within the prior 36 months, the appellant was liable for a civil penalty assessment. The Notice assessed a civil penalty in the amount of $1000. Appellant appealed the Notice on August 20, 1993.

The matter was referred to a hearings officer for conducting a hearing. A meeting was held on April 4, 1994. At this meeting, the Department agreed to suspend action on the penalty if the appellant performed various requirements to remedy the problems using Best Management Practices as outlined in a June 3, 1994 letter to appellant from Randy Van Hoy of the Department of Agriculture. On July 15, 1994, appellant sent a letter to the Department stating that the requirements had been completed and that the Best Management Practices could be incorporated into his dairy farm operation. Appellant had only installed a few of the measures since he wanted assurances that the Department would not pursue the penalties.

The Department reserved the discretion to pursue the penalty and did so in 1995. An evidentiary hearing was held on November 20, 1995 before Lawrence S. Smith. Mr. Smith held that the appellant discharged waste into the waters of the state and was liable for the $1000 civil penalty. Due to the assessment of a civil penalty, appellant will be liable for a fee increase from $25 per year to $1000 per year for a discharge permit during the next three years. Mr. Smith concluded that, although there may have been other possibilities for the pollution of the stream such as overloaded septic systems, the Department did not need to prove beyond a reasonable doubt that the fecal coliform count was due to runoff from appellant's farm. On January 11, 1996 appellant appealed the Hearing Order Regarding Violation and Assessment of Civil Penalty.

Appellant is contending that (1) the fecal coliform in the stream was not from his farm, but instead was from the septic systems above his property and (2) the stream was brownish in color due to the cattle crossing the stream by the bridge. In 1988, the appellant had lab tests conducted on the stream. The report concluded that the dairy was not impacting the creek and that any fecal coliform was from human waste.

Authority of the Commission with Respect to the Issue

OAR 340-11-132; ORS 183.413 *et seq.*

Alternatives and Evaluation

The Environmental Quality Commission can either uphold or reverse either part or all of the Hearing Order Regarding Violation and Assessment of Civil Penalty.

Attachments

1. Letter from Susan M. Greco, dated April 4, 1996
2. Appellant's Reply Brief, dated March 29. 1996
3. Department's Answering Brief, dated March 11, 1996
4. Appellant's Exception to Hearing Order, dated February 12, 1996
5. Notice of Appeal, dated January 11, 1996
6. Hearing Order Regarding Violation and Assessment of Civil Penalty, dated December 13, 1995
7. Exhibits from hearing on November 20, 1995 as follows: (identified as Exhibits 1 through 13)
   a. Confined Animal Feeding Operation Investigation Report, dated April 30, 1993
   b. Notice of Assessment of Civil Penalty, dated July 22, 1993
   c. Letter to Department of Environmental Quality from Calvin Van Der Veen, dated August 17, 1993
   d. Letter to Department of Environmental Quality from Calvin Van Der Veen, dated July 15, 1994
   e. Notice of Hearing, dated March 11, 1994
   f. Notice of Hearing, dated September 14, 1995
   g. Notice of Postponement of Hearing, dated October 18, 1995
   h. Notice of Hearing, dated October 26, 1995
   i. Letter to Calvin Van Der Veen from U.S. Department of Agriculture, dated June 3, 1994
   j. Pictures, dated April 29, 1993
   k. Lab Results, dated May 3, 1988
   l. Notice of Permit Violation, dated April 19, 1993
   m. Letter to Department of Environmental Quality from Calvin Van Der Veen, dated April 29, 1993

Reference Documents (available upon request)

ORS Chapter 183 and Chapter 468B
OAR Division 11 and Division 41

Report Prepared By: Susan M. Greco
Phone: (503) 229-5213
Date Prepared: May 2, 1996

Oregon

DEPARTMENT OF ENVIRONMENTAL QUALITY

April 4, 1996

Calvin and Annette Van Der Veen
13949 Pheasant Hill Road
McMinneville OR 97128

Ed Druback
Department of Environmental Quality
2020 SW 4th, 4th Floor
Portland OR 97201

RE: Calvin and Annette Van Der Veen
Case No. WQAW-NWR-93-126

Dear Mr. and Mrs. Van Der Veen and Mr. Druback:

The appeal by Mr. and Mrs. Van Der Veen has been set for a regularly scheduled Environmental Quality Commission meeting on Friday, May 17, 1996. The meeting will convene at 8:30 a.m. and the appeal will be heard in the regular course of the meeting. The meeting will be held at 811 S.W. 6th Avenue, Portland, Oregon in Conference Room 3A. Each side will be allowed 5 minutes to present their case to the Commission. As soon as an agenda is available for the meeting, I will forward the same to you.

If you should have any questions or need special accommodations, please feel free to call me at (503) 229-5213 or (800) 452-4011 ext. 5213 within the state of Oregon.

Sincerely,

Susan M. Greco
Rules Coordinator

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

DEQ-1

March 27, 1996

RECEIVED
APR 1 1996

Susan Greco, Rules Coordinator
Management Services Division
Department of Environmental Quality
811 SW 6th
Portland, OR 97204

Re: Appeal to the Environmental
Quality Commision
Case No. WQAW-NWR-93-126

REPLY BRIEF

I am sending a reply brief to the Enviromental Quality Commission in response to Mr. Druback's answering brief of March 11, 1996.

THANK YOU

Calvin Van Der Veen

Calvin Van Der Veen
13949 N.W. Pheasand Hill Road
McMinnville Or. 97128

3-29-96

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

IN THE MATTER OF: REGARDING	)	HEARING ORDER
	)	VIOLATION AND
CALVIN AND ANNETTE VAN DER VEEN dba C & A DAIRY	))	ASSESSMENT OF CIVIL PENALTY
	)	No. WQAW-NWR-93-126
	)	YAMHILL COUNTY

In regard to Item 3 of Mr. Druback's statement of a hearing before Linda Zucker on April 19,1994, ***the hearing was not held***, but a meeting of all parties was held and I complied with the terms of the meeting. I did not receive an answer from DEQ in regard to my July 15, 1994 letter. The July 15, 1994 letter stated I had completed the requirements of the April 19, 1994 meeting. I was waiting for some correspondence from DEQ in regard to the July 15,1994 letter. A copy of the letter is enclosed. No agreement was ever offered to suspend the civil penalty. A copy of the April 19,1994 meeting is enclosed. Mr. Druback offered to reduce the penalty to $500 but the state would not drop their assessment of increasing my CAFO Permit from $25 yearly to $1000 yearly for 3 years. A reduction from $4000 to $3500 for waste discharge I did not commit does not make any sense.

In regard to the Departments Response the following is my reply:

1. On April 29,1993 we were pasturing cattle , no cattle were in the barns. Mr. O'Reilly reported the water upstream from the cattle crossing was clear and the water down stream form the cattle crossing was cloudy.

No manure tank was over flowing or manure transport line broken. The water in the water way was clear in all areas parallel to the manure line and manure tank. Map enclosed showing seasonal stream, manure tank and transport line. ***This is a situation of pasturing cattle not a CAFO Permit facility problem.***

No water samples were taken as the water came onto our property and only one sample was taken as the water left our property. I think the fecal coliform came from my upstream neighbors. The area upstream from our property is developed with 2 1/2 acre home sites. Some home sites are older and I think their septic systems discharged the fecal coliform, I cannot be responsible for my neighbors.

The water went through our property, Mr. O'Reilly took one sample as the water left our property. Mr. O'Reilly than took a sample as the water went under the public road. The sample from under the road showed 500,000 fecal coliform. When the water went downstream, through my neighbor's property (Mr. Boyer-the Compaintant) the count increased to 1,300,000. What are my neighbors doing? I can not be responsible for their property. This is an open drainage system.

2. I think we proved beyond a reasonable doubt the fecal coliform came from a source other than the dairy facility.

a. No sample taken as water entered our property.

b. The counts greatly increase as the water goes downstream through my neighbors property downstream from the dairy.

3. On November 20. 1995 when Mr. Smith held the hearing he did not take into consideration no water samples were taken as the water came onto our property. Mr Smith did not give reasonable consideration to the fact the count greatly increased as it went through my neighbors downstream property. What did my neighbor add to the water?

4. Talking to a microbiologist we were informed fecal coliform can come from many sources not just one source. This is an open ditch not a closed drainage system.

CONCLUSION:

We are asking the Environmental Quality Commission to overturn the Hearing Officer's Final Order and Judgement of November 20,1995.

THANK YOU

Calvin VanDerVeen

Calvin Van Der Veen
13949 N.W. Pheasant Hill Road
McMinnville, Or 97128

3-29-96

CALVIN VANDERVEEN, C & A DAIRY HEARING AT DEQ
April 19, 1994

This is uh April 19, 1994, we are in uh DEQ offices in Portland, Oregon. This is the time and place scheduled for doing an appeal of Calvin Vanderveen doing business as C & A Dairy. My name is Linda Zucker and I am the Environmental Quality Commission's Hearings Officer, uh I have been here for the last two hours with members of DEQ staff, uh Ed Druback, uh Van Kollias, and Brian Altman you know who is officially um on the record of a DEQ Hearing and uh for part of the time Nancy Couch was here um. Also present are Mr. Vanderveen and an Annette Vanderveen who is a co-owner of C&A Dairy. On behalf of the Oregon Department of Agriculture Alan Youse and David Wilkinson and uh there is a Yamhill uh Soil and Water Conservation District Dean O'Reilly uh a Jim Krahn uh of the uh Oregon Dairy Farmers Association is also present and has participated. We have for the last two hours been discussing a process by which we can assure compliance with uh uh Oregon's environmental laws um and the most effective way possible and have determined uh that this is how we are going to proceed.

uh We will not conduct an evidentiary hearing at this time. Rather uh we will abate this hearing scheduling uh conditioned on Mr. Vanderveen within two weeks from today making uh application to uh Soil Conservation Service um in whatever form and sufficiency they require for an assessment of the management practices related to uh the violation here, the discharge giving rise to the alleged violation specifically uh with a view to those uh uh contemplated uh uh sources of violation or causes of violation which are checked in the uh report submitted by uh Mr. O'Reilly uh and dated pardon me (another voice - sounded like Dean O'Reilly saying Yamhill Soil and Water Conservation District) uh Yamhill Soil and Water Conservation District. The report which I will now make an exhibit uh with that exception uh Exhibit 1 at Page 6 checked "possible sources or causes as unusual weather conditions, waste transfer lines leached
or broken, accumulated solids not removed from storage structure, or a combination of those.

And continuing on Page 7 - open ditches uh containing some manure or failure to properly operate or maintain the wastewater facility, or a combination of those items. So he will uh Mr. Vanderveen will request an evaluation of those potential sources of discharge or contamination and uh he will be back within two weeks; uh then when he receives uh I think it says 45 days from the time he receives the requested assessment, he will submit to DEQ uh a proposal as to whether and how he will implement that and the proposal will be based on the requirements of the Oregon Animal Waste Installation Guidebook. Uh at that point um what we anticipate is that um if he is prepared to uh proceed according to the recommendations of the assessment in a way that is satisfactory to DEQ, uh DEQ will recommend to its Director uh an appropriate course of action which at this point since we cannot speak for him, we can only contemplate what includes the penalty assessment. But uh Mr. Vanderveen does have the choice at that juncture whether to proceed; DEQ will have the choice whether to proceed; and they can certainly talk again to discuss what we will do and uh then develop a formal settlement if we are able to come to one. If uh either DEQ or Mr. Vanderveen is unable to agree to uh if they cannot agree upon a satisfactory solution, we will then conduct the hearing that was scheduled to occur today uh and we will expect the uh Soil and Conservation uh District to take an upstream sample of an upstream and on-site and a downstream sample of the water uh the discharges in a way similar to the ones that were taken to establish the penalty. And uh they will do it at a, in a time that would adequately reflect upstream sources of contamination.

Something different you want me to say, Mr. Vanderveen? (Voice of Mr. Vanderveen: "I just have one comment - that stream is a seasonal stream.") And so the sample would have to be taken when? (Mr. Vanderveen: "Any time from November to about uh April".) Well we just incorporated that into the plan. Uh first of all, Ed Druback, uh our DEQ representative - do you have uh something to add? (Voice of Ed Druback: "I have nothing at this point in time - you

probably should take a sample now rather than I mean if it's flowing Calvin Vanderveen interrupted Druback at this point and said, "It is dry - we haven't had any rain for awhile".) OK, you may take it as often as you like. OK.

Does anyone else have something they think you should add? OK - then first of all, I cannot tell you how impressed I am with the thoughts in this with which you have all proceeded and I know it's very stressful. I appreciate it. Thank you very much. We will conclude this hearing.

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 2
To Dean O'Reilly	From Dave Wilkinson
Co. Yamhill SWCD	Co. ODA
Dept.	Phone # 378-3810
Fax # 472-2459	Fax # 378-2570

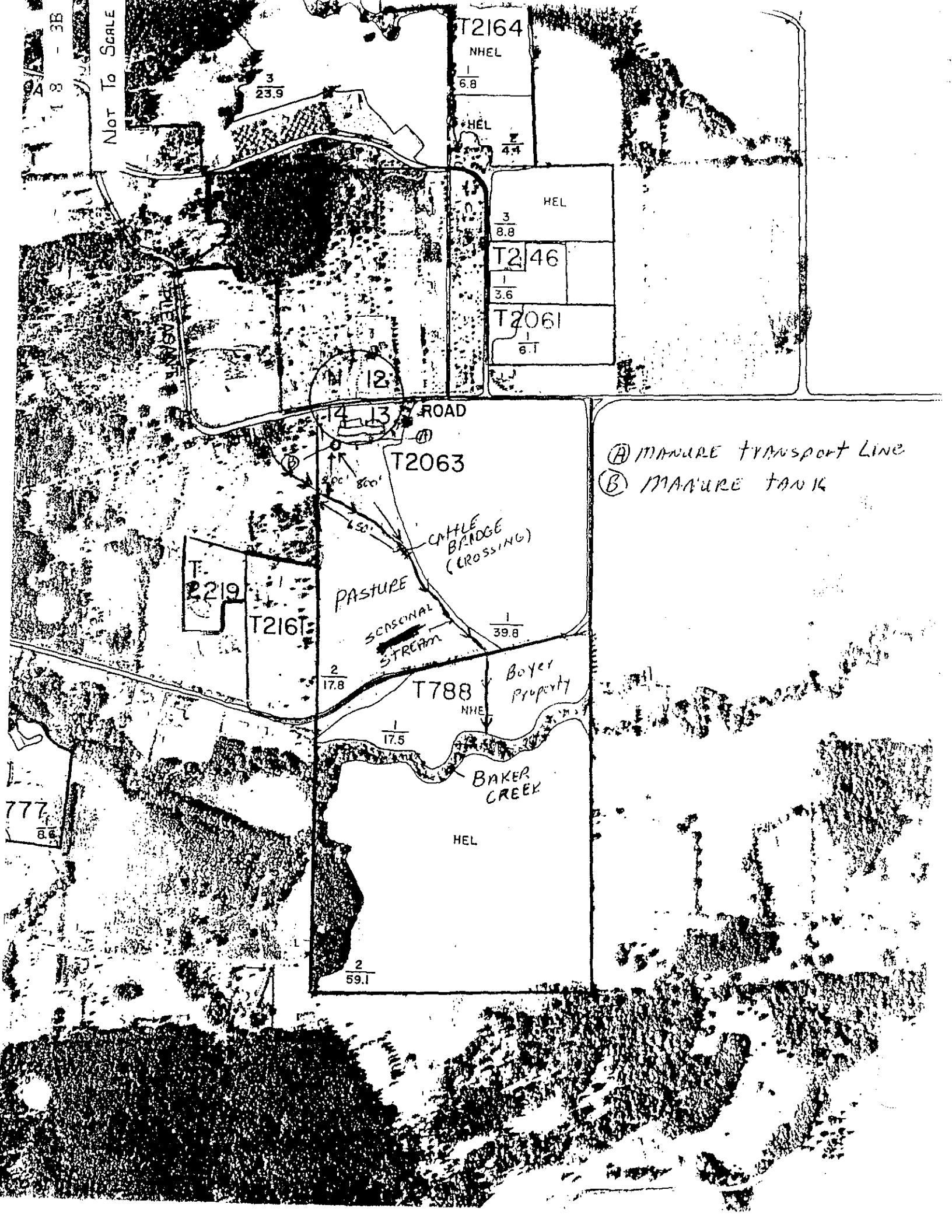
7-15-94

Notice of Assessment of
Civil Penalty
No. WQNW-WVR-93-084
Yamhill County

DEQ of the State of Oregon:
Linda Zucker, Hearing Officer:

In regard to the meeting of April 19, 1994, all requirements have been completed. I have reviewed the Best Management Practices, from the Oregon Animal Waste Installation Guidebook, with Dean O'Reilly of Yamhill Soil and Water. We can incorporate Best Management Practices into our operation.

Thank You
Calvin Van Der Kar
13949 Pleasant Hill Rd.
McMinnville, Oregon 97128


NOT TO SCALE
T2164
NHEL
1/6.8
HEL
2/4.4
3/23.9
HEL
3/8.8
T2046
1/3.6
T2061
1/6.1
12
14
13
ROAD
T2063
(A) MANURE TRANSPORT LINE
(B) MANURE TANK
800'
450'
CATTLE BRIDGE (CROSSING)
T2219
T2161
PASTURE
SEASONAL STREAM
1/39.8
2/17.8
T788
NHEL
Boyer Property
1/17.5
BAKER CREEK
HEL
2/59.1
8.6

Oregon

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DEPARTMENT OF ENVIRONMENTAL QUALITY

ENFORCEMENT SECTION

March 11, 1996

Susan Greco, Rules Coordinator
Management Services Division
Department of Environmental Quality
811 SW 6th
Portland, OR 97204

Re: Appeal to the Environmental Quality Commission
In the Matter of: Calvin Van der Veen
Case No. WQAW-NWR-93-126
Yamhill County

Enclosed is the Department's Answering Brief in regards to the above referenced case. Please file our Answer with the Environmental Quality Commission in response to the appeal and exceptions submitted by Calvin Van der Veen on February 14, 1996.

Sincerely,

Ed Druback
(Former) Environmental Law Specialist
Enforcement Section

cc: Calvin Van der Veen
Van Kollias, Enforcement Section

2020 SW Fourth Avenue
Suite 400
Portland, OR 97201-4987
(503) 229-5528
TTY (503) 229-5471
DEQ-1

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

IN THE MATTER OF: CALVIN VAN DER VEEN, and ANNETTE VAN DER VEEN, dba C & A DAIRY	DEPARTMENT'S ANSWERING BRIEF TO CALVIN VAN DER VEEN'S APPEAL TO THE ENVIRONMENTAL QUALITY COMMISSION NO. WQAW-NWR-93-126

The Department of Environmental Quality requests that the Environmental Quality Commission uphold the Hearing Officer's Final Order and Judgment regarding Notice of Assessment of Civil Penalty No. WQAW-NWR-93-126.

1. On July 22, 1993, the Department of Environmental Quality issued Notice of Assessment of Civil Penalty No. WQAW-NWR-93-126 ("Notice") to Calvin Van der Veen, doing business as C & A Dairy (C & A Dairy).

2. In its Notice, the Department assessed C & A Dairy a civil penalty for an unpermitted discharge into waters of the state. The Department alleged that C & A Dairy discharged animal wastes on or about April 29, 1993, from C & A Dairy's property into a drainage ditch which discharges into Baker Creek, waters of the state.

3. C & A Dairy appealed the Notice and, on April 4, 1994 a contested case hearing was held in front of Linda Zucker, a Hearings Officer for the Environmental Quality Commission. At the contested case hearing Calvin Van der Veen appeared for C & A Dairy, and Ed Druback, Environmental Law Specialist, represented the Department. At this hearing, the Department agreed to suspend action on the civil penalty if C & A Dairy took effective steps as outlined by the Department to address the violation.

4. The April 4, 1994 hearing was continued on November 20, 1995 and was held in front of Lawrence S. Smith, a Hearings Officer for the Environmental Quality Commission. At the contested case, hearing Calvin and Annette Van der Veen appeared for C & A Dairy, and Ed Druback, Environmental Law Specialist, represented the Department.

5. In his Final Order, the Hearings Officer concluded that C & A Dairy discharged waste into waters of the state on April 29, 1993 and that C & A Dairy is liable for a total civil penalty of $1,000.

6. On January 12, 1996, C & A Dairy filed an appeal to the Hearing Officer's Final Order which contains six exceptions to the Hearing Officer's finding and conclusions.

II. DEPARTMENT RESPONSE

7. At the hearing, the Department presented evidence to support the Hearings Officer's conclusion that C & A Dairy discharged waste into waters of the state on April 29, 1993. The Department presented evidence in the form of testimony and lab analysis that C & A Dairy discharged waste water that contained a high fecal coliform count into waters of the state on April 29, 1993.

a. The evidence included testimony from Dean O'Reilly, a Yamhill Soil Conservation Service Representative acting as an agent for the Department of Agriculture, who observed that water in the drainage ditches running from the C & A Dairy property was green and/or brown in color. He also noted that an odor of cow fecal matter was coming from the ditch and he observed cow manure residue in the drainage way. (See, Exhibit 1, page 3, from Contested Case Hearing).

b. Mr. Reilly took samples of the water in the drainage ditches in seven locations around the property which confirmed the presence of fecal matter in the water. (See, Exhibit 1, page 12, from Contested Case Hearing).

c. Based on Mr. O'Reilly's professional judgment, the cause of the high fecal coliform count in the drainage ditch water was that water contaminated by cow fecal matter discharged from the C & A Dairy property into the drainage ditch. The Department concurred with his analysis.

///

///

d. C & A Dairy admitted that their manure storage tank overflowed on more than one occasion prior to April 29, 1993, and that the above ground waste transfer line had been leaking. (See, Exhibit 1, page 7, from Contested Case Hearing).

8. The record contains evidence sufficient to support the Hearings Officer's finding that C & A Dairy discharged waste into waters of the state on April 29, 1993 in violation of Oregon Revised Statute 468B.025(2).

III. CONCLUSION

The Department requests that the Environmental Quality Commission uphold the Hearings Officer's Final Order and Judgment.

3/11/96
Date

Ed Druback
Ed Druback
(Former) Environmental Law Specialist
Enforcement Section, DEQ

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BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

IN THE MATTER OF: REGARDING	)	HEARING ORDER
	)	VIOLATION AND
CALVIN AND ANNETTE VAN DER VEEN	)	ASSESSMENT OF
dba C & A DAIRY	)	CIVIL PENALTY
	)	No. WQAW-NWR-93-126
	)	YAMHILL COUNTY

I am asking the Enviromental Quality Commission to review the decision of Lawrence S. Smith, Hearing officer, in the civil penalty case of Calvin Van Der Veen, dba C&A Dairy.

The findings of Mr. Dean O'Reilly of Yamhill SWCD show the complaint is about cattle grazing on a pasture not spreading or handling of animal waste from the dairy. The findings will show no waste was discharged into the waters of the Sate of Oregon.

In the following pages, I will discuss the findings of fact to show the total picture of the case was not considered in Mr. Smiths finding of the hearing on November 20, 1995.

The following information will show no law was broken on April 29, 1993.

Thank You
Calvin VanDerVeen
13949 Pleasant Hill Rd.
McMinnville, Oregon 97128
February 12, 1996

1. Since 1974 we have had a Manure handling facility. The facility was designed by Yamhill SWCD. In 1990 the state of Oregon issued a Confined Animal Feeding Operation Permit. We did not receive a permit to build a wastewater collection system as Mr. Smith concluded.

2. On April 29, 1993 Mr. O'Reilly of Yamhill SWCD took water samples from areas down stream from the dairy. No samples were taken as the water entered the dairy property. The seasonal stream is open so fecal coliform can enter the stream from sources other than the dairy. The dairy is surrounded by housing on 2 1/2 acre home sites. I think fecal coliform came form areas other than the dairy. The count greatly increased as the water went through Mr. Boyer's property. Mr. Boyer is the complainant. Why did the count increase so greatly as the water went through his property. Mr. Boyer's property is between the dairy and Baker Creek.

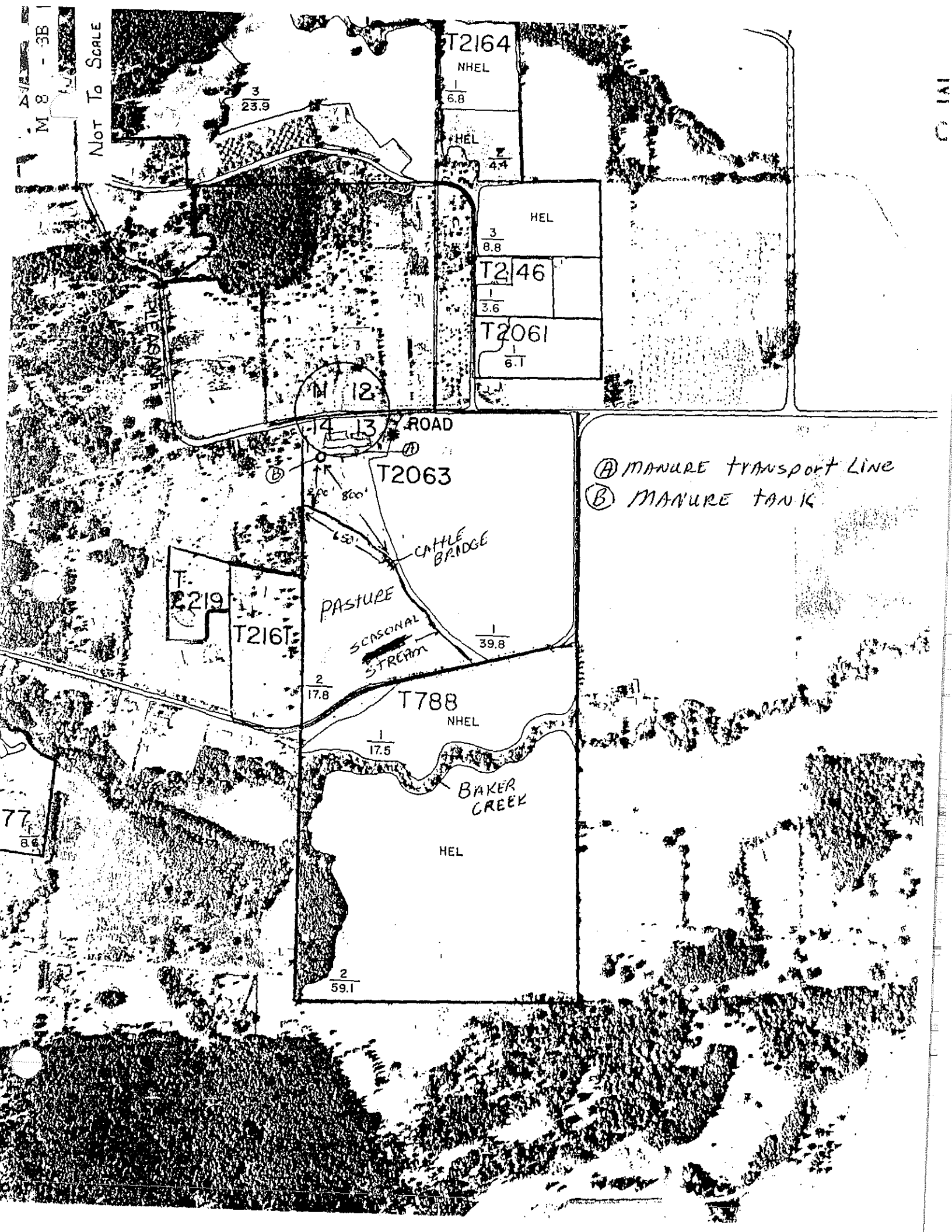
We had cattle pasturing on grass. The cattle crossed a bridge from one side of the pasture to the other side. The bridge had soil from cattle crossing on the bridge. As the cattle crossed soil clouded the waters. Mr. O Reilly reports on #3 of physical sampling, the cattle were grazing both days. The water upstream from the bridge was clear. The Cattle crossing the bridge is approximately 650 feet from upstream property line. Cattle bridge is approximately 800 feet from the manure tank. The manure tank is 200 feet to the closest point of the seasonal stream. The transport line for manure is 250 feet from seasonal water way. The manure tank and transport lines for manure are up stream form the cattle crossing. The confined animal Operation Permit does not control pasturing cattle. On line 3 of Mr. O'Rielly's report investigation summary states *NO DISCHARGE ON DAY OF INSPECTION*. The attached map shows the location of manure tank, cattle crossing, property line, manure transport line, and pasture.

3. My Son and I accompanied Mr. O'Rielly on his field visit April 30, 1993. Mr. O'Rielly's signed field notes do not indicate any manure solids in the water way or any discharge of animal waste. I think a third party influenced Mr. O'Rielly while filling out the investigation summary. The field notes do not correspond with his investigation summary. Mr. O'Rielly said things looked fine after his field visit.

4. *There was no discharge of animal waste it was a situation of pasturing cattle.*

5. Enclosed is a copy of my testimony at the hearing. I read the testimony but enclosed is a typed copy.

6. Mr. Smith referred to a meeting with Linda Zucker. Enclosed is copy of the meeting with Linda Zucker on April 1994. I complied with the terms of that meeting.


NOT TO SCALE
T2164
NHEL
1/6.8
3/23.9
HEL
2/4.4
HEL
3/8.8
T2146
1/3.6
T2061
1/6.1
N 12
14
13
ROAD
A
B
T2063
200'
800'
50'
CATTLE BRIDGE
T2219
T2161
PASTURE
SEASONAL STREAM
1/39.8
2/17.8
T788
NHEL
1/17.5
BAKER CREEK
HEL
2/59.1
8.6
A MANURE TRANSPORT LINE
B MANURE TANK

12. Were there any unusual circumstances about gaining consent to enter (e.g., reluctance, attempts to limit scope of inspection, attempts to place special requirements on inspectors)? How were they handled? Explain.

DIDN'T WANT ME TO WALK AROUND FARM TO LOOK FOR MANURE PROBLEMS, WITH OUT HIS ACCOMPANYING ME.

Physical Sampling

1. Were water samples collected at the site?

✓ Yes ____ No Number 7 4-29-93

2. Are all the samples clearly labeled with complaint number and indicator letter of the sample location? Yes ✓ No ____.

3. Describe the conditions of the water course or the affected water body where water samples were collected.

✓ SOME EVIDENCE OF MANURE RESIDUE IN DRAINAGE WAY, NOT SURE OF RESIDENCE TIME.

____ ~~Dry and wet manure all over banks or in water~~

____ Strong manure and ammonia odor

4-29-93 WATER IN DRAINAGE WAY LEAVING FARM WAS GREENISH BROWN IN COLOR.

✓ 4-30-93 WATER IN DRAINAGE WAY LEAVING FARM WAS BROWNISH IN COLOR.

____ ~~Stream & pond water brown to black~~ with ~~manure crust along~~ banks (DOWN STREAM) 4-30-93 ON FARM - WATER IN DRAINAGE WAY BELOW CATTLE CROSSING (UP STREAM) WAS BROWNISH, WHILE WATER IN DRAINAGE WAY ABOVE CATTLE CROSSING WAS CLEAR. DAIRY CATTLE WERE GRAZING IN PASTURE W/ DRAINAGE WAY ON BOTH DAYS OF INVESTIGATION.

____ Sluggish & standing water

____ Water foaming murky and bubbly

____ Choked weedy conditions or heavy algal blooms or no vegetation at all

____ Dense masses of slimy white, grayish green, rusty brown or black water molds common on the stream bottom

____ Fish behavior, Pronounced fish kill

____ Bottom dwelling aquatic organisms, only tolerant or very tolerant; midges, cranflies, horseflies, rat-tailed maggots or none at all

0.2 Estimated flow of the water course in cubic feet per second (cfs)

The estimated width of the impacted water course is 1.5', and the estimated depth is 0.5'.

4. Did you observe standard sampling technique? If not explain?

✓ Yes ____ No

Investigation Summary

1. Does the owner/operator have an approved animal waste management plan?
_____ Yes ___*?___ No. Give name/agency of person who wrote the plan
___*?___. Give date operator reviewed and approved the
plan ____?___. Give date if plan was approved by ODA / DEQ
___*COOPERATOR FILE HAS WASTE MGT. DATA PREPARED IN 1974 BY SCS STAFF MERLE CHURCH & BILLIE FOREST.
For purposes of planning did the technical resource use the Oregon Animal Waste Installation Guidebook? _____Yes _*_ No * NOT AS WE KNOW IT TODAY - A PROPOSED ANIMAL WASTE FACILITY INFORMATION FORM WAS COMPLETED IN 1974. WASTE STORAGE AND NUTRIENT CALCULATIONS WERE PREPARED BY SCS TECHNICIAN, LOC. IN COOPERATOR FILE.

2. What was discharged?
____ Manure
____ Silage Pit Drainage
____ Washdown waters
____ Contaminated Precipitation
____ Contaminated Lot Runoff
_✓_ THERE IS EVIDENCE THAT MANURE TANK AND OR WASTE TRANSFER LINE HAD OVERFLOWED OR LEAKED SOMETIME THIS SPRING OR WINTER. OBSERVED DEPOSITS OF SOLID MANURE & BEDDING RESIDUES ON HILLSIDE BETWEEN MANURE TANK & THE DRAINAGE WAY.

OWNER REPORTS 8'x48' CONCRETE TANK WAS DESIGNED BY SCS IN 1974, AND CONSTRUCTED THAT YEAR BY OWNER.

3. Estimated volume discharged. e.g. gallons, cubic feet
NO DISCHARGE ON DATE OF INSPECTION 4-30-93.

4. Estimated duration of the discharge. e.g. four to six hours, three days
APPEARS TO HAVE OCCURED PERHAPS INTERMITTENTLY DURING THIS SPRING OR WINTER.

5. Is waste placed in a position where it is likely to escape or be carried into state waters by any means?
_*_ Yes * SOLIDS ON HILLSIDE BELOW TANK COULD MOVE DOWN SLOPE
____ No TO DRAINAGE WAY IF OVER FLOW WERE TO RESUME.
Describe. OWNER PLANS TO SEED SOLIDS DEPOSIT W/ GRASS AND WORK TO PREVENT FUTURE OVER FLOW OF CONTAINMENT OR TRANSPORT FACILITIES.

6. When did the discharge occur?
Date _*_. COMPLAINT OF DISCHARGE & WATER SAMPLES WERE TAKEN APRIL 29, 1993.
Time _*_. * COMPLAINANT REPORTED - DISCHARGES OCCURRED TWICE ON 4-27-93 & ONCE ON 4-28-93
Is this an ongoing problem? _*_ Yes ____No. How long has it occurred? * HAS PROBABLY OCCURED INTERMITTENTLY SOME TIME THIS SPRING & WINTER.

7. Show on the map, photo, or diagram where the alleged discharge occured on the property? SEE LOCATION OF SOLID MANURE DEPOSITS ON HILLSIDE BETWEEN MANURE TANK & DRAINAGE WAY, CATTLE CROSSING AND WHERE DRAINAGE WAY EXITS PROPERTY.

8. When the alleged violation occured, was it caused by:
____ pumping equipment failure
____ inadequate waste storage facilities
____ waste storage structures at full capacity
_✓_ unusual weather conditions
_✓_ waste transfer line breached or broken
_✓_ accumulated solids not removed from storage structure
____ concrete pads or curbs cracked or broken
____ rain gutters, downspouts, outlet tiles not maintained
✓ COULD BE A COMBINATION OF THE ABOVE

FIELD NOTES:

CAFO COMPLAINT INVESTIGATION # 93011 (2)

4-30-93 BY: Dean O'Reilly - YAMHILL SWCD

RE: CALVIN VAN DER VEEN DAIRY - 13949 NW PHEASANT HILL RD, MCMINNVILLE, OR 97128

ENTERED PROPERTY - 1255 HRS.

MET WITH CALVIN IN FRONT OF FARM HOUSE

DISC. NATURE OF CAFO COMPLAINT AND 4-29-93 WATER SAMPLING PROCEEDURE AND CAFO INVESTIGATION PROCESS, WHICH INCLUDES FILING OF CAFO REPORT TO ODA IN SALEM, CALVIN ACCOMPANIED ME AROUND FARM TO LOOK AT CAFO FACILITIES, MANURE TANK, DRAINAGE AND POSSIBLE DISCHARGE POINTS. CALVIN PROVIDED ME WITH THE FOLLOWING INFORMATION ABOUT HIS DAIRY OPERATION;

MANURE TANK - 8' DEEP x 48' DIAMETER

- HE REPORT THE TANK HAS 50 DAYS OF STORAGE
- PUMPS ONCE EVERY 2-3 WEEKS THRU A TRANSPORT LINE AND BIG GUN APPLICATION SPRINKLER
- USES TRACTOR MTO, PTO AGITATOR & PUMP.

DAIRY ANIMALS - 100 MILKERS, 20 DRY COWS & 10 CALVES.

- LIQUID MANURE PUMPED FROM TANK TO PASTURE DISPOSAL FIELD.
- DRY BEDDED MANURE SPREAD ON PASTURE DURING SUMMER.

SILAGE BUNKER PARTLY USED, BUT WILL DISCONTINUE USE THIS YEAR. PLANS TO BUY FROM SITTION BROTHERS & HAUL TO FARM AS FED.

END OF INTERVIEW AND FIELD VISIT - 1445 HOURS

Hearing Testimony

1. I, Calvin Van Der Veen, 13949 Pheasant Hill Rd. McMinnville, *did not discharge animal waste into the waters of the State of Oregon on April 29,1993.* The problem of the complaint arose because the dairy cattle were grazing the pasture where the water way goes. They crossed the water way by bridge. The very wet April, 1993, caused the bridge to have wet mud and wet top soil which flowed into the water way. On April 27, 1993, we discussed the pasturing situation with Alan Youse, of Oregon Natural Resources. We talked about the pasture and water way. Alan said there is no law against grazing cattle in a pasture were the water way runs. If he would have advised me against grazing during the wet period, I would have rotated the cows to another pasture.

2. Dean O'Rielly, from Yamhill Soil & Water inspect the dairy facility on April 30,1993. *Mr. O'Rielly's report states* on page 6, line 3. *"No Discharge on date of Inspection."* Mr. O'Rielly could not point out the point of the waste discharge. We asked Mr. O"Riellly if he saw any problems and he indicated things appeared to be in order.

3. The water way does not originate on our dairy. The water way begins in the hills above the dairy. The zoning across the road and to the west is very low density 2 1/2 acres. The area is very developed with houses both old & new, as shown by the photos. During heavy rains the water way smells like raw sewage and boils at times with soap suds. I think the fecal coliform came from malfunctioning septic tanks before the water came onto the dairy property. Septic tank problems are not new to area during wet periods.

4. There are a 12' and 18' culverts under Pheasant Hill Rd. The water from these culverts go through our property between road and our property. April 1993 had abnormal rain fall. April normal 2.44" and April 1993 was 6.29" which indicates a great deal of run off from sloping hill properties in our area.

5. No samples taken above dairy? How can the dairy be responsible for counts of 1,300,000 after it went through a neighbors property between dairy property and Baker Creek. The count dropped 300,000 as it went under the road, how can it be 1,300,000 when in travels through our neighbor property?

6. In 1988 we had tests run on Baker Creek. The tests identified the source of fecal coliform. At that time the highest fecal coliform was human. At that time the dairy showed no impact on Baker Creek. When I received notice of DEQ wanting to impose penalty we tested Baker Creek, Feb. 22, 1995. The laboratory would not identify type of fecal coliform but the tests from Baker Creek, both above and below dairy area of Baker Creek, showed dairy had no impact on Baker Creek. The fecal coliform count above and below the dairy - 2/100ml.

7. Another problem in the area is the complaints property has inadequate drainage. He closed an open ditch and replace it with 2-12" drainage lines. Under the county road a 24" culvert handles the water and at times the culvert is over full. The 2-12" drainage lines are inadequate, creating a flooding problem on his property. He blames the dairy for the water flooding on his land.

CALVIN VANDERVEEN, C & A DAIRY HEARING AT DEQ
April 19, 1994

This is uh April 19, 1994, we are in uh DEQ offices in Portland, Oregon. This is the time and place scheduled for doing an appeal of Calvin Vanderveen doing business as C & A Dairy. My name is Linda Zucker and I am the Environmental Quality Commission's Hearings Officer, uh I have been here for the last two hours with members of DEQ staff, uh Ed Druback, uh Van Kollias, and Brian Altman you know who is officially um on the record of a DEQ Hearing and uh for part of the time Nancy Couch was here um. Also present are Mr. Vanderveen and an Annette Vanderveen who is a co-owner of C&A Dairy. On behalf of the Oregon Department of Agriculture Alan Youse and David Wilkinson and uh there is a Yamhill uh Soil and Water Conservation District Dean O'Reilly uh a Jim Krahn uh of the uh Oregon Dairy Farmers Association is also present and has participated. We have for the last two hours been discussing a process by which we can assure compliance with uh uh Oregon's environmental laws um and the most effective way possible and have determined uh that this is how we are going to proceed.

uh We will not conduct an evidentiary hearing at this time. Rather uh we will abate this hearing scheduling uh conditioned on Mr. Vanderveen within two weeks from today making uh application to uh Soil Conservation Service um in whatever form and sufficiency they require for an assessment of the management practices related to uh the violation here, the discharge giving rise to the alleged violation specifically uh with a view to those uh uh contemplated uh uh sources of violation or causes of violation which are checked in the uh report submitted by uh Mr. O'Reilly uh and dated pardon me (another voice - sounded like Dean O'Reilly saying Yamhill Soil and Water Conservation District) uh Yamhill Soil and Water Conservation District. The report which I will now make an exhibit uh with that exception uh Exhibit 1 at Page 6 checked "possible sources or causes as unusual weather conditions, waste transfer lines leached
or broken, accumulated solids not removed from storage structure, or a combination of those.

And continuing on Page 7 - open ditches uh containing some manure or failure to properly operate or maintain the wastewater facility, or a combination of those items. So he will uh Mr. Vanderveen will request an evaluation of those potential sources of discharge or contamination and uh he will be back within two weeks; uh then when he receives uh I think it says 45 days from the time he receives the requested assessment, he will submit to DEQ uh a proposal as to whether and how he will implement that and the proposal will be based on the requirements of the Oregon Animal Waste Installation Guidebook. Uh at that point um what we anticipate is that um if he is prepared to uh proceed according to the recommendations of the assessment in a way that is satisfactory to DEQ, uh DEQ will recommend to its Director uh an appropriate course of action which at this point since we cannot speak for him, we can only contemplate what includes the penalty assessment. But uh Mr. Vanderveen does have the choice at that juncture whether to proceed; DEQ will have the choice whether to proceed; and they can certainly talk again to discuss what we will do and uh then develop a formal settlement if we are able to come to one. If uh either DEQ or Mr. Vanderveen is unable to agree to uh if they cannot agree upon a satisfactory solution, we will then conduct the hearing that was scheduled to occur today uh and we will expect the uh Soil and Conservation uh District to take an upstream sample of an upstream and on-site and a downstream sample of the water uh the discharges in a way similar to the ones that were taken to establish the penalty. And uh they will do it at a, in a time that would adequately reflect upstream sources of contamination.

Something different you want me to say, Mr. Vanderveen? (Voice of Mr. Vanderveen: "I just have one comment - that stream is a seasonal stream.") And so the sample would have to be taken when? (Mr. Vanderveen: "Any time from November to about uh April".) Well we just incorporated that into the plan. Uh first of all, Ed Druback, uh our DEQ representative - do you have uh something to add? (Voice of Ed Druback: "I have nothing at this point in time - you

probably should take a sample now rather than I mean if it's flowing **Calvin Vanderveen interrupted Druback at this point and said, "It is dry - we haven't had any rain for awhile".)** OK, you may take it as often as you like. OK.

Does anyone else have something they think you should add? OK - then first of all, I cannot tell you how impressed I am with the thoughts in this with which you have all proceeded and I know it's very stressful. I appreciate it. Thank you very much. We will conclude this hearing.

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 2
To Dean O'Reilly	From Dave Wilkinson
Co. Yamhill SWCD	Co. ODA
Dept.	Phone # 378-3810
Fax # 472-2459	Fax # 378-2590

RECEIVED

JAN 1 2 1996

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

IN THE MATTER OF:	)	HEARING ORDER REGARDING
	)	VIOLATION AND
CALVIN AND ANNETTE VAN DER VEEN	)	ASSESSMENT OF
dba C & A DAIRY	)	CIVIL PENALTY
	)	No. WQAW-NWR-93-126
	)	YAMHILL COUNTY

NOTICE OF APPEAL

I wish to appeal the decision of Lawrence S.Smith, hearing officer, Dated this 13th day of December 1995.

I will send Exceptions and Brief within 30 days of this notice of Appeal.

THANK YOU

Calvin VanDerVeen

Calvin Van Der Veen
13494 N.W. Pheasant Hill Rd.
McMinnville, Or 97128

January 11,1996

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION
OF THE STATE OF OREGON

IN THE MATTER OF:	)	HEARING ORDER REGARDING
	)	VIOLATION AND
CALVIN AND ANNETTE VAN DER VEEN	)	ASSESSMENT OF
dba C & A DAIRY	)	CIVIL PENALTY
	)	No. WQAW-NWR-93-126
	)	YAMHILL COUNTY

BACKGROUND

A Notice of Assessment of Civil Penalty was issued July 22, 1993, under Oregon Revised Statutes (ORS) Chapter 183 and 468, and Oregon Administrative Rules (OAR) chapter 340, divisions 11 and 12. On August 20, 1993, the respondent requested a hearing.

A hearing was held on April 4, 1994, in the Department of Environmental Quality (DEQ) offices in Portland, Oregon before hearings officer Linda Zucker. Respondent appeared. DEQ was represented by Ed Druback. DEQ agreed to suspend action on the penalty if respondent took effective steps to clear up the problem.

The hearing continued on November 20, 1995, in the DEQ offices in Portland, Oregon, before hearings officer Lawrence S. Smith. Respondent and his wife participated. Ed Druback represented DEQ, with two witnesses and one observer.

ISSUES

Did respondent C & A Dairy violate ORS 468B.050(1)(a) on April 29, 1993? If respondent C & A Dairy violated the law, was the penalty appropriate under OAR 340-12-055(1)(b)?

FINDINGS OF FACT

1. Since 1973, Calvin and Annette Van Der Veen have owned and operated C & A Dairy, a dairy farm in Yamhill County, Oregon. In 1990, they received a permit from the state to build a wastewater collection system. The permit did not allow them to discharge wastes into waters of the state.

2. On April 29, 1993, an inspector from the Yamhill County Soil and Water Conservation District inspected the water running through respondent's dairy farm in response to a complaint filed by a neighbor. The inspector was certified by the state to do such inspections. The inspector noticed that the water in a drainage ditch running through the farm appeared to be green and smelled like cow fecal matter. He noticed cow manure residue in the drainage way. He noted that the water in the drainage ditch was clear when it entered respondent's property.

3. The inspector took samples of water from the ditch when it left respondent's property (site A), when it entered the next property to the south after going through a culvert under a road (site B), when it emptied into Baker Creek about 1,000 feet to the south (site C), after the ditch flowed into the creek (site E), from from two spots down stream (sites F and G), and one spot upstream (site D). The inspector carefully observed the chain of custody requirements as he dropped off the samples at the laboratory for the Oregon State Department of Agriculture. The laboratory is licensed to do such testing and concluded that fecal coliform results were as follows:

Site A -- 800,000 MPN/100ml; Site B -- 500,000 MPN/100ml;
Site C -- 1,300,000 MPN/100ml; Site D -- 27 MPN/100ml;
Site E -- 500,000 MPN/100ml; Site F -- 170,000 MPN/100ml; and
Site G -- 2,300 MPN/100ml (Exhibit 1, page 12).

4. The inspector did not collect a sample from the water flowing onto respondent's property. Water from the hills north of respondent's property flows down onto respondent's property. There are no dairy farms up there, but there are residences on two and one-half acre lots which rely on septic systems for disposal of human waste. In April 1993, 6.29 inches of rain fell in the area. Average rainfall in April is 2.44 inches.

5. The inspector returned to the dairy farm the next day (April 30, 1993) to walk around the property with one of the owners. The inspector noted a trail of solid cow manure residue which had overflowed from respondent's manure tank above the drainage ditch and from the waste transfer pipeline leading to the tank in the area of the drainage ditch. Respondent admitted that the tank overflowed during the heavy rainfall and that the above ground waste transfer line had leaked or come uncoupled in the past.

6. On April 21, 1993, respondent received a Notice of Permit Violation (Exhibit 12).

7. Respondent had water samples tested above and below his dairy in 1988 and the tester concluded that the dairy was not impacting Baker Creek (Exhibit 11).

ULTIMATE FINDINGS

Respondent C & A Dairy discharged waste into the waters of the state on April 29, 1993.

APPLICABLE LAW

ORS 468B.050(1) states in part:

> * * *, [W]ithout first obtaining a permit from the director, * * *, no person shall:
> (a) Discharge any wastes into the waters of the state from any industrial or commercial establishment or activity or any disposal system.

ORS 468B.005(7) states:

> "Wastes" means sewage, industrial wastes, and all other liquid, gaseous, solid, radioactive or other substances which will or may cause pollution or tend to cause pollution of any waters of this state.

ORS 468B.005(3) states:

> "Pollution" or "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 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.

ORS 468B.005(8) states:

> "Water" or "the waters of this state" include lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private * * * which are wholly or partially within or bordering the state or within its jurisdiction.

CONCLUSIONS AND REASONS

DEQ has the burden of establishing a violation by a preponderance of the evidence. The above findings were based on what probably happened. Respondent C & A Dairy alleged that the fecal coliform count was from overloaded or faulty domestic sewage systems above the dairy. Rebutting their contention is the investigator's observations that the drainage creek appeared clear and did not smell as it entered respondent's property and that there was cow manure residue on respondent's property near the ditch from overflow of its manure tank and line from the tank. Also, respondent admitted that the tank and line overflowed in heavy rainfall and that it rained 6.29 inches in April, considerably above the monthly average of 2.44 inches. The tank probably overflowed on that day or shortly before and the fecal coliform count was due to runoff from respondent's property. While there may be other possibilities for the high fecal coliform count, such as runoff from failed sewage systems on properties above the hill, the most probable source of the fecal coliform in the water was from runoff on respondent's farm.

This fact that the fecal coliform count increased by a factor of 2.6 after it went through his neighbor's property is somewhat interesting, but not statistically relevant because the results are 2,000 times the limit of 200 MPN/100 ml allowed under OAR 340-41-725(2)(e)(A). The variance may be within the margin of error for the testing or the result of kicking up fecal solids when it goes through narrower pipes. Respondent testified that his neighbor's pipes are too small for the runoff, so the decreased size may have caused the higher reading. In any event, it does not detract from the conclusion that water containing manure which ran off respondent's property was the likely source for the fecal coliform counts. Such manure is clearly waste under ORS 468B.005(7) because that definition is broad and refers to pollution. The definition of pollution specificially refers to the alteration of the chemical or biological properties of the waters of the state. See, ORS 468B.005(3) above.

Respondent did not deny that the drainage ditch through the farm was a water of the state. The definition of "water" and "the waters of this state" under ORS 468B.005(8) is very broad and would include the drainage ditch that runs through respondent's property. Even if it did not, the runoff went to Baker Creek, which was clearly a water of the state. Respondent discharged waste into the water of the state.

A good part of the hearing dealt with the issue whether respondent met the requirements of the prior agreement to avoid the penalty. There was apparently a mixup regarding what respondent was to do. Respondent found out what he needed to do to abate future problems, but he would not install many of these measures unless he received a guarantee that such measures would relieve him of the penalty. He received no such assurance from DEQ, and therefore installed only a few of the measures. DEQ reserved the discretion to pursue the penalty and did so in the continued hearing. DEQ was not prohibited by law from pursuing the penalty.

As stated above, the findings and conclusion are based on what probably happened. The standard of proof in the hearing was probability or more likely than not, not beyond a reasonable doubt. There may have been other possibilities for the pollution, but the most likely source was runoff from respondent's land.

Because of this penalty, respondent will be liable for a considerably higher fee ($1,000) for a discharge permit during the next three years in order to pay for future inspections. Respondent admitted that during rainy periods, there was spillage. Inspection should insure that steps are taken to cure this problem of occasional spillage.

Respondent provided a copy of a lab report from 1988 which concluded that the dairy was not impacting the creek and that any fecal coliform was from human waste. Testing then differentiated between cow and human coliform. There was testimony at the hearing that prior testing which differentiated the coliforms was not valid. In any event, the amounts of fecal coliform detected in the 1988 samples were only .1% to .5% of the amounts detected in samples taken by the investigator in 1993, a substantial difference that negates the report's results. Therefore, the results do not detract from the conclusion that very high fecal coliform amounts detected in the April 29, 1993 samples were from runoff of cow manure on respondent's dairy farm.

CIVIL PENALTY

The civil penalty for the violation is determined under OAR 340-12-045. Respondent received a Notice of Permit Violation on April 21, 1993, within 36 months of the date of the April 29, 1993, violation, so the requirements of OAR 340-12-040(1) and (2) were met. The violation was on the $10,000 Matrix under OAR 340-12-055(1)(b) because it violated a water quality standard. It was a Class I violation under OAR 340-12-055(1)(b) because it was a discharge of waste into the waters of the state without a waste discharge permit.

DEQ concluded that the violation is minor because there was a lack of information to base a finding other than minor. DEQ did not seek to amend that finding at the hearing, so the violation was minor. Similarly, DEQ found no change from the various other factors, so that amount is zero. The penalty under OAR 340-12-055(1)(b) is a Class I minor violation under the $10,000 matrix, which assigns a penalty of $1,000. This penalty is appropriate under the circumstances.

STATEMENT OF MAILING

AGENCY CASE NO. WQAQ-NWR-93-126
HEARINGS CASE NO. 95-DEQ-007

I certify that the attached Order was served through the mail to the following parties in envelopes addresssed to each at their respective addresses, with postage fully prepaid:

Calvin Van Der Veen (Certified)
13949 Pleasant Hill Road
McMinville, OR 97128

Ed Druback
Enforcement Section, DEQ
2020 SW Fourth Avenue, Suite 400
Portland, OR 97201-4987

DEQ
811 SW Sixth Avenue
Portland, OR 97204

Mailing/Delivery Date: 12-13-95
Hearings Clerk: AH

STATE OF OREGON - EMPLOYMENT DEPARTMENT

STATEMENT OF MAILING

AGENCY CASE NO. WQAQ-NWR-93-126
HEARINGS CASE NO. 95-DEQ-007

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Portland, OR 97204

Mailing/Delivery Date: 12-13-95
Hearings Clerk: AH

STATE OF OREGON - EMPLOYMENT DEPARTMENT

CONFINED ANIMAL FEEDING OPERATION
INVESTIGATION REPORT

Background

1. What type of livestock operation exists at this location?

✓ Dairy (HOLSTEIN) ____ Calf ____ Swine ____ Poultry ____ Horse

____ Cattle Holding Area ____ Mink ____ Other

2. a) Give name, address and phone number of the owner or operator.

CALVIN VAN DER VEEN
13949 NW PHEASANT HILL ROAD 472-5917
MCMINNVILLE, OR 97128

b) Facility address, phone number, section, 1/4 section, township, range, tax lot number of the livestock waste facilites.

SAME ADDRESS / PHONE
NW 1/4 SEC. 13
T. 4S, R. 5W, W.M.

3. How many years has this livestock operation been in existence?

SINCE 1973

4. How many employees does this operation have?

OPERATED BY OWNER & FAMILY + 1 EMPLOYEE

5. What type of wastewater facilities does this operation have to contain, treat, hold, and dispose of animal waste.

____ Below ground concrete storage tank
✓ Above ground concrete storage tank - DAY LIGHTED INTO HILLSIDE (8' DEEP x 48' DIA).
____ Blue Harveststore structure
____ Animal Waste Holding Pond
____ Animal Waste Storage Lagoon
✓ Uncovered Dry stacking ~~facility~~ NEAR MANURE TANK
____ Covered Dry stacking facility
✓ Silage Bunker - NEARLY EMPTY, PLANS TO BUY SILAGE IN FUTURE & HAUL TO FARM AS FED.
____ Concrete reception pit
____ Earthen Reception
____ Buried wastewater transfer line
✓ Above ground wastewater transfer line
____ Travelling manure gun
✓ Hand set manure gun
____ Wheel line for irrigation application
____ Honey Wagon
____ Rotary solid waste spreader
✓ HAULS DRY BEDDED MANURE W/ FARM TRUCK

Ex 1

Notification of Investigation

1. _____ Announced ✓ Unannounced

2. If announced, when did you call and schedule investigation appointment?

   a. Who did you talk to?
   MRS. ANNETTE VAN DER VEEN (C

   b. What is his/her title within the business?
   CO-OWNER

3. a) ODA/NRD received complaint: THRU SWCD BY PHONE TO ALAIN YOUSE

   Date: 4-29-93 Time: 11 AM.

   b) SWCD received ~~notice of~~ complaint ~~form ODA/NRD.~~ FROM WALK IN COMPLAINANT

   Verbal date: 4-29-93 Time: 9AM

   Written Date: 4-30-93 Time: 8 AM SENT NOTICE OF COMPLAINT TO ODA.

Entry/Opening Conference

1. What was the date and time of your arrival?
   4-29-93 1300 HRS. FIRST CONFERENCE. W/ ANNETTE
   4-30-93 1255 HRS. SECOND CONFERENCE W/ CALVIN
2. Did you enter through the main entrance? ✓ Yes, ____ No.
3. Did you present your identification card? ✓ Yes ____ No.
4. Did you leave a business card or phone number? ____ Yes ✓ No. LEFT CARD ON LAST VISIT.
5. Did you immediately locate the owner or operator? ✓ Yes _____ No.
6. Did you explain the nature of the complaint? ✓ Yes _____ No
7. Did you explain the complaint investigation process?
   Yes ✓ No _____
8. Did the owner or operator understand the complaint? ✓ Yes ____ No
9. Did you offer name and phone number of ODA officials to answer any questions concerning the complaint and the investigation authority?
   Yes ✓ No _____

10. Who was present at the opening conference?
    Name: MRS. ANNETTE VAN DER VEEN Title CO OWNER - FIRST CONFERENCE
    MR. CALVIN VAN-DER VEEN CO OWNER - SECOND CONFERENCE
    _____ _____
    _____ _____

11. Were you denied entry? ✓ Yes _____ No
    Who denied entry? ANNETTE REPORTED THAT CALVIN WANTED ME TO COME BACK
    Date: 4-29-93 FRI 4-30-93 ~~AT~~ 1 PM TO WALK
    Time: 1305 OVER FARM W/ HIM BECAUSE
    Title: CO-OWNERS IT WAS TIME TO TAKE HIS MID DAY REST.

12. Were there any unusual circumstances about gaining consent to enter (e.g., reluctance, attempts to limit scope of inspection, attempts to place special requirements on inspectors)? How were they handled? Explain.

DIDN'T WANT ME TO WALK AROUND FARM TO LOOK FOR MANURE PROBLEMS, WITH OUT HIS ACCOMPANYING ME.

Physical Sampling

1. Were water samples collected at the site?

✓ Yes ____ No Number 7 4-29-93

2. Are all the samples clearly labeled with complaint number and indicator letter of the sample location? Yes ✓ No ____.

3. Describe the conditions of the water course or the affected water body where water samples were collected.

✓ SOME EVIDENCE OF MANURE RESIDUE IN DRAINAGE WAY, NOT SURE OF RESIDENCE TIME.

____ ~~Dry and wet manure all over banks or in water~~

____ Strong manure and ammonia odor

4-29-93 WATER IN DRAINAGE WAY LEAVING FARM WAS GREENISH BROWN IN COLOR.

✓ 4-30-93 WATER IN DRAINAGE WAY LEAVING FARM WAS BROWNISH IN COLOR.

____ ~~Stream & pond water brown to black~~ with ~~manure crust along~~ banks (DOWN STREAM) 4-30-93 ON FARM - WATER IN DRAINAGE WAY BELOW CATTLE CROSSING (UP STREAM) WAS BROWNISH, WHILE WATER IN DRAINAGE WAY ABOVE CATTLE CROSSING WAS CLEAR. DAIRY CATTLE WERE GRAZING IN PASTURE W/ DRAINAGE WAY ON BOTH DAYS OF INVESTIGATION.

____ Sluggish & standing water

____ Water foaming murky and bubbly

____ Choked weedy conditions or heavy algal blooms or no vegetation at all

____ Dense masses of slimy white, grayish green, rusty brown or black water molds common on the stream bottom

____ Fish behavior, Pronounced fish kill

____ Bottom dwelling aquatic organisms, only tolerant or very tolerant; midges, cranflies, horseflies, rat-tailed maggots or none at all

0.2 Estimated flow of the water course in cubic feet per second (cfs)

The estimated width of the impacted water course is 1.5', and the estimated depth is 0.5'.

4. Did you observe standard sampling technique? If not explain?

✓ Yes ____ No

5. Did you observe the established chain-of-custody procedures?
✓ Yes _____ No If not explain.

6. Preparing water samples for shipment to ODA.

____ Did you place one large plastic bag inside the supplied styrofoam container? Y/N

____ Did you place ice inside the plastic bag? Y/N

____ Did you seal the water samples inside the plastic bag and seal? Y/N

____ Did you place lab form, chain of custody, and exposed film on top of the sealed plastic bag? Y/N

____ Did you place styrofoam container inside the supplied cardboard box? Y/N

____ Did you place address label inside the plastic envelope and attach it to the top of the cardboard box? Y/N

____ Did you attach two nylon straps and the security seal? Y/N

After these steps have been completed, send the samples collect to ODA via Greyhound or United Parcel Service.

✓ AFTER COLLECTION, SAMPLES WERE PLACED IN STYROFOAM CONTAINER, ICED AND HAND DELIVERED TO ODA LAB IN SALEM.

Photographs

1. Are photographs documented with complaint number, date, time, operator's name and the photographer's name. ✓ Yes, ____ No.

2. Did you complete a photodocumentation report of each photograph?
✓ Yes ____ No

Mapping

3. Attach aerial photos, maps and sketches labeled with owner/operator name and clearly describe property boundaries, water courses, and water sample sites. Below is the minimum documentation required.

✓ Original signed field notes

✓ Aerial photo documenting each water sample location

✓ Location of wastewater facilities

✓ Identify roads leading to the livestock operation

- ✓ Identify flow direction of the affected water body
- ✓ North arrow
- ✓ Liquid and solid manure application areas
- ✓ Property boundaries
- ____ Tax lot number(s)
- ✓ Soil survey sheet and interpretation sheet (if available)
- ✓ Owner/operator name on photo, diagram and sketch

Interview Summary

Provide the following information for each individual interviewed during your investigation. Use additional pages if more than two people interviewed.

Date: 4-29-93
Time: 1300 - 1325 HRS.
Person: MRS. ANNETTE VAN DER VEEN
Title: CO-OWNER

mmary:
DISCUSSED NATURE OF SECOND CAFO COMPLAINT - MANURE REPORTED IN DRAINAGE WAY LEAVING VANDERVEEN FARM, WATER TESTING PROCEEDURE & NEED TO LOOK FOR MANURE DISCHARGE AREAS ON FARM. ASKED ME TO COME BACK 4-30-93 (1300 HRS) TO WALK OVER FARM W/ CALVIN.

Date: 4-30-93
Time: 1255 HRS. - 1440 HRS.
Person: MR. CALVIN VAN DER VEEN
Title: CO-OWNER

Summary:
DISC. NATURE OF SECOND COMPLAINT & WATER TESTING PROCEEDURE ON 4-29-93. CALVIN TOOK ME FOR A WALK AROUND HIS FARM TO LOOK AT DAIRY FACILITIES, INCLUDING MANURE STORAGE TANK, DRAINAGE WAY THRU FARM. TOGETHER CALVIN & I LOCATED POINTS WHERE TANK AND OR PIPELINE HAD OVERFLOWED THIS SPRING OR WINTER LEAVING A TRAIL OF SOLID MANURE RESIDUE ON HILLSIDE BETWEEN TANK & DRAINAGE WAY. DISC. STABILIZATION OF RESIDUE AND NEED TO PREVENT ANY FURTHER OVERFLOW. EXPLAINED THAT MY REPORT WOULD BE SENT TO ODA FOR REVIEW.

Close Conference

1. Date and time you departed? Use military time.
   4-29-93 1325 W/ MRS. ANNETTE VAN DER VEEN
   4-30-93 1440 W/ MR. CALVIN VAN DER VEEN
2. Did the owner or operator request information concerning the complaint investigation? ✓ Yes ____ No.
3. If he/she requested information, did you explain the state's policy on public record search? Explain. (See Exhibit on Public Records Search.) YES. I EXPLAINED TO MRS. ANNETTE VAN DER VEEN THAT REQUEST FOR VIEWING OR RECEIVING COPIES OF PUBLIC RECORDS BE MADE TO OREGON DEPT. OF AGRICULTURE.

Investigation Summary

1. Does the owner/operator have an approved animal waste management plan?
_____ Yes ___*?___ No. Give name/agency of person who wrote the plan
_____*?_____. Give date operator reviewed and approved the
plan _____?_____. Give date if plan was approved by ODA / DEQ
_____*COOPERATOR FILE HAS WASTE MGT. DATA PREPARED IN 1974 BY SCS STAFF MERLE CHURCH & BILLIE FOREST.
For purposes of planning did the technical resource use the Oregon
Animal Waste Installation Guidebook? _____Yes ___*___ No *NOT AS WE KNOW IT TODAY-A PROPOSED ANIMAL WASTE FACILITY INFORMATION FORM WAS COMPLETED IN 1974. WASTE STORAGE AND NUTRIENT CALCULATIONS WERE PREPARED BY SCS TECHNICIAN, LOC IN COOPERATOR FILE.

2. What was discharged?
_____ Manure
_____ Silage Pit Drainage
_____ Washdown waters
_____ Contaminated Precipitation
_____ Contaminated Lot Runoff
__✓__ THERE IS EVIDENCE THAT MANURE TANK AND OR WASTE TRANSFER LINE HAD OVERFLOWED OR LEAKED SOMETIME THIS SPRING OR WINTER. OWNER REPORTS 8'x48' CONCRETE TANK WAS DESIGNED BY SCS IN 1974, AND CONSTRUCTED THAT YEAR BY OWNER. OBSERVED DEPOSITS OF SOLID MANURE & BEDDING RESIDUES ON HILLSIDE BETWEEN MANURE TANK & THE DRAINAGE WAY.

3. Estimated volume discharged. e.g. gallons, cubic feet
NO DISCHARGE ON DATE OF INSPECTION 4-30-93.

4. Estimated duration of the discharge. e.g. four to six hours, three days
APPEARS TO HAVE OCCURED PERHAPS INTERMITTENTLY DURING THIS SPRING OR WINTER.

5. Is waste placed in a position where it is likely to escape or be carried into state waters by any means?
__*__ Yes *SOLIDS ON HILLSIDE BELOW TANK COULD MOVE DOWN SLOPE TO DRAINAGE WAY IF OVER FLOW WERE TO RESUME.
_____ No
Describe. OWNER PLANS TO SEED SOLIDS DEPOSIT W/ GRASS AND WORK TO PREVENT FUTURE OVERFLOW OR CONTAINMENT OR TRANSPORT FACILITIES.

6. When did the discharge occur?
Date ___*___. COMPLAINT OF DISCHARGE & WATER SAMPLES WERE TAKEN APRIL 29, 1993.
Time ___*___. *COMPLAINANT REPORTED-DISCHARGES OCCURRED TWICE ON 4-27-93 & ONCE ON 4-28-93
Is this an ongoing problem? __*__ Yes ___No. How long has it occurred? * HAS PROBABLY OCCURED INTERMITTENTLY SOMETIME THIS SPRING & WINTER.

7. Show on the map, photo, or diagram where the alleged discharge occured on the property? SEE LOCATION OF SOLID MANURE DEPOSITS ON HILLSIDE BETWEEN MANURE TANK & DRAINAGE WAY, CATTLE CROSSING AND WHERE DRAINAGE WAY EXITS PROPERTY.

8. When the alleged violation occured, was it caused by:
_____ pumping equipment failure
_____ inadequate waste storage facilities
_____ waste storage structures at full capacity
__✓__ unusual weather conditions
__✓__ waste transfer line breached or broken
__✓__ accumulated solids not removed from storage structure
_____ concrete pads or curbs cracked or broken
_____ rain gutters, downspouts, outlet tiles not maintained
__✓__ COULD BE A COMBINATION OF THE ABOVE

CONTAINS SOME

✓	open ditches ~~clogged with~~ manure
_____	manure and wastewater applied to frozen ground
_____	manure or wastewater applied to saturated application area
_____	pipelines from milk parlor or storage facilities existing in open ditches or other water bodies
_____	end of pipe discharges from subsurface drain pipes
_____	over application of solid and liquid waste to crop or pastureland
✓	failure to properly operate or maintain the wastewater facilities
other	COULD BE A COMBINATION OF ABOVE CHECKED ITEMS.

10. Does the owner/operator agree there is a waste management problem?
X Yes _____ No OWNER SAID TANK HAS OVER FLOWED IN THE PAST DURING ~~A~~ TIME OR HEAVY RAINFALL, BUT NOT ON A REGULAR BASIS AND THE ABOVE GROUND WASTE TRANSFER LINE HAS LEAKED OR COME UNCOUPLED, BUT HE HAS ENDEAVORED TO FIX IT RIGHT AWAY
Remarks:
11. Did the operator agree to correct a problem? X Yes _____ No.
How soon will the owner/operator correct the agreed to problems?

SAID HE ACT RIGHT AWAY AS NEEDED.

12. What temporary measures can the owner/operator implement to stop or minimize the unlawful discharge?
PREVENT CONTAINMENT FACILITIES FROM OVER FLOWING, STOP LEAKS OR SEEPAGE, GRASS SEED SOLID MANURE DEPOSIT TO STABILIZE & MAKE TIMELY APPLICATION OF STORED WASTES TO DISPOSAL FIELDS.
13. What was the impacted waterbody?

BAKER CREEK.

Signature and Title of Investigators

	Print	Signature
Name:	DEAN O'REILLY	Dean O'Reilly
Title:	CONSERVATIONIST / TECHNICIAN YAMHILL SWCD	
Date:	4-30-93	
Address:	2200 W. SECOND ST. MC MINNVILLE, OR 97128	
Name:		
Title:		
D :		
Address:		

For ODA/NRD Internal Use Only

Complaint Number: 93011 (2)

Need More Information:

ODA Follow Up Required:

Level One Payment OK: Date:

Level Two Payment OK: Y. $150. Date: 5-11-93

Issue NON Y. DATE

Refer to DEQ for Enforcement Action: Y

ODA Review Date: 5-11-93

Report Approved By: Alan J. Yauss Proj. coordinator

Comments: Good Report

NR*CAFO.IR
4/93

YAMHILL
SOIL AND WATER CONSERVATION DISTRICT
POLLUTION COMPLAINT INVESTIGATION

RECEIVED
MAY 5 1993
NATURAL RESOURCES DIVISION

DATE: 4-29-93

INTY: YAMHILL

SOURCE OF PROBLEM: Name CALVIN VAN DER VEEN DAIRY Position OWNER

Address 13949 NW PHEASANT HILL RD. Phone 472-5917
MCMINNVILLE, OR 97128

Type of Operation DAIRY

REPORTED BY: (Confidential) BILL BOYER Phone 472-7435

Address 6730 SE BOOTH BEND ROAD
MCMINNVILLE, OR 97128

LOCATION OF DISCHARGE: DRAINAGE WAY FLOWS FROM VANDER VEEN PROPERTY INTO BAKER CREEK.

SPECIFIC PROBLEM: COMPLAINANT REPORTED MANURE IN WATER FLOWING OFF VAN DER VEEN FARM.

COMMENTS: (Discussion with parties involved - Who, What, Where, When, Why)

COMPLAINANT OBSERVED CONCENTRATED MANURE FLOW DISCHARGING FROM VANDER VEEN FROM THRU PASTURE DRAINAGE WAY AS FOLLOWS:

4-27-93 - OBSERVED TWO TIMES

4-28-93 - OBSERVED ONE TIME

ACTION TAKEN: 4-29-93 DISC. W/ STAN & ALAN YOUSE.
ALAN REQUESTED THAT SWCD MAKE AN INVESTIGATION AND TAKE SAMPLES IF NEEDED.

COMPLAINT INVESTIGATED BY: Dean O'Reilly YAMHILL SWCD.

FIELD NOTES:

OK

#93011 (2)

CAFO COMPLAINT INVESTIGATION

4-29-93 BY: Dean O'Reilly - YAMHILL SWCD

CALVIN VAN DER VEEN DAIRY - 13949 NW PHEASANT HILL RD. Mc MINNVILLE, OR 97128

ENTERED PROPERTY - 1300 HRS.

CONTACTED: MRS. ANNETTE VANDERVEEN.

DISC. NATURE OF COMPLAINT & INVESTIGATION PROCEEDURES. LOOKED AT DRAINAGE DITCH DISCHARGE AT BAKER CR. RD. TOGETHER.

MADE APPT. TO WALK OVER FARM W/ CALVIN FOR 1300 HRS 4-30-93.

ENDED DISCUSSION / CLOSED ENFORCEMENT 1325 HOURS.

COMPLETED WATER SAMPLING & LEFT SITE 1440 HOURS.

FIELD NOTES:

CAFO COMPLAINT INVESTIGATION # 93011 (2)

4-30-93 BY: Dean O'Reilly - YAMHILL SWCD

RE: CALVIN VAN DER VEEN DAIRY - 13949 NW PHEASANT HILL RD, MCMINNVILLE, OR 97128

ENTERED PROPERTY - 1255 HRS.

MET WITH CALVIN IN FRONT OF FARM HOUSE.

DISC. NATURE OF CAFO COMPLAINT AND 4-29-93 WATER SAMPLING PROCEEDURE AND CAFO INVESTIGATION PROCESS, WHICH INCLUDES FILING OF CAFO REPORT TO ODA IN SALEM, CALVIN ACCOMPANIED ME AROUND FARM TO LOOK AT CAFO FACILITIES, MANURE TANK, DRAINAGE AND POSSIBLE DISCHARGE POINTS. CALVIN PROVIDED ME WITH THE FOLLOWING INFORMATION ABOUT HIS DAIRY OPERATION:

MANURE TANK - 8' DEEP x 48' DIAMETER

- HE REPORT THE TANK HAS 50 DAYS OF STORAGE
- PUMPS ONCE EVERY 2-3 WEEKS THRU A TRANSPORT LINE AND BIG GUN APPLICATION SPRINKLER
- USES TRACTOR MTO. PTO AGITATOR & PUMP.

DAIRY ANIMALS - 100 MILKERS, 20 DRY COWS & 10 CALVES.

- LIQUID MANURE PUMPED FROM TANK TO PASTURE DISPOSAL FIELD.
- DRY BEDDED MANURE SPREAD ON PASTURE DURING SUMMER.

SILAGE BUNKER PARTLY USED, BUT WILL DISCONTINUE USE THIS YEAR. PLANS TO BUY FROM SITTION BROTHERS & HAUL TO FARM AS REQ.

END OF CONFERANCE AND FIELD VISIT 12 AT HOURS

LABORATORY SERVICES DIVISION
OREGON DEPARTMENT OF AGRICULTURE
635 CAPITOL STREET NE
SALEM, OREGON 97310-0110

Phone (503) 378-3793
FAX (503) 378-8960

UNIVERSAL SAMPLE COLLECTION AND LABORATORY ANALYSIS REPORT FORM

Requesting Agency/Division/Firm
Oregon State Department of Agriculture / Natural Resources Division

Address
635 Capitol Street NE, Salem, OR 97310-0110

Telephone	Contact Person	Purchase Order No.
(503) 378-3810	Alan Youse/Dave Wilkinson	

Sample No(s). — Lot/Code No(s).
93011(2) A, 93011(2) B, 93011(2) C, 93011(2) D, 93011(2) E, 93011(2) F, 93011(2) G

Description of Sample(s)

93011(2) A	1355 Hrs	- Baker Cr. county rd. ditch exiting Vanderveen farm.
93011(2) B	1400 Hrs	- Baker Cr. co. rd. ditch so. side of rd.. entering 12" tile.
93011(2) C	1404 Hrs	- So. end of 12" tile outlet before entering Baker Creek.
93011(2) D	1411 Hrs	- Taken 10' upstream in Baker Creek above point of discharge.
93011(2) E	1414 Hrs	- Taken at confluence of discharge & Baker Creek at point of discharge.
93011(2) F	1417 Hrs	- Taken 20' downstream at 2' from bank below discharge point in Baker Creek.
93011(2) G	1420 Hrs	- Taken at center of Baker Creek 45' downstream below pt. of discharge.

Sampled at
Drainage way s. side Vanderveen farm to Baker Creek

Source
Calvin Vanderveen
13949 NW Pheasant Hill Rd.
McMinnville, OR 97128

Method of Sampling and Sample Preparation
Grab & Iced

Related Samples

Reason for Sampling
Animal waste entering state's waters.

Sample(s) collected by
Dean O'Reilly

Date/Time collected
4-29-93 1355-1420 Hrs

Analysis Requested
Fecal Coliforms

Received on
4-29-93 1555 Hrs

Received by
D. Ramsden

Sample No.	Lab No.	Analytical Results Fecal Coliforms
93011(2) A	655	800,000 MPN/100ml
93011(2) B	656	500,000 MPN/100ml
93011(2) C	657	1,300,000 MPN/100ml
93011(2) D	658	27 MPN/100ml
93011(2) E	659	500,000 MPN/100ml
93011(2) F	660	170,000 MPN/100ml
93011(2) G	661	2,300 MPN/100ml

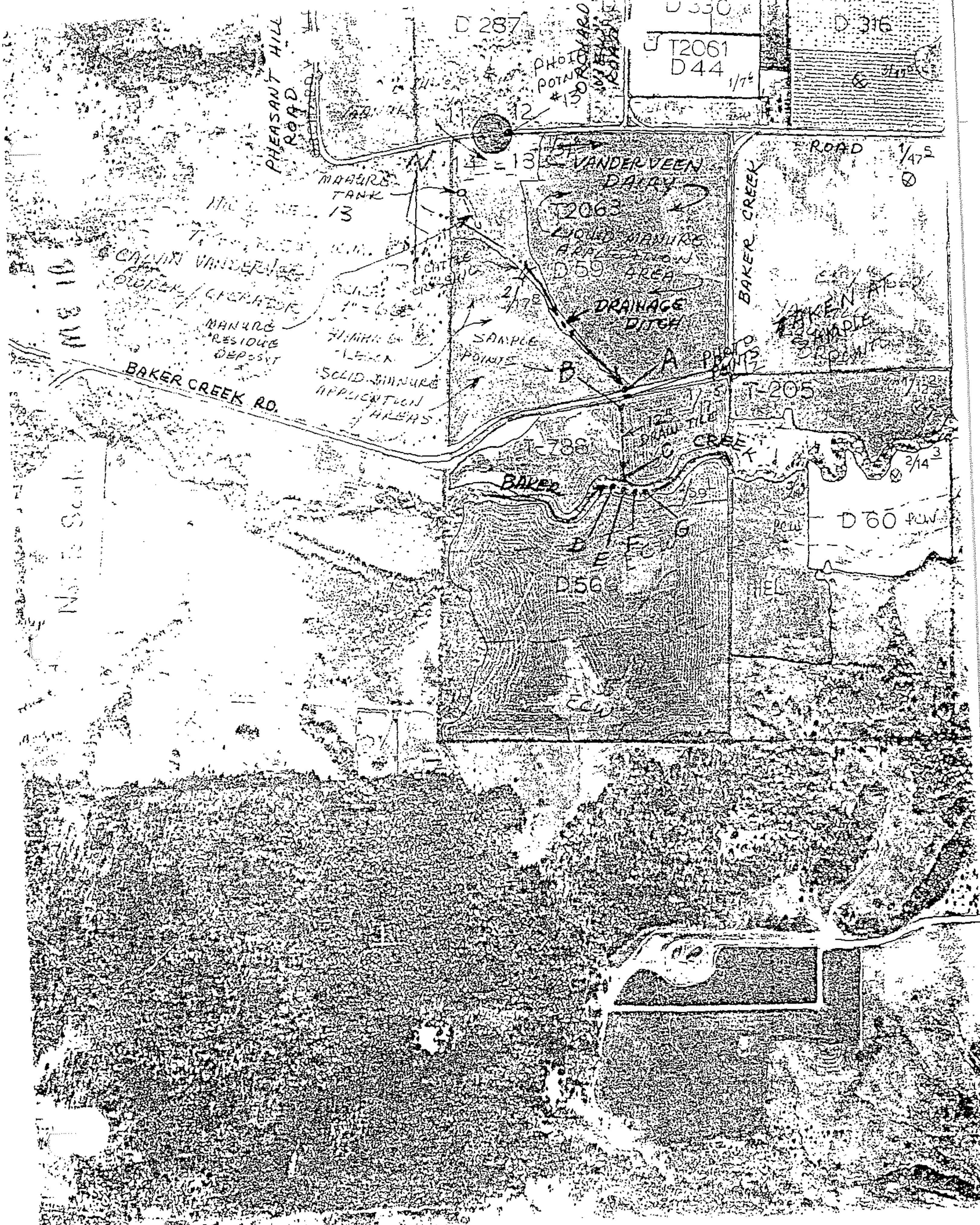
Analysis Completed on
5-3-93

Analyst
D. Ramsden

Report Sent on
5/5/93

Reviewed by
[signature]

Remarks:


D 287
D 316
T2061
D44
PHEASANT HILL ROAD
PHOTO POINT
#13
12
11
13
VANDER VEEN DAIRY
T2063
LIQUID MANURE APPLICATION AREA
D59
DRAINAGE DITCH
BAKER CREEK
ROAD
MANURE TANK
CALVIN VANDERVEEN
OWNER/OPERATOR
MANURE RESIDUE DEPOSIT
SAMPLE POINTS
SOLID MANURE APPLICATION AREAS
BAKER CREEK RD.
A
B
C
D
E
F
G
PHOTO POINTS
T-205
T-788
BAKER
CREEK
D 60
D56
HEL

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

JUL 2 2 1993

CERTIFIED MAIL P 244 745 264

Calvin Van Der Veen
C & A Dairy
13949 Pleasant Hill Road
McMinnville, OR 97128

Re: Notice of Assessment of
Civil Penalty 126
No. WQIW-WVR-93-084
Yamhill County

On April 29, 1993, representatives of the Yamhill Soil and Water Conservation District (SWCD), acting as agents of the Oregon Department of Agriculture (ODA), inspected your confined animal feeding operation (C & A Dairy) located in McMinnville, Oregon. The inspection revealed continuing problems with animal waste discharging into waters of the state. Specifically, C & A Dairy was once again discharging animal waste into a drainage ditch that leads to a drainage ditch on Baker Creek Road which drains to a 12 inch diameter culvert that discharges directly into Baker Creek.

Yamhill SWCD documented this discharge through their visual observations as well as photographs and water samples. Water samples taken show fecal coliform counts ranging from 500,000 to 1,300,000 colonies per 100 milliliters of water. Discharging waste violates the terms of your Water Pollution Control Facilities permit which states that "No direct discharge or potentially harmful indirect discharge to state waters is permitted." Your continuing discharge of animal waste into waters of the state in violation of your permit is a violation of Oregon Revised Statute (ORS) 468B.025(2).

On February 11, 1993, the Yamhill SWCD documented a similar discharge of animal waste from your operation. Due to that discharge, a Notice of Permit Violation (WQAW-WVR-93-084) (NPV) was issued by the Department on April 19, 1993. In response to the NPV you informed the Department that the discharge was a one time event and the problem was corrected immediately. Because a NPV has been issued to you for violation of your Water Pollution Control Facility permit within the last 36 months, you are liable for a civil penalty

Ex. 2

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

DEQ-1

assessment. The civil penalty schedule provides for a penalty up to $10,000 per day for each violation of these rules. In the enclosed Notice, I have assessed a civil penalty of $1,000 for discharging wastes into waters of the state. In determining the amount of the penalty, I used the procedures set forth in Oregon Administrative Rule (OAR) 340-12-045. The Department's findings and civil penalty determination are attached to the Notice as Exhibit 1.

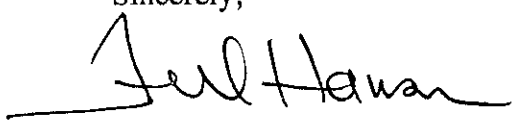
Appeal procedures are outlined in Section V of the Notice. If you fail to either pay or appeal the penalty within twenty (20) days, a Default Order will be entered against you.

If you wish to discuss this matter, or if you believe there are mitigating factors which the Department might not have considered in assessing the civil penalty, you may request an informal discussion by attaching your request to your appeal. Your request to discuss this matter with the Department will not waive your right to a contested case hearing.

I look forward to your cooperation in complying with the Department's rules in the future. However, if any additional violations occur, you may be assessed additional civil penalties.

Copies of referenced rules are enclosed. If you have any questions about this action, please contact Ed Druback with the Department's Enforcement Section in Portland at 229-5151 or toll-free at 1-800-452-4011.

Sincerely,



Fred Hansen
Director

FH:ed
Enclosures
cc: Willamette Valley Region, DEQ
Water Quality Division, DEQ
Yamhill Soil & Water Conservation District
Oregon Department of Agriculture
Department of Justice
Environmental Protection Agency
Environmental Quality Commission

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY OF THE STATE OF OREGON, Department, v. CALVIN VAN DER VEEN /DBA C & A DAIRY, Respondent.	)	NOTICE OF ASSESSMENT OF CIVIL PENALTY No. WQAW-WVR-93-126 YAMHILL COUNTY

I. AUTHORITY

This notice is issued to Respondent, Calvin Van der Veen, doing business as C & A Dairy, by the Department of Environmental Quality (Department) pursuant to Oregon Revised Statutes (ORS) 468.126 through 468.140, ORS Chapter 183 and Oregon Administrative Rules (OAR) Chapter 340, Divisions 11 and 12.

II. PERMIT

On October 8, 1990, the Department issued Water Pollution Control Facilities Permit No. 800 (permit) Facility ID #103024 to Respondent. The permit authorized Respondent to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system in conformance with the terms and conditions of the permit. The permit was in effect at all material times.

III. VIOLATIONS FOR WHICH A CIVIL PENALTY IS BEING ASSESSED

On or about April 29, 1993, in Yamhill County, Oregon, Respondent violated Special Condition 1 of the permit and ORS 468B.025(2) by discharging animal waste into a drainage ditch that leads to a drainage ditch on Baker Creek Road which drains to a 12 inch diameter culvert that discharges directly into Baker Creek, waters of the state as defined by ORS 468B.005(8).

///

///

IV. ASSESSMENT OF CIVIL PENALTIES

The Director imposes a civil penalty for the violation cited in Section II in the amount of $1,000.

The findings and determination of Respondent's civil penalty pursuant to OAR 340-12-045 are attached and incorporated as Exhibit No. 1.

The penalty is being imposed pursuant to the provisions OAR 340-12-040(2)(c) as Respondent has received Notice of Permit Violation (WQAW-NWR-93-084) on April 21, 1993 a date which is within 36 months of the date of this violation.

V. OPPORTUNITY FOR CONTESTED CASE HEARING

Respondent has the right to have a formal contested case hearing before the Environmental Quality Commission (Commission) or its hearings officer regarding the matters set out above, at which time Respondent may be represented by an attorney and subpoena and cross-examine witnesses. **The request for hearing must be made in writing and must be received by the Commission's hearings officer within twenty (20) days from the date of service of this Notice, and must be accompanied by a written "Answer" to the charges contained in this Notice.**

In the written "Answer," Respondent shall admit or deny each allegation of fact contained in this Notice and Respondent shall affirmatively allege any and all affirmative claims or defenses to the assessment of this civil penalty that Respondent may have and the reasoning in support thereof. Except for good cause shown:

1. Factual matters not controverted shall be presumed admitted;

2. Failure to raise a claim or defense shall be presumed to be a waiver of such claim or defense;

3. New matters alleged in the "Answer" shall be presumed to be denied unless admitted in subsequent pleading or stipulation by the Department or Commission.

Send the request for hearing and "Answer" to: **Linda K. Zucker, Hearings Officer, Environmental Quality Commission, 811 S.W. Sixth Avenue, Portland, Oregon 97204.**

Following receipt of a request for hearing and an "Answer," Respondent will be notified of the date, time and place of the hearing.

Failure to file a timely request for hearing and "Answer" may result in the entry of a Default Order for the relief sought in this Notice.

Failure to appear at a scheduled hearing or meet a required deadline may result in a dismissal of the request for hearing and also an entry of a Default Order.

The Department's case file at the time the Notice was issued may serve as the record for purposes of entering the Default Order.

VI. OPPORTUNITY FOR INFORMAL DISCUSSION

In addition to filing a request for a contested case hearing, Respondent may also request an informal discussion with the Department by attaching a written request to the hearing request and "Answer".

VII. PAYMENT OF CIVIL PENALTY

The civil penalty is due and payable ten (10) days after the Order imposing the civil penalty becomes final by operation of law or on appeal. Respondent's check or money order in the amount of $1,000 should be made payable to "State Treasurer, State of Oregon" and sent to the **Business Office, Department of Environmental Quality, 811 S.W. Sixth Avenue, Portland, Oregon 97204.**

JUL 22 1993

Date

Fred Hansen, Director

EXHIBIT 1

FINDINGS AND DETERMINATION OF RESPONDENT'S CIVIL PENALTY PURSUANT TO OREGON ADMINISTRATIVE RULE (OAR) 340-12-045

VIOLATION: Discharging wastes into waters of the state.

CLASSIFICATION: The violation is a Class I violation pursuant to OAR 340-12-055(1)(b).

MAGNITUDE: The magnitude of the violation is minor as there is insufficient information upon which to base a finding of other than minor.

CIVIL PENALTY FORMULA: The formula for determining the amount of penalty of each violation is:

$$BP + [(.1 \times BP) (P + H + O + R + C)] + EB.$$

"BP" is the base penalty which is $1,000 for a Class I minor magnitude violation in the matrix listed in OAR 340-12-042(1).

"P" is Respondent's prior significant action(s) and receives a value of 0 as Respondent has no prior significant actions.

"H" is the past history of Respondent in taking all feasible steps or procedures necessary to correct any prior significant action(s) and receives a value of 0 as Respondent has no prior significant actions.

"O" is whether or not the violation was a single occurrence or was repeated or continuous during the period of the violation and receives a value of 0 as the discharge was a single occurrence.

"R" is the cause of the violation and receives a value of 0 as there is insufficient information upon which to base a finding of other than 0.

"C" is Respondent's cooperativeness in correcting the violation and receives a value of 0 as Respondent was neither cooperative nor uncooperative.

"EB" is the approximate dollar sum of the economic benefit that the Respondent gained through noncompliance, and receives a value of 0 as there is insufficient information upon which to base a finding of other than 0.

PENALTY CALCULATION:

Penalty	= BP	+ [(.1 x BP) (P + H + O + R + C)] + EB
	= $1,000	+ [(.1 x 1,000) (0+0+0+0+0)] + 0
	= $1,000	+ [(100) (0)] + 0
	= $1,000	+ 0 + 0
	= $1,000	

8-17-93

rec'd 8/23/93 LKZ

Department of Environmental Quality of the State of Oregon:
Notice No. WQAW-WVR 93-126

Ed Druback and Linda K. Zucker, Hearing Officer:

1. I did not discharge animal waste into waters of the State of Oregon. The problems of the complaint arose because the dairy cattle were grazing the pasture where the water way goes. They used the water for drinking and they crossed the water way by bridge. The very wet April caused the bridge to have wet mud and wet top soil which flowed into the water.

2. I discussed the situation with Alan Yusse, of Oregon Natural Resources, on April 27, 1993. We talked about the pasture and water way. Alan said there is no law against grazing cattle in a pasture were the water way runs. If he would have advised me against grazing during this wet period, I would have rotated the cows to another pasture.

3. I had Dean O'Reilly, from Yamhill EX. 3

Soil + Water, out to inspect the facility. Dean inspected on April 30. We asked Dean if he saw any problems and he indicated things appeared to be in order. He inspected where the cows where in the pasture as well as the manure facilities along with the spreading of manure on the property.

4. This complaint has nothing to do with manure handling or discharge of animal waste.

5. If this does not resolve the problem of $1000 penalty, I wish to ask for a hearing on this matter.

Thank You

Calvin VanDerVeen

Calvin E. VanDerVeen
13949 Pheasant Hill Rd.
McMinnville, Oregon 97128

7-15-94

Notice of Assessment of
Civil Penalty
No. WQ/W-WVR-93-084
Yamhill County

DEQ of the State of Oregon:
Linda Zucker, Hearing Officer:

In regard to the meeting of April 19, 1994, all requirements have been completed. I have reviewed the Best Management Practices, from the Oregon Animal Waste Installation Guidebook, with Dean O'Reilly of Yamhill Soil and Water. We can incorporate Best Management Practices into our operation.

EX. 4

Thank You
Calvin VanDerVeer
13949 Pleasant Hill Rd.
McMinnville, Oregon 97128

file

Oregon

ENVIRONMENTAL QUALITY COMMISSION

CERTIFIED MAIL NUMBER P991 113509

Date: March 11, 1994

Calvin Van Der Veen C+A Dairy
13949 Pleasant Hill Rd.
McMinnville OR 97128

NOTICE OF HEARING IN CASE

Van Der Veen dbp C+A Dairy
name

WQAW WR 93126
number

This hearing is scheduled as follows: EX 5

Date: April 4, 1994

Time: 9 am

Place: Room 10A DEQ [illegible]

Please read the enclosed information which discusses the

If you have any questions about procedure, please call m

P 991 113 509

Receipt for Certified Mail

No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

UNITED STATES POSTAL SERVICE

Sent to Calvin Van Der Veen	
Street and No. 13949 Pleasant Hill Rd	
P.O., State and ZIP Code McMinnville OR 97128	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, June 1991

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. *(Extra charge)*
2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
Calvin Van Der Veen C+A Dairy
13949 Pleasant Hill Rd
McMinnville OR 97128

4. Article Number
P991 113 509

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature – Address
X [signature]

6. Signature – Agent
X

7. Date of Delivery
3-22-94

8. Addressee's Address *(ONLY if requested and fee paid)*

PS Form 3811, Mar. 1988 ★ U.S.G.P.O. 1988-212-865 DOMESTIC RETURN RECEIPT

Oregon

EMPLOYMENT
DEPARTMENT

Hearings Section, Suite 225

September 14, 1995

Mr. Calvin Van Der Veen
13949 Pleasant Hill Road
McMinnville, OR 97128

RE: Calvin Van Der Veen, dba C & A Dairy
WQIW-WVR-93-126

The Employment Department has contracted to hold contested case hearings for the Department of Environmental Quality (DEQ).

This contested case hearing has been scheduled as follows:

Date: Monday, October 23, 1995
Time: 1:30 P.M.
Location: Department of Environmental Quality
2020 SW 4th Avenue, 4th Floor
Portland, OR 97201
(503) 229-5572

Ed Druback of the DEQ Enforcement Section (phone 503 229-5572) will be representing DEQ at this hearing.

Please review the enclosed Notice of Contested Case Rights and Procedures. If you have questions, please call me at 503 731-4041.

Sincerely,

Lawrence S. Smith
Administrative Law Judge
Portland Hearings Section

Enclosure
jl

cc: Ed Druback, DEQ
Susan Greco, DEQ

Ex. 6

John A. Kitzhaber
Governor

800 NE Oregon Street, #6
Portland, OR 97232
(503) 731-4041
FAX (503) 731-4042

NOTICE OF POSTPONEMENT OF HEARING
EMPLOYMENT DEPARTMENT
HEARINGS SECTION

Issuing office
PORTLAND

Date: OCTOBER 18, 1995
Ref. No.: 95-DEQ-007
Agency No.: WQIW-WVR-93-126
ALJ: SMITH

RESPONDENT

CALVIN VAN DER VEEN
13949 PLEASANT HILL ROAD
MCMINNVILLE, OR 97128

AGENCY

ED DRUBACK
ENFORCEMENT SECTION - DEQ
2020 SW 4TH AVENUE, SUITE 400
PORTLAND, OR 97201-4987

The hearing scheduled for MONDAY, OCTOBER 23, 1995, 1:30 P.M., HAS BEEN POSTPONED for good cause.

This was at the request of DEQ.

New Notices of Hearing will be issued in due course to the interested parties.

Ex. 7

Oregon

EMPLOYMENT
DEPARTMENT

Hearings Section, Suite 225

October 26, 1995

Mr. Calvin Van Der Veen
13949 Pleasant Hill Road
McMinnville, OR 97128

RE: Calvin Van Der Veen, dba C & A Dairy
WQIW-WVR-93-126

The Employment Department has contracted to hold contested case hearings for the Department of Environmental Quality (DEQ).

This contested case hearing has been scheduled as follows:

Date: Monday, November 20, 1995
Time: 1:30 P.M.
Location: Department of Environmental Quality
2020 SW 4th Avenue, 4th Floor
Portland, OR 97201
(503) 229-5572

Ed Druback of the DEQ Enforcement Section (phone 503 229-5572) will be representing DEQ at this hearing.

Please review the enclosed Notice of Contested Case Rights and Procedures. If you have questions, please call me at 503 731-4041.

Sincerely,

Lawrence S. Smith
Administrative Law Judge
Portland Hearings Section

Enclosure
jl

cc: Ed Druback, DEQ
Susan Greco, DEQ

Ex. 8

John A. Kitzhaber
Governor

800 NE Oregon Street, #6
Portland, OR 97232
(503) 731-4041
FAX (503) 731-4042

United States Department Of Agriculture
Soil Conservation Service
2200 West 2nd Street
McMinnville, Oregon 97128
(503) 472-1491

Calvin Van Der Veen
13949 NW Pheasant Hill Road
McMinnville, OR 97128

Dear Mr. Van Der Veen, June 3, 1994

This letter follows up my field visit on May 31, 1994. I completed a Site Inventory Worksheet for Animal Waste Systems during this visit. Also present were Dean O'Reilly, Yamhill SWCD, Mike Gangwer, OSU Extension, and Jim Krahn, Oregon Dairy Farmers Association.

The dairy has a animal waste system that with proper management can enable waste to be applied to the land. There are several problems that compromise the efficiency and proper functioning of this system.

The problems with the existing system fall into two general categories: decreased available storage due to unnecessary water inputs and containing animal waste within the system.

In order to maximize the limited storage, the addition of clean water to the animal waste system should be limited. Excess water enters the animal waste system from barn roofs over the cow lot and from a spring in the silage pit. Reduced waste storage limits the flexibility of the animal waste system.

All animal waste and contaminated runoff should be contained on the existing slabs and in the storage tank. Manure and contaminated runoff escapes the system from around the manure collection point and between two barns. Manure has also overflowed from the storage tank.

There was evidence of some problems with the management of the animal waste system. The tank has overflowed significant amounts of waste. Dried manure solids were piled around the tank. A section of the seasonal stream below the tank was filled with manure solids. Also, field application has not been uniform at agronomic rates.

I recommend the following Best Management Practices from the Oregon Animal Waste Installation Guidebook to ensure that the existing system operates in the best manner to apply waste to the land.

BMPS:

#1. Install pasture fence to prevent animal from entering seasonal creek.

Ex. 9
(2 pages)

#7. Install subsurface diversion to intercept spring in silage tank. Route water away from the storage tank.

#8. Install gutters and downspouts on barns that flow into lot. Route intercepted water away from lot.

#14. Install curbs and barriers between barns and around the manure collection area to contain manure and direct it to the storage tank.

#25. Apply wastes to land at a time and rate when the soil will absorb most, if not all, of the liquid fraction of the waste.

#31. Apply waste in amounts that can be beneficially used by the crop. Over application waste can lead to runoff, leaching, and waste of nutrients.

#37. Establish the nutrient content of manure prior to land application to better judge application rates.

Installation of the above practices and careful management will improve the proper functioning of the existing animal waste system.

For your information, current SCS recommendations for animal waste systems in the Williamette Valley include providing 180 days of storage for animal waste and contaminated runoff. Your current storage volume is much less than this. Storage of animal waste over the winter months ensures that runoff and leaching of nutrients does not occur during wet weather. It also provides valuable nutrients to be applied to crops during the growing season when they iare needed and excess rainfall is not a problem..

Please contact me if you have any questions about this assessment of your animal waste management system.

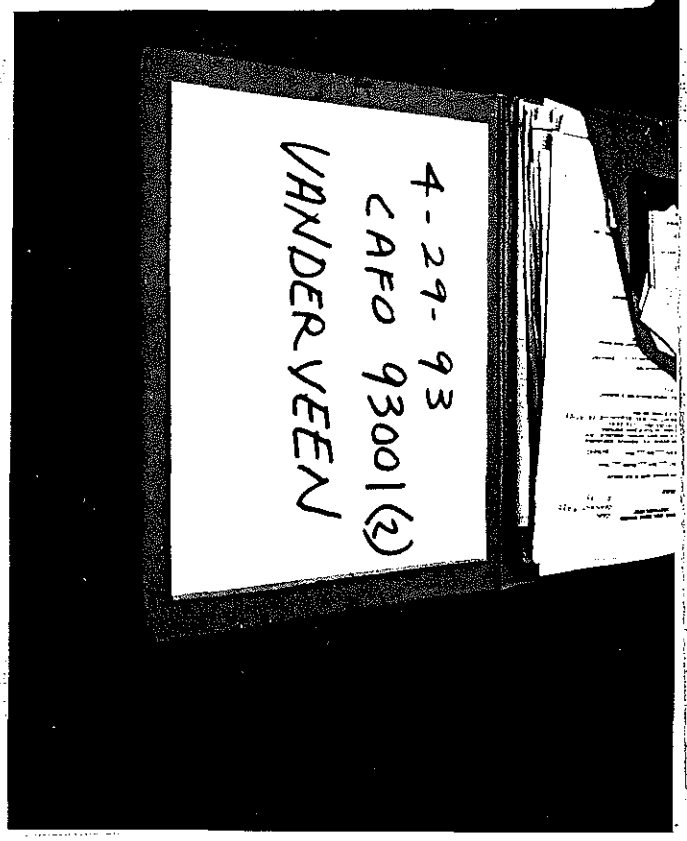
Sincerely,

Randy Van Hoy
Field Office Engineer

cc: Dave Wilkinson, ODA
Coleman Gusler, Area Engineer, SCS

CAFO Complaint: ~~#93011(2)~~ 93011(2)
SWCD Investigation: 4-28-93
Photo #1 By: Dean O'Reilly
Operator: Calvin Vanderveen

Ex. 10

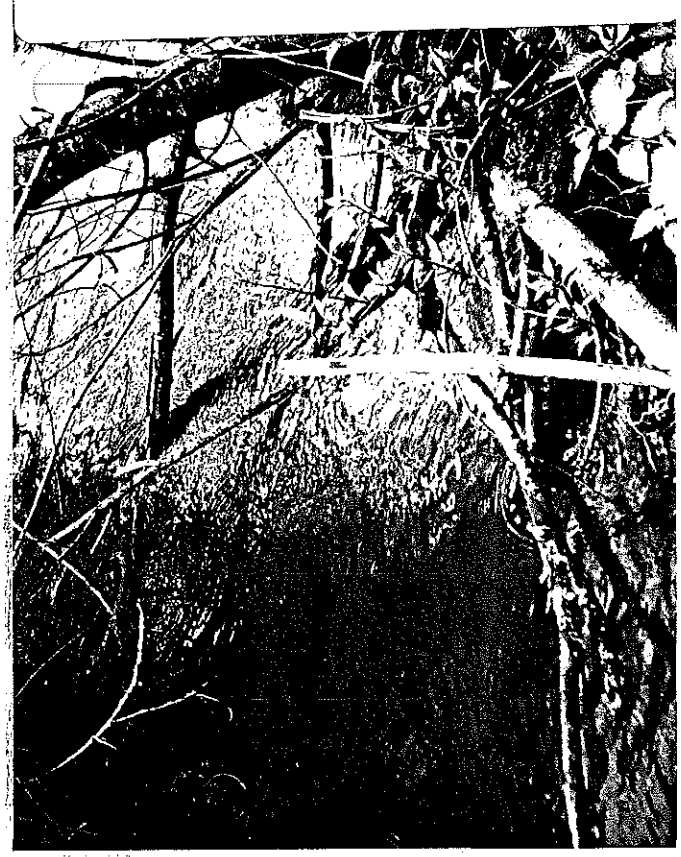


CAFO Complaint: ~~#93011(2)~~ 93011(2)
SWCD Investigation: 4-28-93
Photo #2 By: Dean O'Reilly
Operator: Calvin Vanderveen

CAFO Complaint: ~~#93011(2)~~ 93011(2)
SWCD Investigation: 4-28-93
Photo #3 By: Dean O'Reilly
Operator: Calvin Vanderveen

CAFO Complaint: ~~#93011(2)~~ 93011(2)
SWCD Investigation: 4-28-93
Photo #4 By: Dean O'Reilly
Operator: Calvin Vanderveen

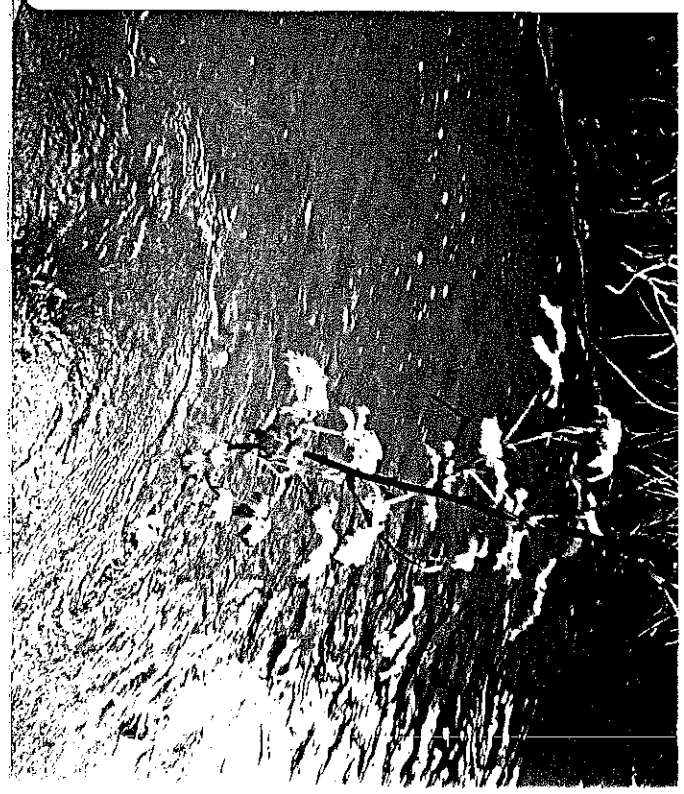
CAFO Complaint: ~~#9301(2)~~ 93011(2)
SWCD Investigation: 4-29-93
Photo #5 By: Dean O'Reilly
Operator: Calvin Vanderveen



CAFO Complaint: ~~#9301(2)~~ 93011(2)
SWCD Investigation: 4-29-93
Photo #6 By: Dean O'Reilly
Operator: Calvin Vanderveen

CAFO Complaint: ~~#9301(2)~~ 93011(2)
SWCD Investigation: 4-29-93
Photo #7 By: Dean O'Reilly
Operator: Calvin Vanderveen

CAFO Complaint: ~~#9301(2)~~ 93011(2)
SWCD Investigation: 4-29-93
Photo #8 By: Dean O'Reilly
Operator: Calvin Vanderveen



Water, Food & Research Lab, Inc.

Laboratory: 13035 S.W. Pacific Hwy., Tigard, Oregon 97223
Mailing Address: P.O. Box 19700, Portland, Oregon 97219
Telephone (503) 639-9311

C & A DAIRY
13949 PHEASANT HILL ROAD
McMINNVILLE, OR 97128

SAMPLE NO # 6191 A&B

472-5917

CHEMICAL CONTAMINANTS LABORATORY REPORT
********** 3 MAY 1988 **********

SAMPLE: WATER SAMPLES FROM BAKER CREEK
LOCATION: (A) ABOVE DAIRY (B) BELOW DAIRY
COLLECTED: 04-26-88 AT 1500 HRS
RECEIVED/TESTED: 04-26-88 AT 1617 HRS EPA STANDARD METHODS

ANALYSIS	(A) ABOVE DAIRY	(B) BELOW DAIRY
TOTAL COLIFORM BACTERIA	2,400 / 100MLS	3,000 / 100MLS
FECAL COLIFORM (15-MPN)	170 / 100MLS	110 / 100MLS
FECAL STREP (15-MPN)	14 / 100MLS	27 / 100MLS
RATIO: FECAL COLIFORM / FECAL STEP	12.1 (HUMAN)	4.1 (HUMAN)

FC/FS RATIOS: 4.4 =HUMAN 0.6 = DUCK PIG = 0.4 COW = 0.2

****

CERTIFIED BY: NO SIGNIFICANT DIFFERENCE IN COLIFORM, FECAL COLIFORM OR FECAL STREP WAS NOTED IS SAMPLES TESTED BOTH ABOVE AND BELOW DAIRY INDICATING DAIRY NOT IMPACTING CREEK.

BOTH SAMPLES INDICATE PREDOMINANT CONTAMINATION IS FROM HUMAN WASTE BASED ON FC/FS RATIO ESTIMATE.

PAUL B. STEVENS
Microbiologist/Biochemist
LAB DIRECTOR (EPA/OSHD # 31)

< = LESS THAN OR NONE DETECTED
ALL RESULTS IN PPM = MG/L

Ex. 11

CERTIFIED

Oregon

DEPARTMENT OF
ENVIRONMENTAL
QUALITY

APR 19 1993

CERTIFIED MAIL P 991 113 666

Calvin Van Der Veen
C & A Dairy
13949 Pleasant Hill Road
McMinnville, OR 97128

Re: Notice of Permit Violation
No. WQAW-WVR-93-084
Yamhill County
Permit No. WPCF 0800
Facility No. 103024

On February 11, 1993, representatives of Yamhill Soil and Water Conservation District, acting as agents of the Oregon Department of Agriculture (ODA) inspected your confined animal feeding operation (C & A Dairy) located in McMinnville, Oregon. The inspection revealed that C & A Dairy was violating a condition of its Water Pollution Control Facilities Permit No. 0800 (permit). Specifically, you violated Special Condition No. 1 by discharging waste into a drainage ditch that leads to a drainage ditch on Baker Creek Road, which drains into a 12 inch diameter pipe that discharges directly into Baker Creek, waters of the state as defined in Condition G12 of the permit.

Because you have violated conditions of your permit, I have enclosed a Notice of Permit Violation (NPV) which requires you to submit one of the following to the Department **within five (5) working days after receipt of the NPV:**

1. A written response acceptable to the Department certifying that your facility is complying with all terms of the permit. The certification shall include a sufficient description of the information on which you are certifying compliance to enable the Department to determine that compliance has been achieved; or

811 SW Sixth Avenue
Portland, OR 97204-1390
(503) 229-5696
TDD (503) 229-6993

DEQ-1

Ex. 12

2. A written proposal, acceptable to the Department, to bring the facility into compliance with the permit. An acceptable proposal shall include at least the following:

a) A detailed plan and time schedule for achieving compliance in the shortest practicable time;

b) A description of the interim steps that will be taken to reduce the impact of the permit violation until your facility is in compliance with the permit;

c) A statement that you have reviewed all other conditions and limitations of the permit and no other violations of the permit were discovered. See Oregon Administrative Rule (OAR) 340-12-040.

In order for your schedule to be approvable by the Department it must contain at least the following items and compliance deadlines:

(1) Within 30 days, stop or minimize all discharges of manure, silage pit drainage, washdown waters and contaminated precipitation from entering the road ditch along Baker Creek Road and into Baker Creek;

(2) Within 90 days, submit to the Oregon Department of Agriculture, Natural Resources Division for review and approval a waste management plan and, an operation and maintenance schedule in accordance with the Oregon Animal Waste Installation Guidebook;

(3) By October 1, 1993, implement the approved schedule of the Waste Management Plan;

(4) By October 1, 1993, meet all requirements of the permit.

Your response should also include a certification of the number of animals that are currently located at your facility. If you fail to appropriately respond to the NPV within five days of receipt of the NPV, you will be assessed a civil penalty for the violation cited in Section III of the NPV. The Department's civil penalty schedule provides for a penalty up to $10,000 per day for each violation. A copy of our enforcement procedures and civil penalty rules is enclosed.

All submittals required by this NPV should be sent to Ed Druback of the Department's Enforcement Section at 811 S.W. Sixth Avenue, Portland, Oregon 97204. If you have any questions about this enforcement action, please contact Ed Druback at 229-5151 or toll-free at 1-800-452-4011.

Sincerely,

Tom Bispham

Tom Bispham
Administrator
Regional Operations

TRB:ed

Enclosures
cc: Willamette Valley Region, DEQ
Water Quality Division, DEQ
Oregon Department of Agriculture
Yamhill Soil and Water Conservation District
Department of Justice
Environmental Protection Agency1

BEFORE THE ENVIRONMENTAL QUALITY COMMISSION

OF THE STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY OF THE STATE OF OREGON, Department, v. CALVIN VAN DER VEEN /DBA C & A DAIRY Respondent.	)	NOTICE OF PERMIT VIOLATION No. WQAW-WVR-93-084 YAMHILL COUNTY

I. AUTHORITY

This Notice of Permit Violation is issued to Respondent, Calvin Van Der Veen doing business as C & A Dairy, by the Department of Environmental Quality (Department) pursuant to Oregon Revised Statutes (ORS) 468.126 through 468.140, ORS Chapter 183 and Oregon Administrative Rules (OAR) Chapter 340, Divisions 11 and 12.

II. PERMIT

On October 8, 1990, the Department issued Water Pollution Control Facilities Permit No. 800 (Permit) Facility ID #103024 to Respondent. The Permit authorized Respondent to construct, install, modify, or operate a wastewater collection, treatment, control and disposal system in conformance with the terms and conditions of the permit. The Permit was in effect at all material times.

III. PERMIT VIOLATIONS

1. On or about February 11, 1993, Respondent violated Special Condition 1 of Respondent's Permit which states: "No direct discharge or potentially harmful indirect discharge to state waters is permitted." Specifically, Respondent discharged animal waste into a drainage ditch that leads to a drainage ditch on Baker Creek Road which drains to a 12 inch diameter culvert that discharges directly into Baker Creek, waters of the state as defined in the permit.

///

IV. REQUIREMENTS UNDER THIS NOTICE

A penalty will be imposed for the violation(s) specified in Section III of this Notice unless the Respondent submits one of the following to the Department within five working days after receipt of this Notice:

1. A written response from the Respondent certifying that the permitted facility is complying with all terms and conditions of the Permit. The certification shall include a sufficient description of the information on which the Respondent is certifying compliance so as to enable the Department to determine that compliance has been achieved; or

2. A written proposal to bring the facility into compliance with the Permit which shall include at least the following:

a. A detailed plan and time schedule for achieving compliance in the shortest practicable time;

b. A description of the interim steps that will be taken to reduce the impact of the Permit violation(s) until the permitted facility is in compliance with the Permit; and

c. A statement that the Respondent has reviewed all other conditions and limitations of the Permit and no other violations of the Permit were discovered.

V. CONSEQUENCES OF ADDITIONAL VIOLATIONS OR FAILURE TO RESPOND

If the Respondent fails to meet the requirements of Section IV of this Notice, or if the violation(s) cited in Section III continue, or a Permit violation again occurs within 36 months of Respondent's receipt of this Notice, the Department may assess a civil penalty against Respondent. In the event that a civil penalty is imposed upon Respondent, it will be assessed by a subsequent written notice pursuant to OAR Chapter 340, Division 12. Respondent will be given an opportunity for a contested case hearing to contest the allegations and penalty assessed

///

///

///

in that Notice, pursuant to ORS 468.135, ORS Chapter 183, and OAR Chapter 340, Division 11. Respondent is not entitled to a contested case hearing at this time.

4/19/93
Date

Tom Bispham
Tom Bispham, Administrator
Regional Operations, DEQ

P 991 113 666

Receipt for Certified Mail
No Insurance Coverage Provided
Do not use for International Mail
(See Reverse)

Sent to: Calvin Van Der Veen	
Street and No.	
P.O., State and ZIP Code	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, and Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, June 1991

CERTIFICATE OF MAILING

at I served Notice of Permit Violation

-084

13949 Pleasant Hill Road

McMinnville OR 97128

by mailing a true copy of the above by placing it in a sealed envelope, with postage prepaid, at the U.S. Post office in Portland, Oregon, on April 19, 1993

ntal Quality

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.
Put your address in the "RETURN TO" Space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.
1. ☐ Show to whom delivered, date, and addressee's address. (Extra charge) 2. ☐ Restricted Delivery (Extra charge)

3. Article Addressed to:
Calvin Van Der Veen
C & A Dairy
13949 Pleasant Hill Road
McMinnville OR 97128

4. Article Number
P 991 113 666

Type of Service:
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery

8. Addressee's Address (ONLY if requested and fee paid)

McMINNVILLE, OR 97128 APR 21 1993 USPS

PS Form 3811, Apr. 1989 *U.S.G.P.O. 1989-238-815 DOMESTIC RETURN RECEIPT

DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Quality Control
Date Received: 4/28/93
Acknowledged By: TM

4-28-93

C+A DAIRY
13949 PLEASANT HILL Rd
McMinnville, Oregon 97128

ED Drukeck
Dept. of Environmental Quality
811 S.W. Sixth Ave.
Portland, Oregon 97204

A72 341

I am writing this letter in response to the accidental spill of February 11, 1993. We were not aware of a problem until the Yamhill Soil and Water District came on the yard. The problem was corrected immediately after the personel left. We moved the manure line to the fields with less slope so there would be no runoff.

We have an 8'X 48' manure tank which is adequate to store manure in winter months. I will double check the storage capacity with the Soil and Water people.

We plan on cleaning out the manure tank this summer so we can get maximum capacity.

4-28-93

DEPARTMENT OF ENVIRONMENTAL QUALITY
Air Quality Control
Date Received: 4/28/93
Acknowledged By: TM

The manure facility was designed for 180 cows, we now have 120. The manure is applied to 68 acres of property.

Sincerely
Calvin Van Den Berg

State of Oregon
Department of Environmental Quality Memorandum

Date: May 17, 1996

To: Environmental Quality Commission

From: Langdon Marsh

Subject: Director's Report

Pollution Prevention (P2) Core Group Formed

Logic tells us that it is more efficient to avoid generating wastes than managing complex systems to control them. This concept is being increasingly integrated into regulatory activity and has become a key component of corporate environmental management strategies.

To make certain this agency is taking full advantage of these opportunities, I called together a core committee of DEQ people in late April to look for ways to link agency pollution prevention measures and promote communication among divisions and programs about both opportunities and concerns. The group includes representatives of each division, the Director's Office, the regions and enforcement.

Greg Green, Air Quality Division Administrator, will chair the group. The charge for him and other committee members is to serve as inter-agency connectors and catalysts to integrate pollution prevention approaches into all DEQ activities.

Waste Audit Creates Confusion

A performance audit report released last week by the Secretary of State questioned the agency's commitment to regulatory enforcement of hazardous waste management rules and permits. The report called for increased enforcement and site inspections coupled with reduced technical assistance and pollution prevention efforts.

This audit position conflicts with several years of direction from the EQC, the Governor's office, the state legislature and EPA. The agency response contained in the audit report and agency responses to media both emphasized continued DEQ commitment to enforcement balanced with work to reduce waste production at the front end of manufacturing processes.

Portland Maintenance Plan Hearings

Agency staff will conduct three public hearings May 22-23 in the Portland area to share information about and take comments on the Portland Air Quality Maintenance plans for both ozone and carbon monoxide. Several contacts with area news media and editorial boards

preceded these hearings. Staff will make a strong effort over the next several months to increase public knowledge about and understanding of the plans, particularly the enhanced vehicle inspection program. These proposals will come to the Commission in July.

303(d) List Preparation Update

We have been granted an extension in submitting the 303d List of Water Quality Limited Water Bodies to EPA by an agreement between EPA and the Plaintiffs. The new dates in the agreement are June 1, 1996, for our submittal to EPA and July 1, 1996 for EPA's formal approval or revision of the DEQ List. The submittal package being prepared for EPA will contain:

1. DEQ's final 303d List of Oregon's waterbodies that do not meet WQ Standards. (which is looking to be around 900).
2. The 303d List Decision Matrix which lists waterbody segment, parameter of concern, basis for being considered, supporting data, status and reason for not listing if appropriate.
3. Narrative of listing criteria.
4. Description of the process that will be used to prioritize the list.
5. Response to public comments, and
6. Bibliography.

Running concurrently with the submittal effort is a push to have implementation guidance out for review, and information and out-reach plans in place, all by July 1st. We are working with EPA on developing guidance for a stream quality management process which would allow for a watershed approach developed and implemented through local watershed councils. Department staff are also developing guidance for implementation of the new temperature and DO standards and guidance on the natural conditions exclusion. We will also reconvene the Water Quality Public Advisory Committee to see if we can get some outside perspective on beneficial use impairment criteria and other issues. The Water Resources Institute at OSU is being asked to facilitate a state-wide conference in July which will focus on 303d listing issues. The Governor has called for a high-level stakeholders meeting on June 17.

Hyundai Permit Violation

Last month DEQ issued a $14,400 fine against Hyundai in Eugene for stormwater discharge violations from its chip plant construction site. Although the company said it would appeal this fine, it has not done so as of May 16. This week a consortium of environmental interests filed suit in Eugene claiming that Hyundai had violated its 1200 C stormwater discharge permit numerous other times not included in the DEQ penalty assessment. This suit seeks additional fines.

Columbia River Bi-State Study Final Report Due

In 1990, the states of Oregon and Washington jointly commissioned a study to evaluate water quality and related issues in the lower Columbia River from Bonneville Dam to the mouth. That

final report on the Lower Columbia River Bi-state Water Quality Program will be released next week. Portions of the study, which has several components, have already been well publicized.

These include the study noting declines of certain wildlife populations in the lower Columbia and discovery of some physical deformities in river otters which may be caused by chemical contaminants. This issue and that of chemical contamination of certain fish species have both been featured in The Oregonian in recent weeks.

I will be joining Governor Kitzhaber as well as Washington's Governor Lowery May 23 in Vancouver, Washington to recognize the beginning of the Columbia River National Estuary Program. This federally-funded effort will include additional study and potential actions to address issues and concerns raised by the Bi-State Study.

Update on National Legislative and Policy Issues

I will provide a verbal report on the status of the national Clean Water Act reauthorization process in Congress.

THE APPLICATION OF THE ELECTROCHEMICAL SILVER (II) PROCESS TO THE DEMILITARIZATION OF CHEMICAL MUNITIONS

A Paper Presented By Dr. Bill Batey of AEA Technology for a Conference on "Alternative Tecnologies for Chemical Weapon Demilitarization" called by S.A.I.C. on behalf of the U.S. Army Program Manager Chemical Demilitarization in Reston, Virginia, 25th - 27th September, 1995

AEA

Destruction of Chemical Munitions

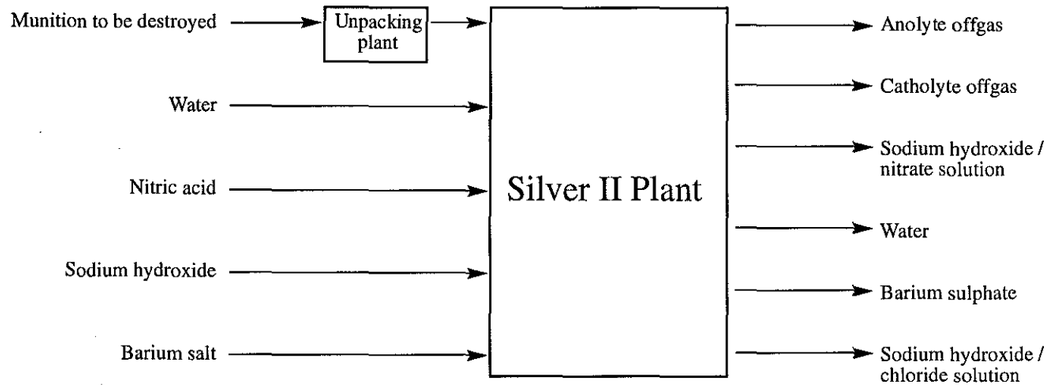


Figure 3

Simplified Flow Diagram of 360 kW Silver II Plant

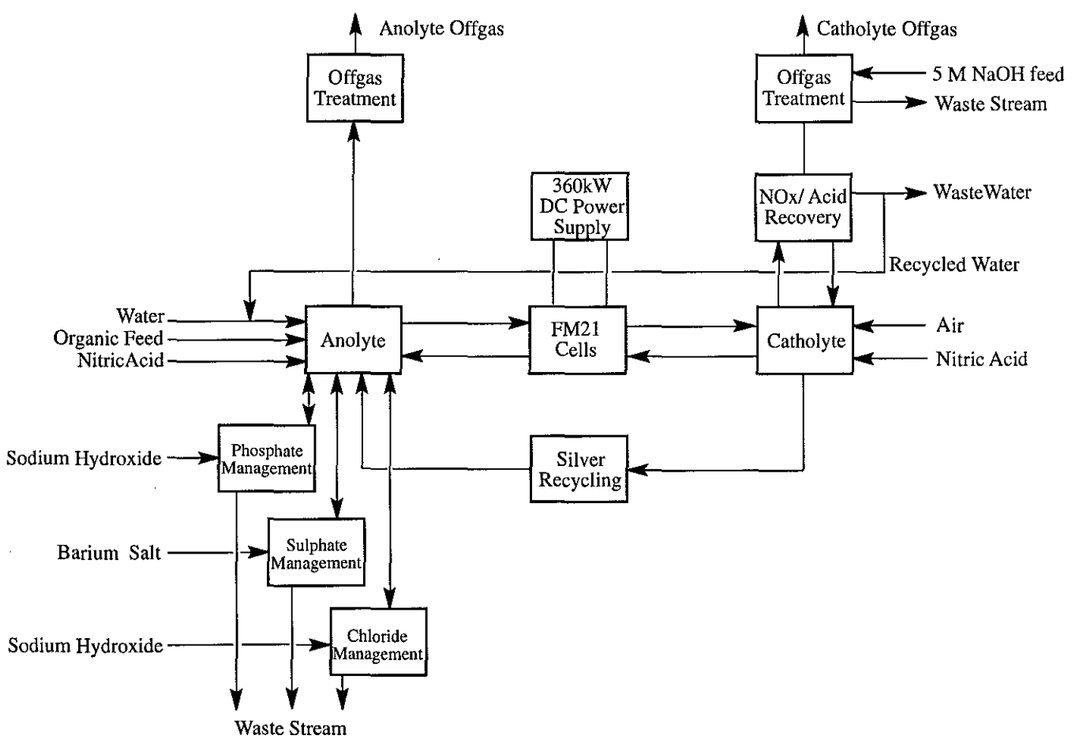


Figure 4

THE APPLICATION OF THE DOUNREAY ELECTROCHEMICAL SILVER (II) PROCESS TO THE DEMILITARISATION OF CHEMICAL MUNITIONS

ABSTRACT

The safe disposal of chemical munitions is an essential requirement in the light of both changed public perception of safety and environmental concerns and international agreements to destroy such stocks within 10 years of entry into force of the Chemical Weapons Convention. The Dounreay Electrochemical Silver (II) Process was initially designed to convert with high efficiency a wide range of radioactive organic waste compounds, resulting from the nuclear fuel reprocessing industry, into environmentally acceptable waste streams, and has been demonstrated successfully on a small scale pilot plant. The scope of the Silver (II) process has subsequently been extended to demonstrate the destruction of a wide range of organic compounds present in chemical munitions. Results are presented of experiments in the destruction of explosives - TNT, RDX, Demex 100 and triple base propellant and actual chemical agents - Tabun (GA), Sarin (GB), VX and a range of S mustards, to below detectable levels. At the heart of the process is a conventional electrochemical cell, divided with a membrane made of fluoropolymer cation exchange material, which has excellent chemical resistance in a highly oxidising strong nitric acid environment. Two cell types manufactured by ICI, of the filter press design and internally manifolded, have been used. The first is the FM01 a 1/35th scale model of the commercial FM21SP cell and used in a 60 amp bench-scale rig. The second is the FM21SP cell developed initially for use in the chloralkali industry and used in a 2000 amp pilot-scale rig. A conceptual plant is detailed embodying an integrated process to recover and empty chemical munitions, using novel techniques derived from established oil industry practice, followed by destruction of the recovered chemical compounds by the Dounreay Electrochemical Silver (II) Process.

INTRODUCTION

The safe disposal of chemical munitions is an essential requirement in the light of the changed public perception of safety and environmental concerns and, further, of international agreements to destroy such stocks within entry into force of the Chemical Weapons Convention, 1994.

The Dounreay Electrochemical Silver (II) Process (1-5) was initially designed to convert with high efficiency a wide range of radioactive organic waste compounds, resulting from the nuclear fuel reprocessing industry, into environmentally acceptable waste streams and has been demonstrated successfully on a small scale pilot plant. The scope of the Dounreay Silver (II) Process has subsequently been extended to chemical munitions, leading to a successful demonstration of the destruction of a wide range of organic compounds comprising not only the chemical agent itself, but also the energetics present.

In order to obtain the necessary expertise in recovering stored or buried munitions, identifying the chemical contents and removing the organic content for destruction AEA Technology has in the last two years teamed up with SubSea Offshore Limited (A Dresser Company).

SubSea Offshore are specialists in assisting oilfield development projects and over a period of some 20 years have developed the technology for recovery operations in the marine environment, such operations covering the handling of hazardous materials and more sensitive items in water depths down to 800 metres. In particular, a remotely operated vehicle capability has been developed and engineered to support complex operations in both marine and on-shore locations and includes real time three dimensional measurement and identification systems, mapping and quantification systems, remote handling and manipulative capability, and the ability to tap into high pressure oil, gas and hydraulic lines without pressure loss and most importantly without product loss.

The Chemical and Biological Defence Establishment, Porton Down, UK Ministry of Defence will act as consultants providing advice during the handling, disposal and chemical analysis of the recovered chemical agents and energetics.

THE SILVER (II) PROCESS

The Dounreay Silver (II) Electrochemical Oxidation Process for the destruction of organic wastes arose as a result of studies being carried out on the dissolution of intractable plutonium oxide residues arising from the dissolution of nuclear (U,Pu) oxide fuel in nitric acid. These intractable plutonium oxide residues could be taken into acid solution for eventual plutonium recovery, but to do so necessitated the use of particularly aggressive acid mixtures.

Experiments were performed using a simple divided electrochemical cell, where a solution of silver nitrate and nitric acid was placed in the anode compartment and nitric acid in the cathode compartment. These experiments demonstrated that on the passage of an electric current these intractable plutonium oxide residues dissolved rapidly. The Ag^{2+} ions generated at the anode were able to quickly oxidise the solid plutonium oxide to soluble PuO_2^{2+} and at the same time they were themselves reduced to Ag^{+} ions. The Ag^{+} ions could then be re-oxidised at the anode to Ag $(II)^{+}$ which could then further react with more insoluble material. The silver ions would appear to act as electron transfer agents between the electric power being fed to the cell and the insoluble plutonium oxide but were not themselves consumed. This continuous use of the silver oxidant has permitted a practical process to be developed which only required the presence of a small amount of silver.

The next step followed an appreciation that the Silver (II) would probably react with organic matter contaminated with plutonium, such as cellulose tissues used to mop up spillages in gloveboxes and highly active cells. Trials were carried out in which plutonium contaminated tissues were placed in the anode compartment of an operating electrochemical dissolution cell. There was an immediate reaction, as demonstrated by the disappearance of the dark brown Ag^{2+} ions, to give the clear solution of Ag^{+} ions. This continued until all the tissues were consumed, whereupon the brown colour of the Ag^{2+} ions was again in evidence. The cellulose tissues were completely oxidised to carbon dioxide and water.

Silver II Process Flow Diagram

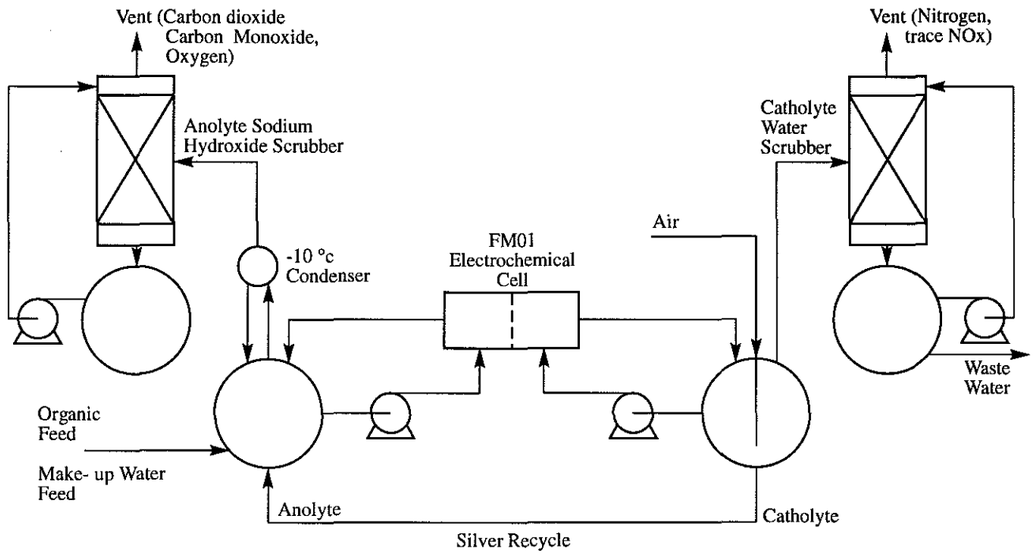


Figure 1

Concept for Disposal of Munitions

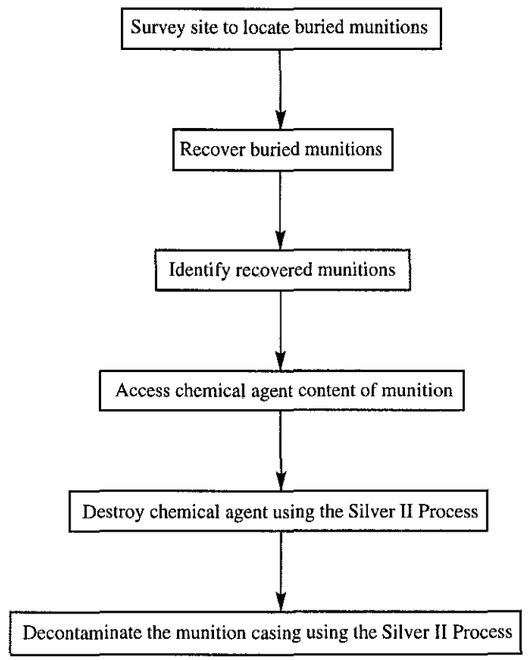


Figure 2

It is proposed that a standard 360kW DC Silver 2 Plant Module be used as the basis for a Silver 2 Plant to be provided at a particular location. This standard module would be replicated as required at the particular location to provide the required overall capacity. The annual throughput of a 360kW Silver 2 Plant based on 8 x 30 day campaigns would be:-

• Agent GA (Tabun)	112 t
• Agent GB (Sarin)	156 t
• Agent GD (Soman)	120 t
• VX	95 t
• S-mustard (HD)	165 t

The standard Silver II Plant module would be constructed in standard ISO shipping containers so that the constituent parts could be readily manufactured and tested at a central site, prior to transportation to the selected location and assembled in-situ. The organic feed stock tanks or munition dismantling equipment could be housed in separate armoured ISO containers for increased safety.

The standard modules could be fully self-supporting with all feed streams being supplied from intermediate stock tanks integral to each containerised plant module and serviced by a common infrastructure. The standard modules could be designed to permit remote operation from a central control room under computer control and human supervision. The control system could also provide constant safety checking facilities and provide automatic protection against maloperation.

Figure 3 shows how the Silver II Plant module could be integrated with the munition "unpacking plant".

Figure 4 shows an outline flow diagram of the standard 360 kw Plant Module.

CONCLUSIONS

The Dounreay Silver II Electrochemical Oxidation Process has been developed for the efficient destruction of toxic or troublesome organic wastes in a environmentally acceptable manner.

The complete destruction of organo-phosphorus nerve agents and S-mustard has been demonstrated in experiments performed at Porton Down to produce simple waste streams that consist of water and inorganic salts.

A conceptual integrated approach to the recovery and disposal of buried munitions has been described which uses the novel techniques derived from established oil industry practices and the proven Silver II Process for the destruction of the recovered organic chemical compounds.

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It was then a relatively simple step to examine the possibility of destroying the radioactive contaminated tributylphosphate/odourless kerosene solvent from the nuclear fuel reprocessing plants. The initial stages of the experiment in which solvent had been added to the stirred compartment of an electrochemical cell were not encouraging. However as the temperature in the cell increased due to the passage of the electric current a reaction between the Ag^{2+} ions and the solvent was observed at 55oC. The reaction with the electrochemically generated Ag^{2+} ions resulted in the destruction of both the tributylphosphate and the kerosene. Oxidation of kerosene was surprising in view of its more usual lack of reactivity towards oxidising agents.

The electrochemical cell used to produce Ag^{2+} ions is of the two compartment type, with a fluoropolymer cationic exchange membrane separating the anolyte and catholyte sections. The membrane is a necessary requirement because otherwise the reduced chemical species formed at the cathode, principally nitrous acid, would react with the silver (II) ions produced at the anode and reduce the efficiency of the destructive process. The anolyte is stirred or otherwise circulated to ensure that silver (I) ions are brought efficiently to the anode surface for oxidation to silver (II) ions, this transport process being the rate limiting step.

The silver (II) ions so formed then either react directly with the organic material, or, more likely, react with the water in the anolyte to form radical species such as •OH which then in turn react with the organic material.

The silver (II) ions are reduced to silver (I) ions in parallel with this reaction and must be oxidised at the anode for the destruction process to proceed to completion. In the case of the tributylphosphate/odourless kerosene solvent destruction, the final reaction products in the anolyte compartment are carbon dioxide, phosphate ions and hydrogen ions (that is, water is consumed in the anolyte).

At the cathode the nitric acid is reduced to nitrous acid (HNO_2), NO_x and water, the precise chemistry being determined by the choice of electrode material. The formation of nitrous acid is the preferred reaction route as any further reaction reacts in gassing due to NO_x formation and may cause operational difficulties. The nitrous acid generated at the cathode can be converted back into nitric acid and recycled by a regenerative catholyte circulation system included in the process.

Two cell types manufactured by ICI, of the filter press design and internally manifolded, have been used to carry out the bulk of the studies performed. Small-scale studies employed the FM01, a 1/35th scale model of the commercial scale FM21SP electrochemical electrolyser and used in a 60 amp bench-scale rig. This rig was used to carry out the majority of the toxic organic destruction studies because of the small organic inventory required for operation. Process-scale studies employed the FM21SP cell in a 2000 amp pilot rig. This latter rig was used to demonstrate the destruction on long runs (up to a maximum of 6 days) of TBP/OK and organic ion exchange resins.

The chemistry of the Silver (II) Process may be summarised as follows:

1. At the anode the silver (I) ions are oxidised to silver (II) ions:

   $6Ag^{+} \longrightarrow 6Ag^{2+} + 6e^{-}$

2. In the anolyte solution the silver (II) ions react with water to form oxidising species ($\bullet OH$, $\bullet HO_2$, $\bullet NO_3$) represented by [O]:

   $6Ag^{2+} + 3H_2O \longrightarrow 6Ag^{+} + 3[O] + 6H^{+}$

3. The oxidising species then react with the organics in the waste stream which is being introduced into the anolyte, oxidising them to carbon dioxide (+ some carbon monoxide) and water:

   "CH_2" + 3 [O] $\longrightarrow CO_2 + H_2O$
   ("CH_2" represents a generalised carbon unit in an organic molecule)
   or more generally:

   Organics + [O] $\longrightarrow CO_2 + CO + H_2O$ + Inorganic Compounds
   When nitrogen, phosphorus, sulphur or chlorine are present in an organic compound, then these heteroatoms are oxidised to the mineral acid ion, eg nitrate, phosphate, sulphate or chloride ions.

4. The silver (I) ions are then returned to the anode for reoxidisation to silver (II) ions to enable the reaction to continue.

5. Protons (H^{+} ions) migrate across the porous membrane to the cathode compartment under the influence of the applied voltage. The protons are consumed in the cathode reaction along with the nitrate ions to form (mainly) nitrous acid:

   $3NO_3^{-} + 6H^{+} + 6e \longrightarrow 3HNO_2 + 3H_2O$

   The catholyte solution containing the nitrous acid formed is regenerated by reaction with oxygen:

   $3HNO_2 + 3/2\ O_2 \longrightarrow 3HNO_3$

   Thus the overall stoichiometry of the process is

   "CH_2" + $3/2\ O_2 \longrightarrow CO_2 + H_2O$

   or

   organics + $O_2 \longrightarrow CO_2 + H_2O$ + (inorganic compounds)

the recovered munition eg water jet cutting, mechanical saw, drilling, these under certain circum stances are inadequate due to the risks of spillage. A technique derived from the oil industry is also showing promise as a suitable technology. The "Live Tap"™ concept is a means of cutting through the walls of the munition in such a way as to maintain a leak-proof seal, allowing both extraction of the CW product and flushing with a decontaminating solution, in a single action.

There are substantial safety benefits in the use of the "Live Tap"TM concept, for both personnel in the immediate area and the general public in the surrounding area. The system can cut through a variety of material, and use a suitable liquid matrix to flush the filling out of the munition. The process was originally designed for underwater use and has a large foot which allows hydrostatic pressure to increase the sealing capability. This technique would also work onshore and could provide up to 80 psi of additional sealing pressure. Cooling of the cutting head is provided by the flushing liquid, and the whole system on completion of the operation is in effect largely self decont aminating, particularly if operating in conjunction with the Silver 2 process.

Cutting capabilities are from 1mm to 20mm wall thickness, and the unit could be deployed in the field using a variety of units as carriers, or underwater, either on a stand alone basis or as a part of an overall system. The risk of using this technique is substantially lower than normal for the introduction of new technologies, for it only necessitates the transfer of technology from an existing well proven base. The innovations represented by the "Live TapTM" tool are only concerned with speed of throughput, reliability and the fact that with care old munition casings could be scoured clean and be capable of recycling rather than using the current practice of incineration followed by scrapping.

4. <u>Destroy Chemical Agent Content of the Munition using the Silver (II) Process</u>

   The chemical agent content of the recovered munition could be flushed out of the munition casing by circulating anolyte solution from a Silver (II) Plant through the shell casing. The chemical agent which has been flushed out of the shell could then be passed to a Silver (II) Plant for destruction.

   A Silver (II) Plant capable of destroying the organic content of 2 off 155 mm shells in 18 hours would require an electrochemical capacity of 4 kW. The existing Pilot Plant, which has been operated at Dounreay since 1988, is a 4 kw plant. The Silver (II) Plant could be constructed to fit within a 40ft ISO container and so would be readily transportable to the buried location, rather than the recovered munition being transported to a fixed disposal facility.

5. <u>Decontamination of the Munition Casing</u>

   The anolyte solution which has been circulated through the munition to flush out the chemical agent could also be used to decontaminate the internals of the munition casing. This would be achieved by passing silver (II) ions containing anolyte through the munition; the silver (II) ions then destroying any residual organics present within the munitions, including aged tarry S-mustard residues.

Each of these steps described above could be performed in isolation or as part of a integrated solution for the recovery and disposal of burial non-stockpile munitions. Non-stockpile munitions which have already been recovered, and stockpile munitions, could be disposed of in a similar fashion.

The disposal of large numbers of munitions would require a larger Silver (II) Plant.

Table 3

Total Organic Carbon Content in Electrolyte Solutions for Simulated Munition Destruction Experiments

	Anolyte Initial TOC	Final TOC	**Catholyte** Initial TOC	Final TOC
TBP / DNT	2333	380	-	-
VX / DNT	2515	1700	-	260

Note 1: The initial TOC was not measured but is the calculated value based on the assumption that all of the relevant organic compound dissolved completely in the anolyte nitric acid solution.

CONCEPTUAL PLANT

The Silver (II) Process can be used as part of an integrated approach to the disposal of stockpile and non-stockpile chemical munitions.

An integrated approach for the disposal of buried non-stockpile munitions is summarised in Figure 2 and as follows:

Survey Site to Locate Potential Buried Munitions

A robust and reproducible map of a suspected burial site can be generated using passive non-intrusive detection techniques already employed in the oil industry. This technique will produce a map showing the x, y and z location of potential munitions.

1. Recover Potential Munitions

   Once location of potential munitions have been identified then they can be recovered either by the traditional manual techniques or by using a remote operated vehicle (ROV).

2. Identify Recovered Munitions

   The recovered munitions can then be inspected, if required, to determine the wall thickness of the casing and the type/organic content of the munition. Non-invasive techniques such as visual means; x-ray; back scatter neutron activation or ultrasonic scanning could be used to identify the munition type and content.

3. Access Organic Content of Recovered Munition

   The technique to be used for the disposal of the recovered munition would be selected after the contents of the munition have been identified.

   Although a number of existing methods could be used to gain access to the chemical agents within

ENERGETICS (EXPLOSIVES)

In earlier laboratory trials, carried out by AEAT personnel (6) at the UK MOD Royal Military College of Science (RMCS) Shrivenham, three explosives and a triple-base propellant were successfully destroyed on the 5g scale using the Silver (II) Process.
The extent of explosive and propellant destruction was determined by carrying out a measurement of the total organic carbon (TOC) concentration in the anolyte nitric acid solution before and after the experiment had been run for a period of 5 hours. The results obtained are shown below in Table 1

Table 1

Total Organic Carbon Content in Anolyte Solutions during Energetic Destruction Experiments

	Initial TOC in ppm (1)	**Final TOC in ppm**
Trinitrotoluene	9,250	2,800 (2)
Recrystallised RDX	9,250	110
Demex 100	9,250	300
Triple base propellant	9,250	120*

Note 1: The initial TOC was not measured but is the calculated value based on the assumption that all of the relevant organic compound dissolved completely in the anolyte nitric acid solution.

Note 2: Contaminated sample. Other measurements carried out suggested essentially complete destruction had taken place within the timescale of the experiment.

The final TOC values could have been reduced even further if the experiments had been continued for a longer period of time. These experiments did, however, demonstrate that the selected explosives and the triple base propellant were readily destroyed with the formation of carbon dioxide, water and nitric acid.

CHEMICAL AGENTS

Proof-of-principle experiments were carried out early in 1994 by AEA Technology personnel and UK MOD staff at the Chemical and Biological Defense Establishment (CBDE) Porton Down to demonstrate the destruction of a selection of organophosphorus nerve agents and mustard agents by the Dounreay Silver (II) process.

A small scale Silver II rig, based on an ICI FM01 electrochemical cell with a current capacity of 60 Amps was used the in the experimental programme to determine the behaviour of the following chemical agents:

agent GA (Tabun)
agent GB (Sarin)
agent VX
pure S-mustard
Weapons grade S-mustard
thickened S-mustard

In the experiments some 10 ml of each chemical agent was added to the anolyte compartment of the rig and the electric current passed for some 6 hours. Duplicate experiments were carried out for all of the above chemical agents with the exception of the thickened S-mustard.

The initial experimental conditions for these experiments were:

Anolyte: 8M nitric acid
0.5M silver nitrate
50oC

Catholyte: 4M nitric acid
50oC

Samples from each of the four individual circuits of the experimental rig shown in Figure 1 (anolyte nitric acid, anolyte sodium hydroxide scrubber, catholyte nitric acid and catholyte sodium hydroxide scrubber) were taken at one hour intervals throughout the duration of the experiment. The samples were analysed for the presence of chemical agent using the standard gas chromatography/flame photometry detector technique (GC-FPD).

The analytical results showed that after a period of time of one hour the concentration of organophosphus chemical agent was below the level of detection of the GC-FPD Technique and that after a period of some 2 hours the concentration of the mustard chemical agents was also below the level of detection of the GC-FPD equipment.

The samples were analysed to determine the total carbon content in each circuit during the experiment The results obtained, Table 2, demonstrated that the chemical agents reacted quickly as a result of the initial attack by the silver (II) solution to form soluble intermediate organic compounds which were in turn destroyed by the silver (II) ions during the course of the experiment.

Table 2

Total Organic Carbon Content in Anolyte Solutions for Chemical Agent Destruction Experiments

	Anolyte Initial TOC	Final TOC	**Catholyte** Initial TOC	Final TOC
Agent GA	4045	1475	90	700
Agent GB	2928	1358	ND	210
Agent VX	2407	400	870 (2)	460
Distilled S-mustard	2891	728	10	60
Thickened S-mustard	1510	498	870 (2)	180
Weapons Grade S-mustard	1595	493	130	60

Note 1: The initial TOC was not measured but is the calculated value based on the assumption that all of the relevant organic compound dissolved completely in the anolyte nitric acid solution.

lote 2: These high initial values suggest that prior organic contamination of the catholyte had occurred.

The final anolyte TOC figures are not the lowest achievable as, for logistical reasons, the oxidation experiments at CBDE had to be fitted into a normal working day. However, the trend in organic content is obviously downwards and **no** chemical agent was detectable in the anolyte solutions at the end of the runs.

The catholyte TOC levels were monitored for completeness, although the primary aim of the experiments was to demonstrate the destruction of the chemical agents in the anolyte circuit. The results obtained showed that organics were present in the catholyte system but no chemical agent was detectable by GC-FPD. The organics probably comprise small, polar molecules formed by oxidative attack on the original agent fed. Nafion membranes are well-known to be permeable to such species and migration would be encouraged by the dissolved organics' concentration gradient between anolyte and catholyte.

The absence of chemical agent in the catholyte is unsurprising as the anolyte dissolved concentration would be low or zero at most stages during the run. Transfer of hydrophobic agent present as a separate phase does not appear to be a likely mechanism, in view of the hydrophilic, water-saturated nature of the membrane. Any chemical species transferred to the catholyte is still, of course, contained within the process and would be subject to any required treatment before any liquors were discharged.

The anolyte off-gas produced during the experiment was sampled hourly throughout the duration of ach individual experiment and analysed by gas chromatography/thermal conductivity detector (GC-TCD) to determine the carbon dioxide, carbon monoxide and oxygen content. Fourier transform infrared spectrophotometry (FTIR) was also used to analyse samples of the off-gas for the presence of chemical agent and the absence of chemical agent was confirmed in all the off-gas samples.

The experiments demonstrated that the organophosphorus nerve agents and the mustard agents were destroyed to below the detection levels of the techniques used, to produce carbon dioxide, water and the appropriate inorganic compounds.

SIMULATED INTACT MUNITIONS

A model US Army M55 rocket was fabricated using a small aluminum can containing either 3.0g TBP and 7.0g 2,4 dinitrotoluene (DNT) or 3.5g VX and 7.5g of 2,4 dinitrotoluene. The TBP was used in the initial commissioning trials of the equipment as a simulant for an organophosphorus nerve agent and 2,4 dinitrotoluene was used as a simulant in all the trials performed for the energetic charges and propellant.

After the aluminum can had been introduced into the anolyte compartment of the rig, the aluminum was dissolved electrochemically to expose the TBP/DNT or the VX/DNT. The silver (II) ions were then circulated through the released organic chemical in 4 hour long experiments. Once again after one hour no trace of the organophosphorus agents TBP or VX could be detected using the GC-FPD analysis technique. The TBP and VX intermediates as well as the DNT were destroyed to below the detection levels of the instrumentation throughout the duration of the experiment as evidenced by the measured off-gas composition and final TOC concentration, Table 3.

The Safe Alternative Technology

Silver II

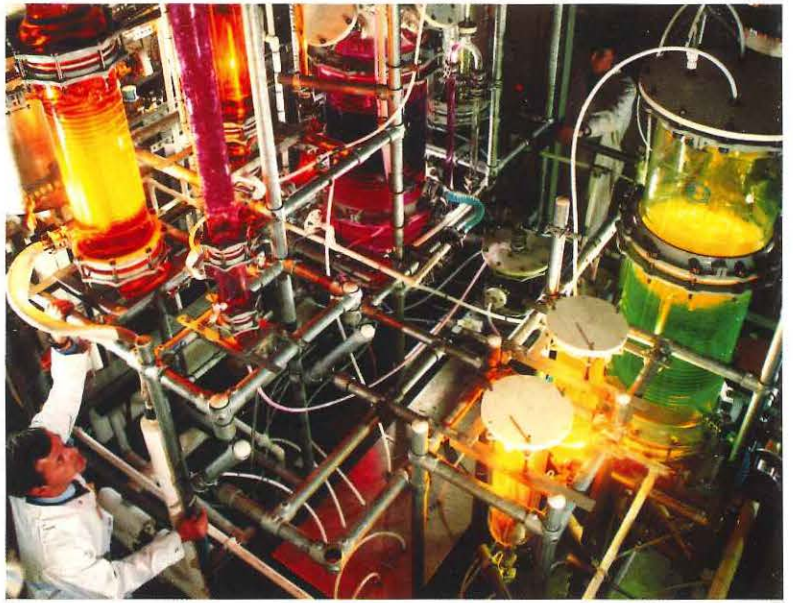
For the Destruction of America's Chemical Weapons

Silver II Introduction

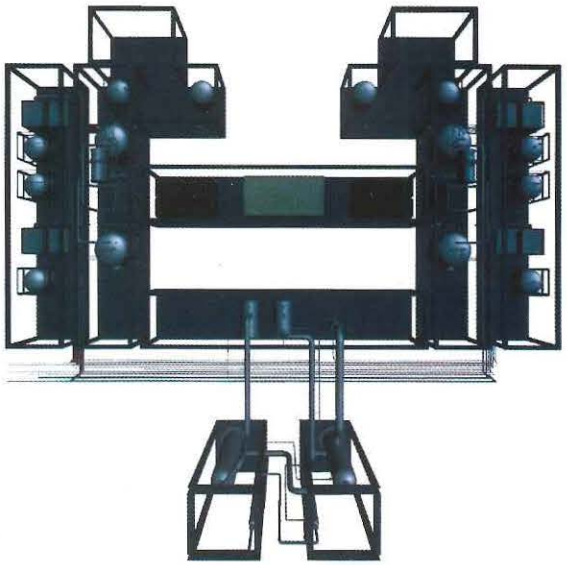
The Silver II Process has been selected by the U.S. Army Office of the Program Manager for Demilitarization as one of three commercial Alternative Technologies to Incineration which warrant investigation into their suitability for destroying U.S. Chemical Stockpile Weapon materiel. These technologies are initially being considered for the demilitarization of VX at Newport, Indiana and Mustard at Aberdeen, Maryland.

Silver II is an electro-chemical oxidation process which destroys all organic compounds. This includes all of the U.S. Army Chemical Weapons Stockpile.

The Silver II Process is protected by international patents and is the property of a business partnership of Subsea International Inc. of the U.S. and the Atomic Energy Authority (AEA) Technology Division of Great Britain.



The Silver II Pilot Plant at AEA Dounreay



3D CAD Plan View of Prototype Plant (Containment - Not Shown for Clarity)

The Process was originally developed by AEA Technology in the late 1980's at their nuclear power facility at Dounreay, Scotland. It was designed to destroy the solid and liquid waste from organic materials used in re-processing nuclear fuel. In this application Silver II Process significantly reduces the volume of radioactively contaminated waste.

The basis of the Silver II Process is the mature electro-chemical technology used extensively in the chlorine production industry.

The Silver II Process has been the subject of an AEA Technology development program since 1987. In addition to developing the nuclear waste reduction capability this program evaluated applications in the destruction of medical and industrial toxic waste and military explosives and chemical munitions. The Silver II Process has successfully destroyed each of the 67 toxic organic compounds tested in this program.

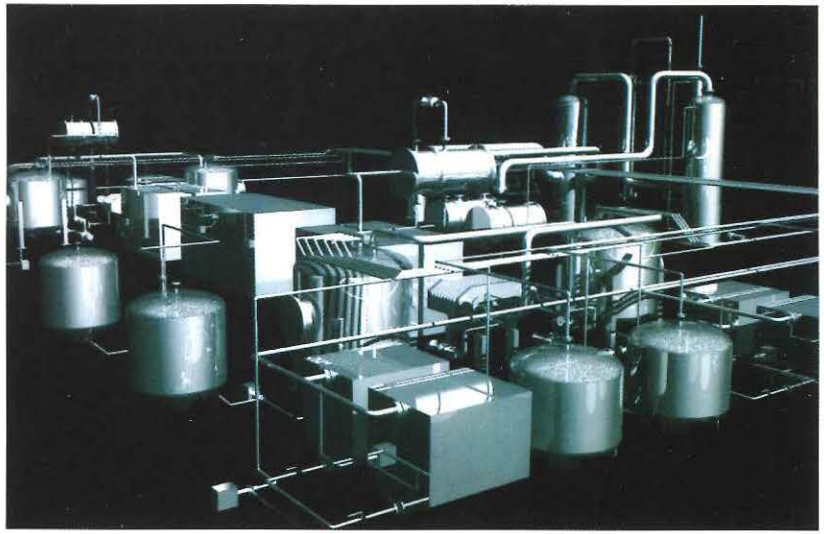
The chemical weapons phase of this program was done in close cooperation with the UK Ministry of Defence. These tests were conducted on some of the world's major chemical weapons - VX, Mustard, Sarin, Tabun - and have proven Silver II to be an effective total destruction technology.

Safety Features of Silver II

Of the three commercial technologies selected by the Army, the Silver II Process is the only technology which operates at low temperature and atmospheric pressure. Indeed, it is these fundamental safety features that make Silver II so acceptable for operation at a nuclear power facility where safety is paramount.

Aldrin	M-Nitro - P - Toluidine
Butanol	Nitroglycerine
2 - Butoxyethanol	Nitrosobenzene
Butylhdroxy Acetate	N-Methyl-2-Pyrrolidone
Cellulose	Octanoic Acid
Chlorobenzene	Odourless Kerosene
2-Chloroethul Ethyl Sulphide	Oil Sludge
Chlorofluorobenzonic Acid	Otto Torpedo Propellant
Chloroform	Paint Residues
CS	Perchloroethylene
Cyclohexane	40-60 Petroleum Spirits
DDT	Phenol
Demex	P-Tyoleunesulphonic Acid
Decon 90 (Nuclear	RDX
Decontamination Agent)	Sarin (GB)
Dieldrin	Scintillation Cocktail
Diethylamine	SDG3
1,1 Dimethyl Hydrazine	S-Mustard (Distilled,
Dinitrophenol	Thickened, Weapons Grade)
Di-Nitrotoluene	Soman (GD)
Dioxin	Tabun (GA)
Dodecan	10% TBP/OK
Endrin	Tetrahydrofuran
Ethanol	Toluene
Ether	Trichlorobenzene
Ethylbenzene	Trichloroethane 1,1,1
Hexa-Nitrocellulose	Trichloroethylene
Isopropanol	Triethanolamine
Lindane	Tri-Nitrocellulose
Methanol	Tri-Nitrotoluene
Methylene Chloride	Tritolyl Phosphate
Mixed Aliphatic Amines	UDMH (Rocket Fuel)
Mixed IEX Resin	Urea Formaldehyde
Mixed PCB Isomers	VX

List of 67 Toxic Organic Compounds Destroyed in Tests as at 12/95



3D CAD Model of ChemDemil Prototype (Interior View)

The Key Safety Features of Silver II are:

- Low temperature operation : 20 - 90 Deg Centigrade
- Low Pressure - nominally at atmospheric pressure
- No excess chemical weapon agent in the process - the chemical agent feed rate is matched to the destruction rate.
- The system is easily controlled by switching off the electricity supply
- Self decontaminating. After completing a chemical Demil process the system can be self-decontaminated internally
- Process is monitored continuously to identify potential fault conditions
- Gaseous effluent is maintained well below permissible discharge levels through:
  - low process temperature
  - condensers which reduce the offgas to 10 Deg Cent.
  - two highly effective hydrogen peroxide scrubbers
  - finally offgas is passed through an activated carbon bed filter
- Liquid waste stream is contained in storage tanks, analysed thoroughly to confirm absence of chemical agent prior to discharge

Silver II

The Transportable Solution

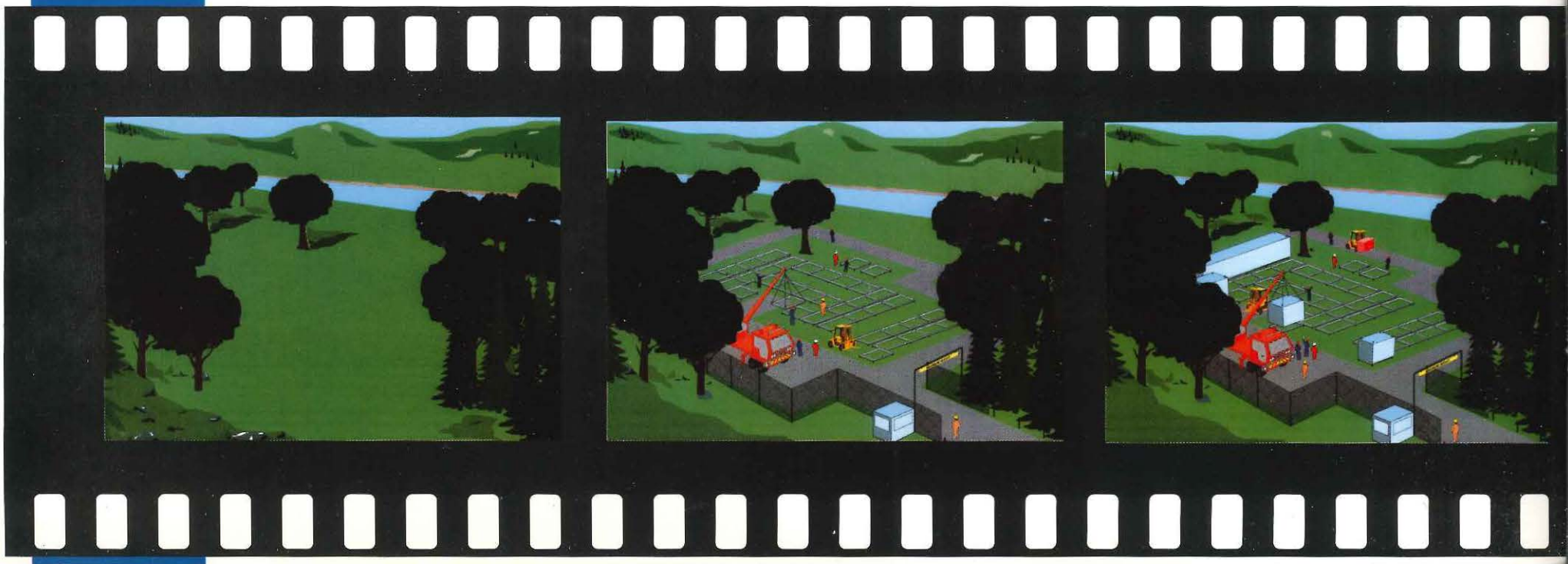
The Silver II Process is designed to be transportable. It is a modular system that operates within its own containerised units that also serve as transport containers.

The installation of the Silver II system is simplified by the reduction of on-site preparation and hook-up resulting from this modular design.

On the completion of the chemical demilitarization task, the system will be completely decontaminated. This is achieved by the internal decontamination feature of the Silver II Process. The modular design enables the system to be easily dismantled and trucked away from the site.

The Silver II system can then be re-deployed to other stockpile sites for chemical weapons demilitarization.

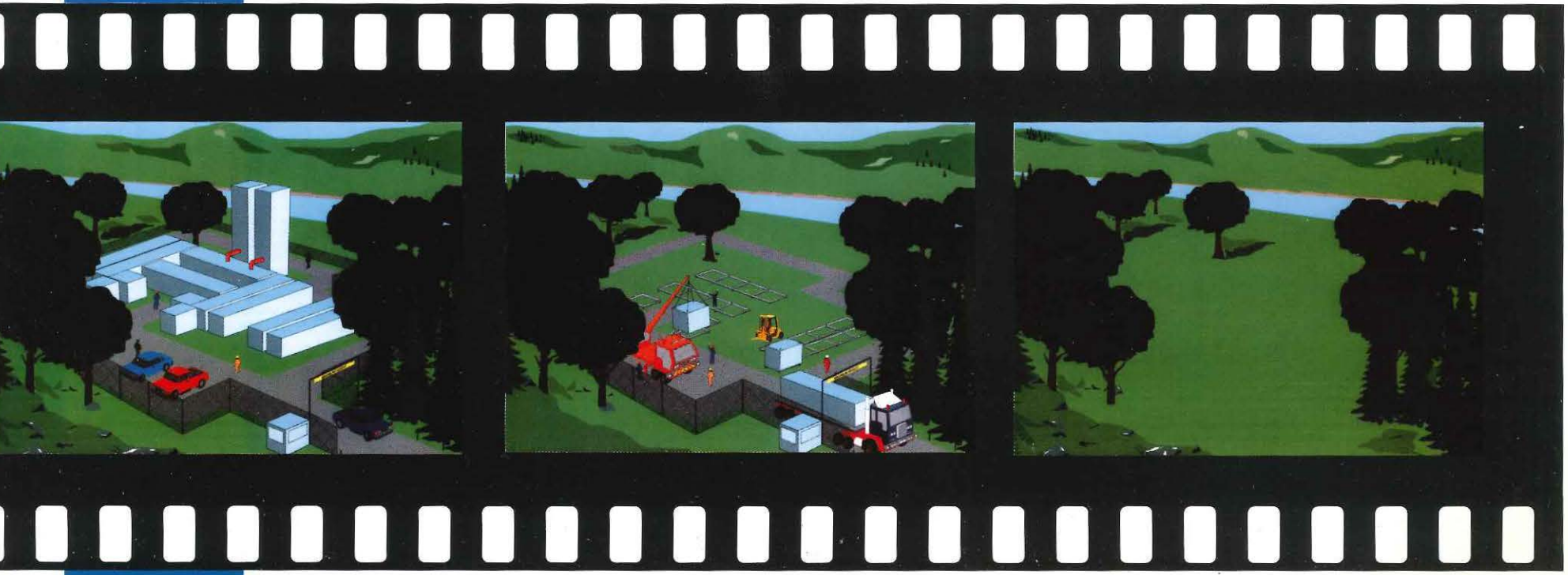
A further option available due to the advantage of the modular design is that after removal from site the system can be re-configured or sub-divided into smaller portable units. These portable units are ideally suited for service in Non-Stockpile weapon demilitarization - safely destroying both chemicals and explosives - with the minimum of time at site.



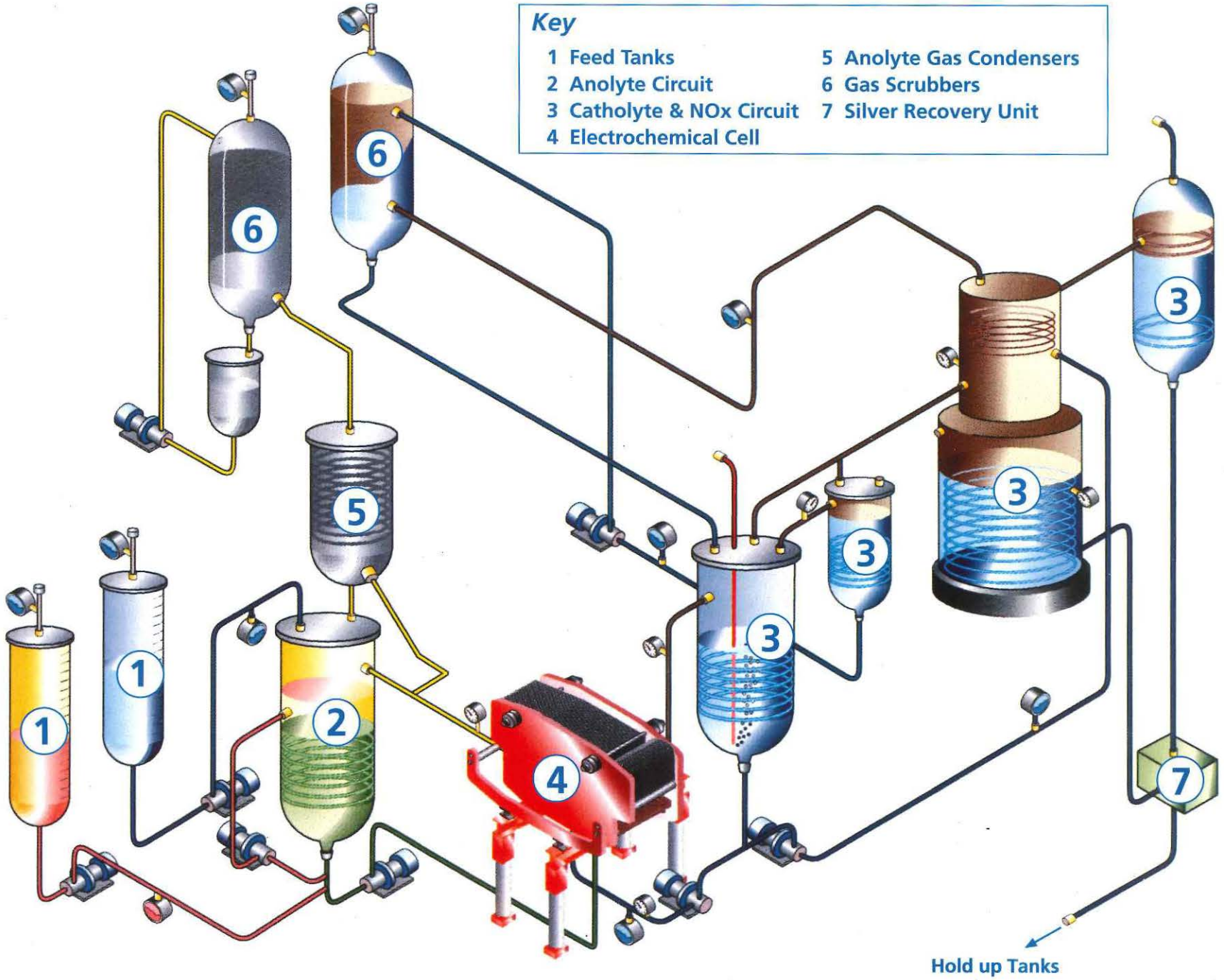
Silver II Environmental Benefits

In environmental terms the Silver II Process offers a remedy to the risk from stored chemical weapons that is less harmful than many industrial manufacturing processes.

- The Silver II Process destroys all chemical agent thus ensuring all waste discharge is agent free.
- The destruction process results in benign waste products: carbon dioxide, water and inorganic salts.
- No dioxins or furans are produced by the system. In fact Silver II is being considered by several companies as a means for the destruction of these substances which their industry processes generate.
- Gaseous waste discharges easily meet the requirements of the Clean Air Act.
- Waste water effluent is discharged first to holding tanks where it is analysed thoroughly prior to final discharge. The waste water meets all current industrial plant pollution criteria.
- Waste water from Silver II is agent free and eligible for treatment by privately owned water treatment plants.
- An additional environmental benefit occurs through the high recyclability of the chemicals used by the Silver II Process.



Silver II Process Simplified



Silver II Process Simplified

(a) Chemical agent and make-up / feed chemicals are added to the nitric acid / Silver I nitrate solution which forms the anolyte circuit (2) of the electrochemical cell (4).

The chemical process is carried out nominally in 30 day campaign cycles.

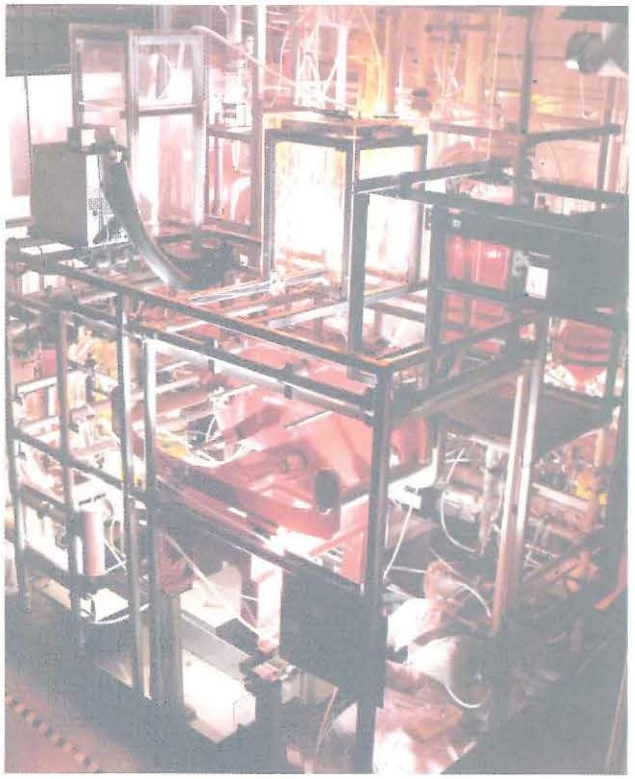
(b) The anolyte solution is circulated through the electrochemical cell (4) where silver I ions are transformed into Silver II ions. These Silver II ions attack the organic chemical agent and convert the agent to carbon dioxide, oxygen, trace NOx (nitrogen oxides), protons, sulphate ions, phosphate ions, nitrate ions, silver chloride. In this reaction the Silver II ions are reduced to Silver I ions which are recycled through the electrochemical cell to continuously generate Silver II ions. Silver ions, protons and water diffuse through a cation exchange membrane within the electrochemical cell (4) to enter the catholyte circuit (3).

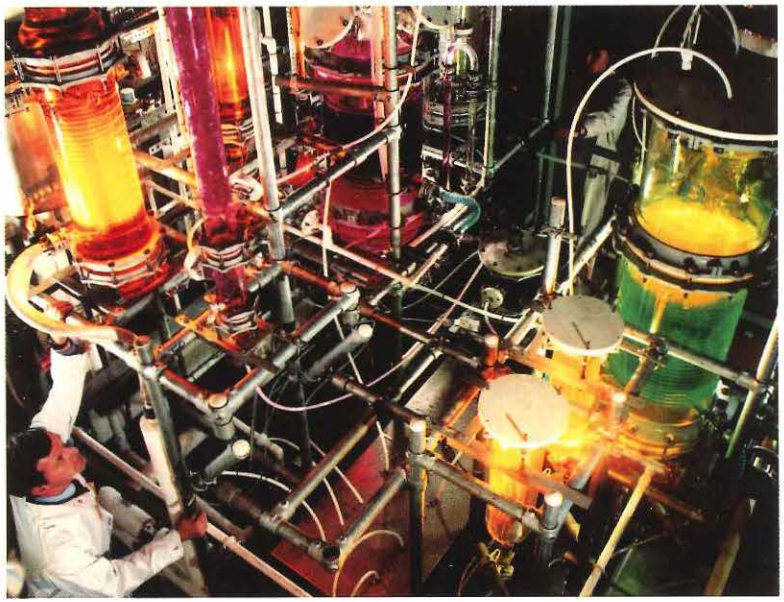
(c) The catholyte circuit supports the balancing cathode reaction where nitric acid and protons are reduced to nitrous acid. NOx and water. The nitrous acid and NOx are oxidised to nitric acid through reaction with oxygen and water. Excess water is removed by distillation and sampled to confirm the absence of chemical agent before discharge.

(d) The electrochemical cell (4) is the heart of the process and is a type used extensively in the chlor-alkali industry worldwide.

(e) Offgas from the anolyte circuit passes through a condenser (5) to remove water & nitric acid vapours. The condensate is returned to the anolyte circuit. The dried off gas stream is mixed with the off gas from the catholyte circuit and passed through a series of scrubbers (6) and an active charcoal filter to remove residual NOx prior to discharge (6).

(f) At the end of a campaign all of the solutions are discharged from the Silver II plant to a silver recovery plant (7) there the silver is recovered for use in the next campaign. The final solutions are further tested for residual chemical agent prior to discharge.





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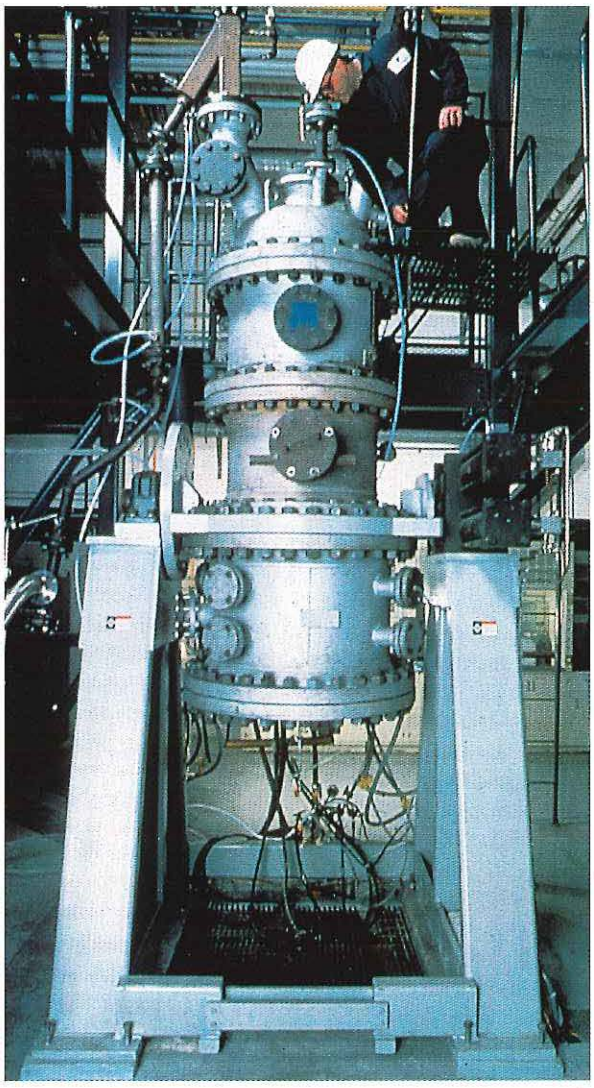
Ironing out industrial wastes

Engineers are using molten iron and other metals to make hazardous wastes reusable rather than sending them to an incinerator or a landfill. **By Michael Valenti, Associate Editor**

IN MEDIEVAL TIMES, alchemists sought the fabled philosopher's stone, which they believed would enable them to transform lead into gold. Their modern-day counterparts at Molten Metal Technology in Waltham, Mass., are using molten iron and other metals to convert hazardous wastes into useful materials. The treatment, known as the catalytic extraction process (CEP), also stabilizes and reduces low-level radioactive wastes to a fraction of their original volume, easing their disposal.

In CEP, various industrial wastes are piped into a sealed bath of molten metal (typically iron) heated from 2400°F to 3000°F. The catalytic properties of the high-temperature metal break down the chemical compounds in the waste to their primary elements. These elements are extracted as gases, ceramics, and alloys by adding select chemicals and materials, such as oxygen and alumina, to the process. The gases are typically used for fuel, the ceramics for construction materials or abrasives, and the alloys for metalworking.



Complex chemical compounds are broken down into their primary elements by Quantum-CEP at the M4 Environmental facility in Oak Ridge, Tenn.

The new technology has become an alternative to the traditional means of disposal for government agencies, manufacturers, and waste-treatment firms because of tighter regulations on landfills and incinerators. According to an Environmental Protection Agency estimate, almost 200 million tons of hazardous and toxic wastes are generated and must be disposed of each year.

Molten Metal engineers have also developed a related technology, Quantum-CEP, to process radioactive wastes, including mixed waste streams composed of low-level radioactive wastes and chemical hazardous wastes. Mixed wastes are particularly difficult to treat because of their complexity. In addition to separating out usable primary elements as

CEP does, the Quantum-CEP technology captures the radionuclides in mixed wastes and encapsulates them in the ceramic and metal phases of the bath. The cooled metal matrix provides the radioactive materials with a stable, self-shielding form for final disposal that is between one-thirtieth and one-thousandth of its original volume, thus sharply reducing disposal costs.

There are three Quantum-CEP plants in operation in Oak Ridge, Tenn., with another scheduled to come on-line next month. Another CEP plant is also under construction in Texas, and as many as 17 projects could be under development over the next several years through alliances with U.S. and German partnerships. All these facilities are modeled on the $25 million commercial-scale demonstration plant built in Fall River, Mass., in 1993.

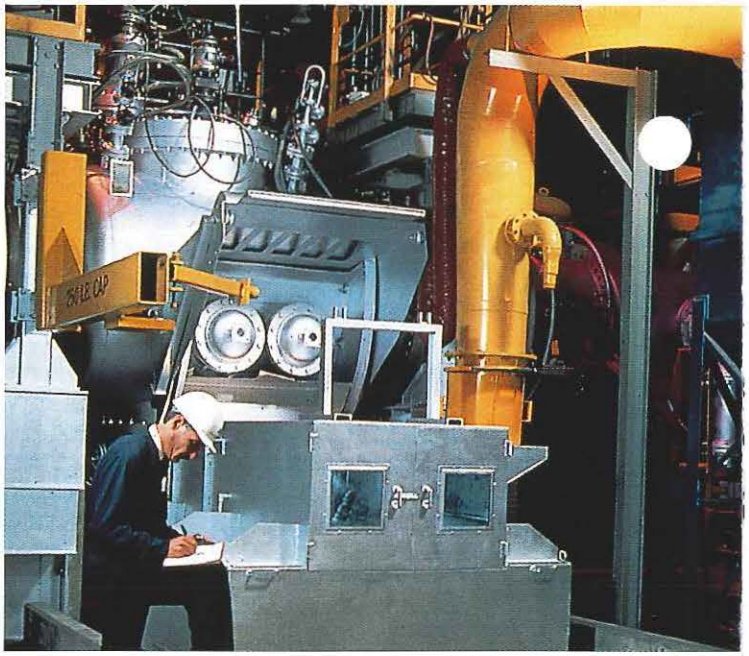
The 86,000-square-foot Fall River plant holds 10 molten-metal systems, the largest of which can treat up to 2 tons of industrial waste per hour. The wastes—which have included wastewater-treatment residues, ground computer circuit boards, and spent chlorinated solvents—are fed into a hopper and injected through piping to the metal bath. Proprietary chemicals are fed with the wastes to reconfigure elements from the bath into reusable raw materials.

The bath is a sealed steel vessel lined with a ceramic refractory. Induction coils at the bottom of the bath, along with the energy provided by the catalytic process itself, melt pieces of metal and keep them in a molten state. When the waste materials are broken down to their primary elements, the end-product gases rise to the top of the sealed bath and are piped off for use. Hydrogen and carbon monoxide, typical gas end products, are commonly used to make synthesis gas (called syngas) for fuel or as a chemical processing feedstock.

Ceramic end product floats on top of the molten metal and is skimmed off by tapping the bath. Metal byproducts of CEP remain as a ferroalloy in the bath. These can be combined with scrap metals to make stainless steel, high-grade tools, and new electronics components. Applications for CEP-derived ceramic include concrete, roofing shingles, and abrasives. The Fall River plant has converted 99.9999 percent of wastes into usable materials, according to William M. Haney, president of Molten Metal.

Stabilizing Radioactive Resins

Molten Metal has designed and built its first commercial-scale Quantum-CEP plant in Oak Ridge for Scientific Ecology Group Inc. (SEG), a subsidiary of Westinghouse Corp. SEG, the world's largest processor of radioactive waste, provides treatment of low-level wastes generated by utilities, government, and hospitals in the United States and abroad. The SEG Quantum-CEP plant, which began operating in January, can process up to 130,000 cubic feet of low-level radioactive-ion-exchange resin beads per year—more than 65 percent of all such resins produced in the United States. "These resin beads are used to treat the waste-



The largest of Molten Metal's CEP systems at its demonstration plant in Falls River, Mass., was designed to process up to 2 tons of waste per hour, proving the process could work on a commercial scale.

water streams produced by the recycling of cooling water in nuclear power plants," said Bud Arrowsmith, president and chief executive officer of SEG.

In the conventional method of disposing the resin beads, the beads are packed into thick polyurethane or composite liners, which are certified to last 100 to 300 years. Filled liners are then placed into steel casks and buried, usually in a concrete silo. The treatment not only is expensive but also carries the risk that water could contact the buried waste and carry off the radioactivity. This risk is not present with the end products produced by Quantum-CEP technology, Arrowsmith said.

The first step at the Quantum-CEP plant is to pump water into the lined steel casks it receives to remove the resin beads they contain. The beads are piped into a combination mechanical/thermal dewatering unit to dry them before they are fed, along with proprietary gases, to a molten-iron bath. The bath is fed with iron generated from an iron-recycling process performed on-site, Arrowsmith said.

Syngas produced by the bath is used to help fuel the plant. Residual radioactive gases are sent to SEG's standing-gas-treatment system. Any other radioactive elements are captured in the iron and concentrated to one-thirtieth their size before disposal.

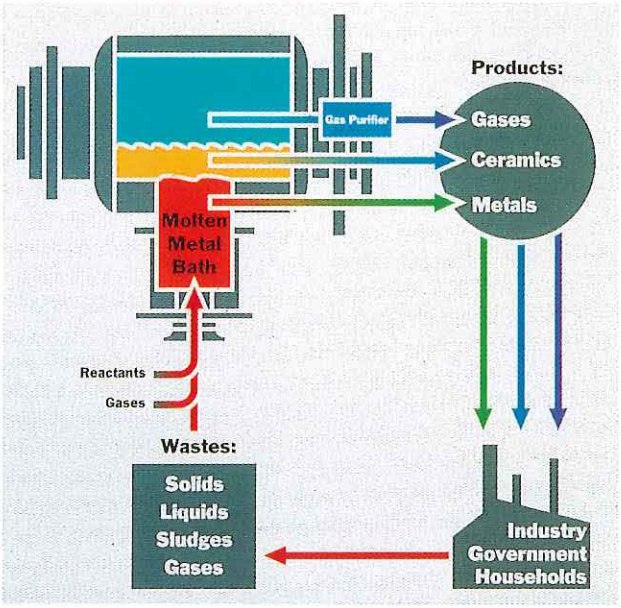
Partners in Uranium Recycling

In 1994 Molten Metal formed a limited partnership with Lockheed Martin called M4 Environmental LP, which has the exclusive license to provide the CEP and Quantum-CEP methods to the Department of Energy (DOE), the Department of Defense, and the United States Enrichment Corp. (USEC). The license covers the construction of four processing and demonstration facilities in Oak Ridge's Commerce Park.

The first M4 Environmental facility at Oak Ridge, the UF6, is a small-scale demonstration facility designed to prove the efficacy of Quantum-CEP in converting depleted uranium hexafluoride to environmentally stable uranium compounds and commercial products. The UF6, which began operating last fall, was constructed in conjunction with the USEC, a government corporation that produces and markets uranium enrichment services to utilities in the United States and 11 other countries.

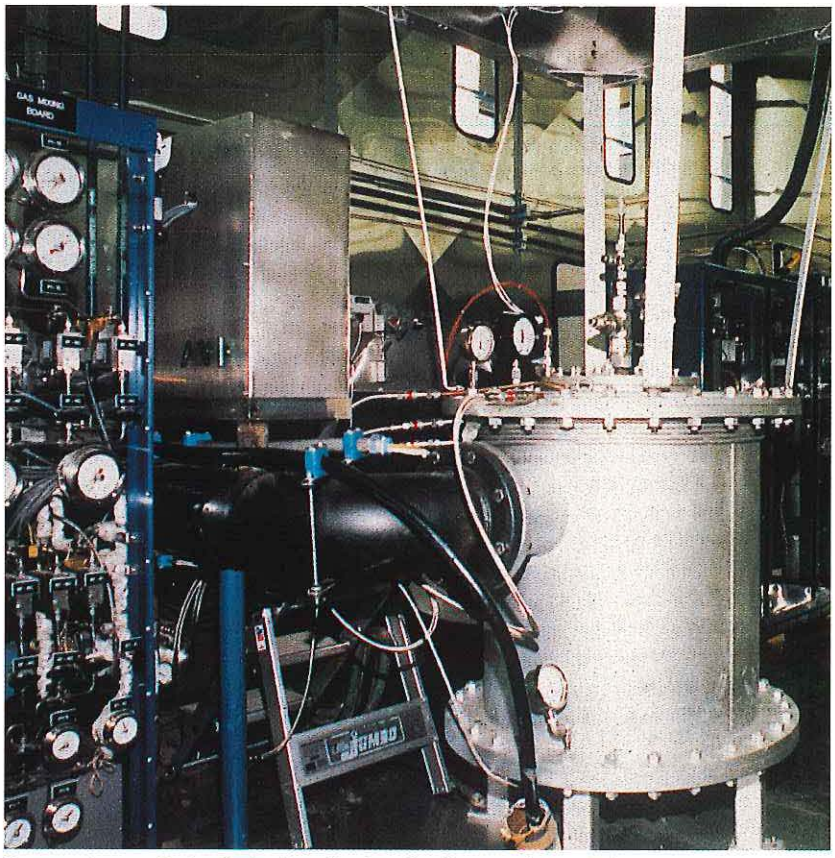
UF6 can treat up to 10 kilograms per hour of depleted uranium hexafluoride, according to Michael Baker, senior process engineer at M4 Environmental Management Inc. These materials, which are delivered in solid form in cylinders, are heated to 160°F to liquefy them. They are then fed with hydrogen and oxygen compounds to a sealed steel vessel containing 100 pounds of molten copper. "We use copper rather than iron because it gives the process more favorable operability and economics and because the lower melting point of copper is less harsh on the refractory lining of the bath," Baker said.

The process produces anhydrous hydrogen fluoride and depleted uranium oxides and uranium metal. (Another version of the same process, now under development by M4 Environmental, can produce very dense uranium alloy products.) Anhydrous hydrogen fluoride is used in uranium processing and the manufacture of nonchlorofluorocarbon refrigerants. Depleted uranium oxides and metals are collected from the copper metal bath and can be used to fashion radiation shielding, waste containers, counterweights, flywheels, and other devices requiring dense materials. M4 Environmental is negotiating with various U.S. and Canadian firms interested in using each of the UF6 end products, Baker said.



The catalytic extraction process (CEP) uses the catalytic properties of molten metal to break the molecular bonds of hazardous wastes, and select chemicals are added to extract useful products.

If the UF6 tests succeed, M4 Environmental will receive a multiyear contract to build a 10,000-ton-per-year UF6 conversion plant for the USEC, which generates 15 million kilograms of depleted uranium hexafluoride annually. The USEC contract could be the tip of a lucrative iceberg for M4 Environmental; the DOE has more than 550 million kilograms of depleted uranium hexafluoride in storage dating from when the department began operated enrichment plants nearly 50 years ago. The world market for processing spent uranium hexafluoride is estimated to exceed $5 billion.

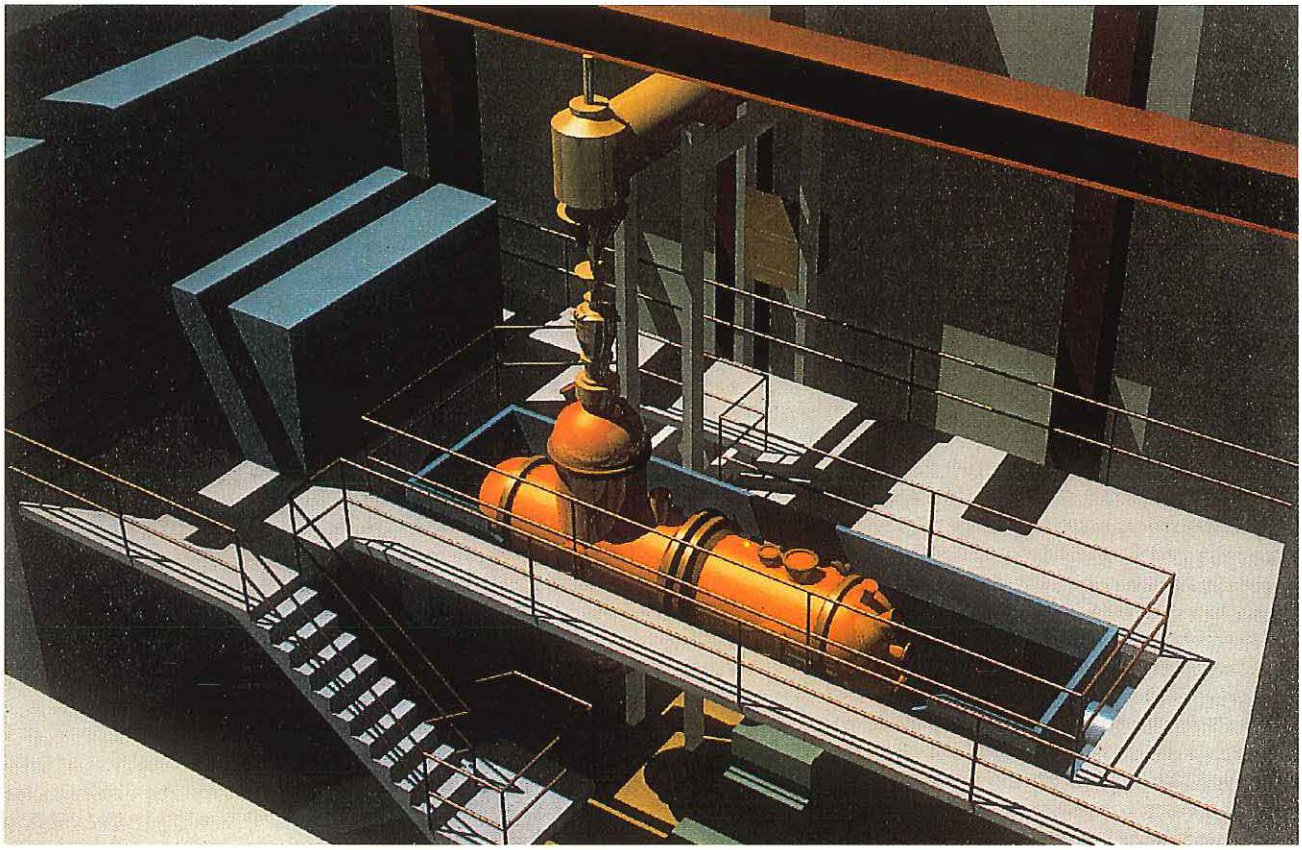


Compounds are added to depleted uranium hexafluoride to produce anhydrous hydrogen fluoride for uranium processing as well as depleted uranium oxides and metals for radiation shielding.

Adjusting the Mix

Treating mixed wastes was the mission of radioactive processing unit 3 (RPU3), the second M4 Environmental facility completed at Oak Ridge. Last December, this plant began processing 15 to 20 kilograms per hour of mixed wastes generated by local DOE sites. Hazardous constituents in these wastes include chromium and nickel as well as uranium.

M4 Environmental engineers are using lock hoppers and screw feeders to bring the mixed wastes into the RPU3 treatment train. Tuyeres—three concentric pipes that carry wastes in the center, oxygen in the intermediate pipe, and methane in the outer pipe—are also in-



The largest of M4 Environmental units, the RPU4, will begin processing mixed waste from government facilities and commercial nuclear power plants next month.

manager at the Hoechst Bay City plant.

When the $25 million CEP plant is completed by late this year or early next, it will treat up to 24,000 tons of wastewater-treatment residues generated each year by Hoechst Celanese chemical plants in Texas as well as some wastes from third parties. "Whatever their origin, the wastes we choose to process will be rich in carbon, hydrogen, oxygen, and some chlorine, enabling us to produce high-quality syngas as an end product," said Hightower. Hoechst will use the syngas as a feedstock to make oxoalcohols and synthetic fatty acids at the Bay City chemical plant. Ceramic end product will be sold to abrasive manufactures and the bath metal will be recycled, Hightower added.

The Hoechst Celanese connection will help introduce CEP technology to other countries by means of a strategic alliance struck between Molten Metal and the German engineering and construction company Uhde GmbH, headquartered in Dortmund. Uhde, which is a subsidiary of Hoechst AG, will identify and sell a minimum of nine CEP projects outside the United States in the next four years. "We have customers in many international markets in which conventional methods of waste disposal, such as incineration, are becoming unacceptable," said Ulrich Kuske, vice president of Uhde. Kuske said his firm can now offer CEP as an integrated process solution.

"This agreement with Uhde will help us to rapidly launch CEP worldwide, in developed countries like Germany and in emerging markets like South Africa and Mexico," said Ian C. Yates, vice president at Molten Metal. Celanese Mexicana, S.A., Mexico's largest private chemical company, signed a letter of intent to construct a CEP plant capable of recycling 50,000 tons of hazardous waste per year. The Mexican plant is scheduled to begin operation by the end of 1997.

In the United States, the engineers at M4 Environmental may eliminate deadly leftovers from the Cold War as one of three alternative technologies selected by the U.S. Army to dispose of its stockpiles of blister agent mustard gas, stored at the Aberdeen Proving Ground in Maryland, and nerve agent VX, at Newport Chemical Activity in Indiana. These stockpiles must be destroyed under the Chemical Weapons Convention signed by the United States (although not yet ratified by Congress) and more than 120 countries.

The hazardous-waste-treatment industry is also interested in using Molten Metal's remediation techniques. Rollins Environmental Services in Wilmington, Del., the largest American commercial hazardous-waste incineration firm, will own and operate eight CEP facilities to be designed, constructed, and licensed by Molten Metal over the next 10 years at existing and future facilities.

The Electric Power Research Institute in Palo Alto, Calif., the research arm of the U.S. electric utility industry, signed a collaborative agreement with Molten Metal to demonstrate the CEP technology. The first major project is already under way at Houston Lighting & Power Co. This project will convert manufacturing residues into syngas and/or polymer manufacturing. A successful demonstration could find new markets for CEP among the institute's 700 member utilities. ▪

corporated in the design. "All three feeding mechanisms allow us to adjust the combination of waste and extraction chemicals to closely control the chemical reactions in the bath," Baker said.

Solid materials such as alumina and silica are added to the wastes to create the ceramic-phase end products that will capture mild radioactive materials. The RPU3 bath has a tapping chamber that catches the ceramics as they build up and overflow from the molten iron. The ceramic can be used as a stabilizing medium in place of blast-furnace slag already used for that purpose, as storage-container liners, or as a neutralizing agent at DOE facilities.

Syngas is also produced by the RPU3 facility and is used to fuel another M4 Environmental facility. The iron residue, free of radioactive contaminants, will be reused to treat more wastes. "When an excess of metal phase is recovered in the iron, we can use it to make containers or drums for the nuclear industry," Baker said.

Expanding Applicability

RPU4, based on the design of the RPU3 facility, is scheduled to begin operations next month. This plant will process up to 10 million pounds of mixed waste generated by the DOE, Department of Defense, and government and commercial nuclear power plants. Waste will be delivered to RPU4 in slurry or bulk form that can be dried before it is sent to a 3000-pound molten-iron bath.

The syngas produced at RPU4 will be burned as fuel in a boiler to create steam that will fulfill three processing tasks: drying the slurried wastes before injection, heating the wastewater evaporator, and supplementing the building's heating system, Baker explained.

The last of M4 Environmental's Quantum-CEP projects at Oak Ridge, installed in January, is a small-scale demonstration facility designed to prove the process on a variety of waste streams being provided by the DOE, the U.S. Air Force and Navy, and Westinghouse Hanford's Tank Program. "This facility will show if the processing technology meets the performance criteria of these agencies so that they can make processing decisions and go to their local regulators to get approval for using the treatment technology," said Baker.

Making Waste into Feedstock

Future applications of CEP and Quantum-CEP will bring the technologies into the chemical-processing, defense, power-generating, and waste-treatment industries. For example, the first CEP plant dedicated to processing chemical-industry wastes is being built at the Hoechst Celanese Corp. bulk chemical plant located in Bay City, Tex. The plant's product list includes vinyl acetate, butanol, propanol, synthetic fatty acids, and acetate esters. The residual sludge from wastewater-treatment facilities at chemical plants are typically put in a landfill, said Brenda Hightower, a mechanical engineer and environmental, health, and safety

M4 Environmental engineers interconnected two gas-handling modules and stacked them on top of each other at the Oak Ridge facility.

Chem DeMil News

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M4 ENVIRONMENTAL L.P.

A Limited Partnership between Lockheed Martin Corp. and Molten Metal Technology Inc.

March 199

M4 Enironmental Passes Critical Milestone with Demonstration of CEP's Effective Processing of Chemical Warfare Agents

OAK RIDGE, Tennessee - M4 Environmental L.P. (M4) announced today the successful demonstration of Molten Metal Technology's proprietary Catalytic Extraction Processing (CEP) in safely and effectively destroying mustard and nerve agents supplied by the U.S. Army. This successful demonstration meets a critical milestone in M4's program to commercialize a higher standard for cost-effectively destroying chemical weapons.

The tests were conducted this month on a CEP demonstration facility recently built at the Battelle Memorial Institute, a facility certified by the Army for such work. The demonstration showed greater than 99.999999 percent destruction of these deadly agents, which is 100 times better than current regulatory standards designed to protect human health and the environment.

"We've achieved the highest agent destruction level using the Molten Metal process that the lab's state-of-the-art analytical equipment could measure," explained Charlie Frye, M4's vice president for the Chemical Demilitarization Program. "We're very pleased with the test results because they prove that CEP offers a comprehensive and economic solution for the destruction of both mustard and nerve agent weapons while achieving superior environmental performance."

In CEP, wastes are piped into a sealed bath of low pressure molten metal. The catalytic properties of the system break down the chemical compounds in the agent to their primary elements. These elements are reconfigured as industrial products and extracted as recyclable gases, ceramics, and metal alloys by adding select chemicals and materials, such as oxygen and alumina, to the process.

The U.S. Environmental Protection Agency has recently recognized Molten Metal Technology's proprietary pollution prevention and recycling technology as achieving the Best Demonstrated Available Technology (BDAT) requirements for processing all wastes.

CEP is one of three private sector technologies recently selected by the U.S. Army as part of its Alternative Technology Program for cleaning up chemical warfare agents. Chemical warfare agents are stored at Aberdeen Proving Ground in Maryland, Newport Chemical Activity in Indiana, as well as at sites in Utah, Oregon, Colorado, Alabama, Arkansas, and Kentucky. International countries facing chemical weapons stockpiles include Japan, the former Soviet Union, and a number of European countries.

M4 is a limited partnership between Lockheed Martin Corp. and Molten Metal Technology, Inc., the company that developed and patented CEP.

If you would like further information on M4's technology and its application to the demilitarization of chemical weapons, please contact Gail Rymer at (800) 693-0060 or (423) 220-4194.

Chem DeMil News

M4 ENVIRONMENTAL L.P.

A Limited Partnership between Lockheed Martin Corp. and Molten Metal Technology Inc.

March 1996

CEP Considered by Army as Alternative for Bulk-Agent Sites

Catalytic Extraction Processing (CEP) is one of three technologies being reviewed by the U.S. Army for use in its Chemical Demilitarization Program at low-volume, bulk-storage sites — the Aberdeen Proving Ground in Maryland and Newport Chemical Activity in Indiana. Although the Army is moving ahead with plans to incinerate chemical weapons stored at six other U.S. sites, it is looking at alternative technologies for Aberdeen and Newport, locations at which the chemical agents are stored in bulk containers not in actual weapons.

Benefits of CEP

- Favorable regulatory status
- Waste minimization and recycling technology
- Superior environmental and regulatory performance
- Complete solution for chemical agents and bulk containers
- Superior cost and schedule performance
- Public acceptance

In October, M4 Environmental L.P. (M4), teamed with Battelle Memorial Institute, Bechtel National Inc. and Fluor Daniel, submitted to the Army a conceptual design package with detailed information about CEP's ability to safely dispose of mustard and nerve agents stored at Aberdeen and Newport, respectively. Please see page 2 for a listing of information repositories where design packages are available for review.

"We believe CEP offers the Army numerous advantages," said Charlie Frye, M4's Vice President for Special Projects. Frye explained that besides allowing for the complete and safe destruction of chemical warfare agents and their metal containers by the deadline imposed by Congress, CEP would allow almost 100 percent of nerve and mustard agents to be recycled into useful products such as metal, hydrochloric acid, sulfur and synthesis gas. He added that because the technology produces almost no waste requiring disposal and because of its ability to recover materials for reuse, CEP is regarded favorably by state and

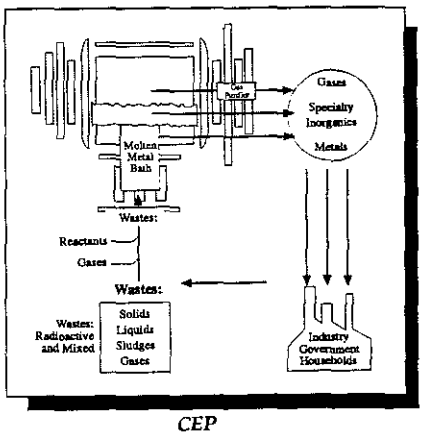
continued on page 2

Who is M4 and What is CEP?

M4 Environmental L.P. (M4) is an environmental technology company headquartered in Oak Ridge, Tenn. Established in 1994 as a limited partnership between Lockheed Martin Corp. and Molten Metal Technology Inc., the company's mission is to meet the nation's hazardous and radioactive waste challenge by bringing new environmental technologies on line. M4 has the exclusive license to provide the U.S. Departments of Energy and Defense and the United States Enrichment Corp., producers of the most problematic waste streams, access to an innovative waste minimization and recycling technology called Catalytic Extraction Processing (CEP).

The technology has its roots in the steel-making industry. In the mid-1980s, chemical engineers seeking to improve the energy efficiency of steel production, discovered that molten metal has catalytic and solvent properties. This discovery was the genesis of CEP, which uses molten metal to break the chemical bonds of hazardous waste, dissociating waste compounds into their constituent elements. With the addition of chemical reactants, these elements can be recombined to form desired industrial products.

The U.S. Environmental Protection Agency has designated CEP as a best demonstrated available technology for numerous hazardous waste streams. Because of its ability to elementally recycle hazardous waste in a safe and environmentally sound manner, the technology has obtained a number of key certifications, approvals and designations.



CEP

CEP Considered by Army as Alternative for Bulk-Agent Sites

continued from page 1

federal regulatory agencies. "Most important, CEP occurs in a sealed environment, limiting exposure to workers, the public and the environment," Frye said.

M4 proposes to construct and operate a temporary processing facility at Aberdeen first. Construction and processing would take approximately two to three years with an additional year required to tear down the facility and move the equipment to Newport, where the cycle would be repeated. Although temporary, both facilities would be built to meet stringent health and safety standards and would have appropriate state and federal regulatory oversight.

A Defense Acquisition Board review is scheduled in October to determine if pilot testing of CEP or any of the other alternative technologies is warranted. During the next few months, the M4 team will perform more extensive tests and submit additional information for the Army's review, including live agent test data.

Preliminary tests at Molten Metal Technology's Fall River (Mass.) facility already have shown 99.9999999 (nine 9s) percent destruction — the lowest detectable limit — of materials simulating agents in the Army's chemical weapons stockpile, including half mustard. The U.S. Environmental Protection Agency requires incinerators to operate only at a 99.9999 (six 9s) percent destruction level.

Frye went on to reiterate the differences between CEP and incineration. "Unlike incineration, CEP doesn't rely on flame combustion to alter the chemical composition of hazardous waste," he said. "The catalytic and solvent effects of the molten metal bath cause immediate dissolution of hazardous compounds, and because processing occurs in an environment in which we can control the chemical reactions, no process emissions occur."

The Army has been directed by Congress to completely dispose of its chemical agents and munitions stockpile by 2004. The Army had chosen incineration as the preferred method for destroying these weapons, but it established the Alternative Technology Program in 1994 to look for safer, less costly technologies that can be deployed more quickly at low- volume, bulk-storage sites.

This newsletter is published by M4 Environmental L.P.
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Clinton, IN 47842
317-832-8349

Newport-Vermillion County Public Library
Contact: Becky Gosnell
P.O. Box 97
Newport, IN 47966
317-492-3555

Rockville Public Library
Contact: Cindy Hein
106 N. Market
Rockville, IN 47872
317-569-5544

Danville Public Library
Contact: Roberta Allen
307 N. Vermillion
Danville, IL 61832
217-477-5228

Maryland

Harford County Library
Aberdeen Branch
21 Franklin Street
Aberdeen, MD 21001
410-273-5608

Harford County Library
Edgewood Branch
2205 Hanson Road
Edgewood, MD 21040
410-612-1600

Miller Library
Washington College
Chestertown, MD 21620
410-778-2800

Baltimore County Library
Essex Branch
1110 Eastern Blvd.
Essex, MD 21221
410-887-0295

M4 to Host Tour May 1

As part of ongoing community outreach efforts, M4 representatives will host a tour of Molten Metal Technology's research and development (R&D) facility in Fall River, Mass. on May 1 (rescheduled from March 13).

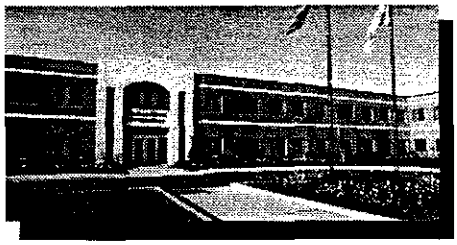
"We think it's important for community leaders to understand the alternative technologies being proposed for destroying chemical weapons at the Aberdeen Proving Ground and Newport Chemical Activity," said Kay Armstrong, M4's Community Relations Program Manager. "The best way to understand CEP is to see the technology first hand," she added.

M4's first commercial waste processing facility located in Oak Ridge, Tenn., is still under construction. Therefore, the company is arranging a tour of Molten Metal Technology's R&D facility.

While in Fall River, the tour group will have an opportunity to meet and discuss the facility with local residents.

If interested in touring the Fall River facility, please call Kay Armstrong at (800) 693-0060 or (423) 220-5026.

The M4 Technology Center in Oak Ridge, Tenn.



Molten Metal Technology's Fall River (Mass.) R&D Facility

NRC Meetings Set

The National Research Council will hold public hearings this month to gather opinions from citizens on the alternative technologies being considered for the U.S. Army's Chemical Demilitarization Program at low-volume, bulk-storage sites.

The tentative meeting schedule is as follows:

March 12	March 15	March 16
Newport, Ind.	**Kent Co., Md.**	**Harford Co., Md.**
7:30 p.m.	7:30 p.m.	10 a.m.
N. Vermillion H.S.	Washington College	Edgewood H.S.

M4 Meets with Community Leaders

M4 held breakfast meetings with Harford and Kent County (Md.) community leaders in January to provide them with information about the company and the benefits of using CEP to destroy chemical warfare agents, specifically mustard, at the Aberdeen Proving Ground.

Gail Rymer, M4's Director of Public/Community Relations, spoke about the technology. In her presentation, Rymer said CEP would "provide a safe and effective means for chemical agent destruction" and "accelerate the schedule and reduce the cost of chemical materiel destruction." Additionally, Rymer said CEP would mitigate environmental and regulatory issues.

"Because CEP is a recycling technology that does not produce secondary waste, M4 does not have to apply for a Resource Conservation and Recovery Act permit, which can take years," she said. "This does not mean we're circumventing the regulatory process; all of our processing facilities will be regulated," Rymer added.

She went on to discuss plans for the company's temporary processing facility in Aberdeen, explaining that M4 could process all of the agent at Aberdeen within 300 days. The facility would be capitalized by M4 with the company "assuming all risks and doing what is necessary to successfully complete the job."

Rymer noted that safety and environmental compliance, along with stakeholder acceptance, would be top priorities. "M4 wants to identify and resolve stakeholder concerns as soon as possible. We have an open-door policy," she explained.

M4 representatives are available to hold informational meetings in Newport, Ind., as well as other Chemical Demilitarization sites. For information about scheduling informational meetings, please call Kay Armstrong, M4's Community Relations Program Manager, at (800) 693-0060 or (423) 220-5026.

Chem Demil News

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M4 Environmental L.P.
151 Lafayette Dr., Suite 210
Oak Ridge, TN 37830
(800) 693-0060 or (423) 220-4194
Fax (423) 220-4195

151 Lafayette Drive
Suite 210
Oak Ridge, Tennessee 37830

Corporate Profile

Headquarters:	*Oak Ridge, Tennessee*
Year Founded:	*1994*
Number of employees:	*104*
Mission:	*To meet the nation's hazardous and radioactive waste challenge with innovative technologies and processes*

The government generates 95 percent of all mixed waste — waste that is both hazardous and radioactive — in the United States, about 3.5 to 4 million cubic feet per year. Most of this waste is stored at government installations because viable and cost-effective treatment technologies do not exist. The 1992 Federal Facilities Compliance Act requiring government agencies to fully comply with the Resource Conservation and Recovery Act (RCRA) placed an urgency on the need to develop such technologies. RCRA, which regulates the production, storage, treatment and disposal of hazardous waste, requires the hazardous components of mixed waste to be treated prior to final disposal. The new compliance act forced federal agencies to develop specific mixed waste treatment plans and schedules. As federal budgets continue to decrease and traditional waste management practices, such as landfilling and incineration, have not met with general public acceptance, the government has turned to the private sector for answers to its waste management problems.

M4 Environmental L.P. (M4), a limited partnership between Lockheed Martin Corp. and Molten Metal Technology Inc., was established in 1994 to meet the nation's hazardous and radioactive waste challenge by providing the U.S. Departments of Energy and Defense and the United States Enrichment Corp. access to Molten Metal Technology's proprietary Catalytic Extraction Processing (CEP) technology. Recently, Molten Metal Technology expanded M4's

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license to include processing mixed waste from the commercial sector — nuclear power plants, medical and industrial facilities and universities.

CEP converts hazardous waste into useful industrial products. The technology was discovered in the mid-1980s by chemical engineers working to improve the energy efficiency of steel production. They found that molten metal has certain properties that alter the molecular structure of waste compounds. In effect, CEP reduces hazardous compounds to their basic constituent elements. With the addition of chemical reactants, these elements can be reconfigured to form desired gaseous, ceramic and metal products. Quantum-CEP™ is a related technology for processing radioactive and mixed waste. Not only does it destroy hazardous compounds, it reduces and stabilizes radionuclides for reuse or final disposal.

The company's first waste processing facility, the M4 Technology Center, is located in a light industrial park in Oak Ridge, Tenn. With four Quantum-CEP systems either operating or under construction, the Tech Center is an example of privatization at work. Proof-of-process demonstrations began in October 1995, and full-scale waste processing is scheduled to begin in June 1996.

M4 continues to test and refine CEP. As the company continues its success in deploying this innovative technology, it will build or lease facilities near government waste sites.

Catalytic Extraction Processing

M4 Environmental L.P. (M4), a limited partnership between Lockheed Martin Corp. and Molten Metal Technology Inc., is an environmental technology company headquartered in Oak Ridge, Tenn. M4 is meeting the nation's hazardous and radioactive waste challenge by providing the U.S. Departments of Energy and Defense and the United States Enrichment Corp. access to an innovative waste minimization and recycling technology called Catalytic Extraction Processing (CEP). Developed and patented by Molten Metal Technology, CEP uses molten metal to convert hazardous waste into useful industrial products.

A Real Breakthrough

CEP has its roots in the steelmaking industry. In the mid-1980s, chemical engineers, seeking to improve the energy efficiency of steel production, discovered that molten metal has catalytic and solvent properties. This discovery was the genesis of CEP, which uses molten metal to break the chemical bonds of hazardous waste, converting harmful compounds into stable elements. With the addition of chemical reactants, these elements can be recombined to form valuable gaseous, ceramic and metal products. During commercial-scale tests at Molten Metal Technology's research and development facility in Fall River, Mass., more than 90 percent of waste has been converted into usable products through CEP. As a result of the technology's performance, it has been designated by the U.S. Environmental Protection Agency as a *best demonstrated available technology* for numerous hazardous waste streams.

The Chemistry of CEP

CEP occurs in a contained vessel known as a Catalytic Processing Unit (CPU) in which iron, or another metal such as nickel, has been loaded and melted by induction heating. Processing occurs in two phases, elemental dissociation/dissolution and product synthesis. During the first phase, elemental dissociation/dissolution, hazardous waste is injected into a CPU. The molten metal acts as a catalytic solvent, breaking the chemical bonds of the waste compound,

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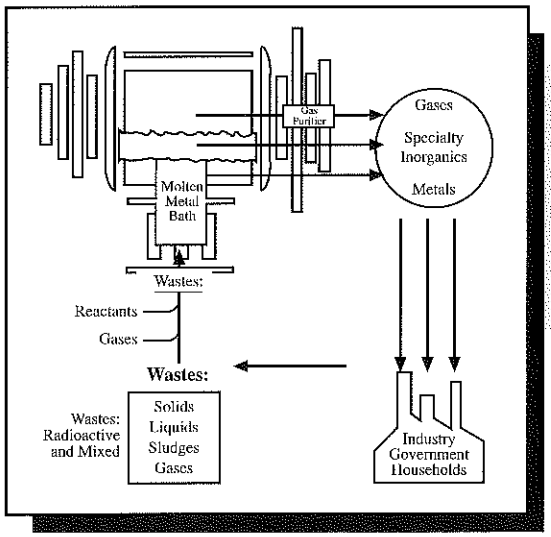

CEP

leaving its constituent elements to form intermediate compounds with the molten metal. It is during this phase that hazardous or toxic substances are destroyed. During product synthesis, chemical reactants are added, and the elements of the intermediate compounds are recombined to form desired gaseous, ceramic and metal products. Gases rise to the top of the CPU and flow through a gas purification system. Ceramics are recovered from the top of the molten metal bath. Metals remain in the bath and are removed as alloys.

The CEP Difference

CEP is different from incineration or other forms of thermal treatment because it does not rely on flame combustion to alter the character and composition of hazardous waste. Instead, CEP relies on the catalytic and solvent effects of the molten metal bath to convert hazardous waste into useful products.

Most important, CEP system design allows for predictable product formation based on the metal solvents and reactants used. System operators control the waste feeds and reactants that go in and the products that come out, ensuring that emissions do not occur.

EPA has determined that CEP is not an incineration technology, and it has been initially accepted into California's Technology Certification Program, which is specifically limited to non-incineration technologies. Additionally, CEP has been designated as an innovative technology in Texas and approved as a recycling technology in Massachusetts and Ohio.

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Addressing Key Concerns

Traditional waste disposal practices, such as incineration and landfilling, often contribute to the environmental problems they were intended to solve. Incineration, if not properly conducted, can create harmful chemical by-products that pollute the air. Groundwater and other environmental media can be contaminated by leaching of contaminants buried underground. Molten Metal Technology's patented technology, Quantum-CEP™, could significantly, if not completely, reduce the need for incinerating or landfilling hazardous waste and greatly reduce the amount of radioactive waste that must be disposed of in geologic repositories.

How It Works

Like CEP, Quantum-CEP destroys hazardous waste compounds by reducing them to their basic constituent elements. But Quantum-CEP goes a step farther by separating radioactive and nonradioactive elements. Radionuclides are isolated in a compact, stable form for reuse/storage or final disposal while nonradioactive elements are combined with chemical reactants to produce desired gases, ceramics and metals. The technology has been shown to reduce the disposal volume of complex radioactive materials by more than 30:1 and simple radioactive materials by as much as 1,000:1. Quantum-CEP can be used to process a variety of radioactive and mixed waste streams.

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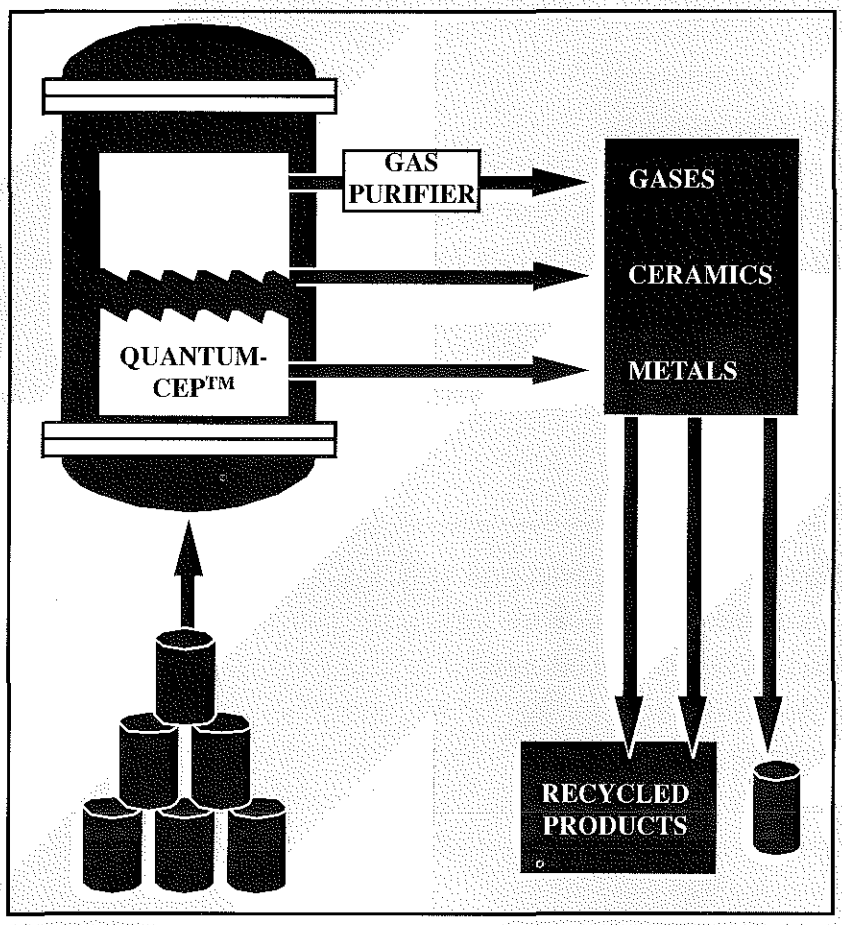

During Quantum-CEP, waste is injected into a molten metal bath, which dissolves the chemical bonds of waste compounds. Radioactive elements are isolated in a stable form for reuse or final disposal while nonradioactive elements are combined with chemical reactants to form desired industrial products.

The M4 Technology Center

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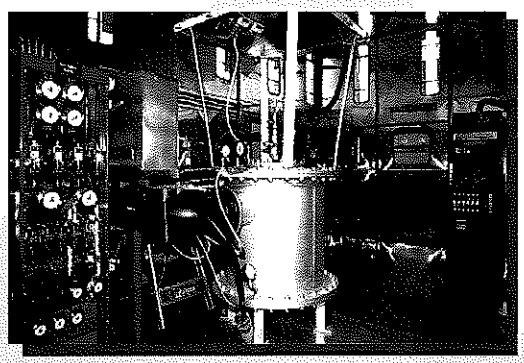
The M4 Technology Center in Oak Ridge, Tenn.

The M4 Technology Center is located in a 101,000-square-foot building on 10 acres in Oak Ridge's Commerce Park. M4 moved into the facility in August 1995 and is renovating it to accommodate processing equipment. The Tech Center's mission is twofold. First, it will be used to perform treatability studies and proof-of-process demonstrations on various waste streams from the U.S. Departments of Energy and Defense and the United States Enrichment Corp. Second, it will commercially process mixed waste for both government and commercial customers. The government is responsible for generating about 95 percent of all mixed waste in the United States. The commercial sector generates the remaining five percent. Molten Metal Technology recently expanded M4's licensing agreement to allow the company to process mixed waste generated by the commercial sector — nuclear power plants, medical and industrial facilities and universities.

Four Quantum-CEP™ systems are either operating or are under construction at the Tech Center, which also will house an analytical laboratory for real-time analysis of waste samples. Each Quantum-CEP system is referred to as an RPU (Radioactive Processing Unit). Two RPUs are operating — RPU-1, the depleted uranium hexafluoride (DUF_6) bench-scale unit, and RPU-3, the company's first commercial Quantum-CEP unit.



RPU-1 successfully converted DUF_6 to anhydrous hydrogen fluoride and uranium oxide.

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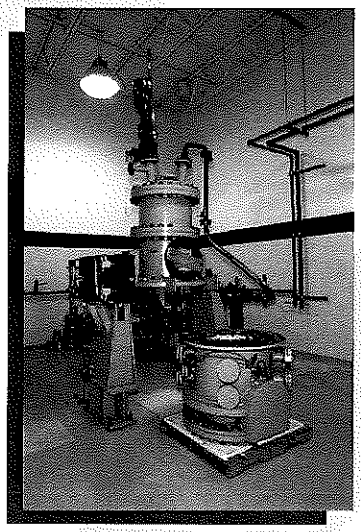
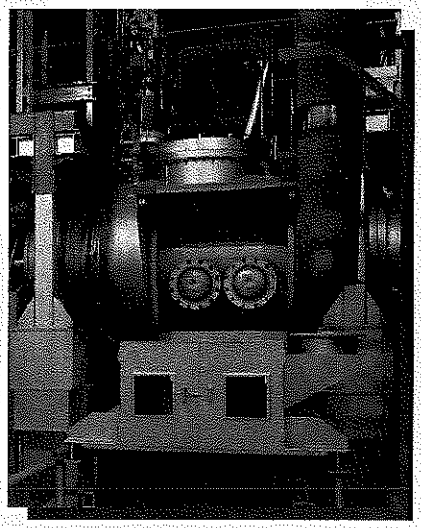
Two smaller Quantum-CEP units, collectively known as RPU-2, arrived at the Tech Cent in February 1996. This system will be used for treatability studies and to support processing operations. RPU-4, also known as the Combo Unit, will be in place by April 1996. With a one- to two-ton metal bath, this unit will operate around the clock to process mixed waste for government and commercial customers, including contaminated soils and inorganic sludges, organic liquids and sludges, scrap metal and combustible and noncombustible debris.



M4 used RPU-3 to process its first barrel of mixed waste.



RPU-4 will resemble this processing unit at Molten Metal Technology's Fall River (Mass.) facility.

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Background

Recycling is a preferred waste minimization technique because it creates useful products, diverting materials from disposal in landfills and other facilities. It also reduces costs associated with waste disposal and the use of virgin materials. The Federal Pollution Prevention Act, the Resource Conservation and Recovery Act and several Executive Orders make pollution prevention, recycling and the procurement of recycled materials a priority, particularly for government agencies such as the U.S. Department of Energy and U.S. Department of Defense.

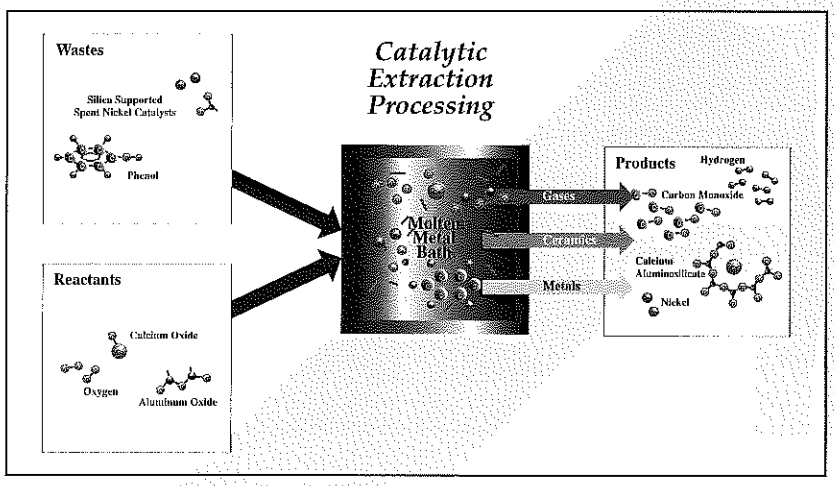
CEP is a technology that makes valuable products from waste, creating a source of raw materials with various uses. In fact, CEP typically recycles more than 90 percent of waste streams into valuable industrial products. Because of its ability to elementally recycle hazardous waste in a safe and environmentally sound manner, the technology has obtained a number of key regulatory certifications, approvals and recycling designations, which reflect the clear community and regulatory preference for technologies that minimize pollution and recover raw materials.

Converting Waste to Products

CEP uses molten metal to break the chemical bonds of hazardous waste, dissociating compounds into their constituent elements. With the addition of chemical reactants, these elements can be recombined to form valuable gaseous, ceramic and metal products. Because of CEP's ability to reduce waste compounds to their constituent elements, M4 has the unique capacity to recycle a broad array of hazardous and nonhazardous waste materials into useful, quality products with minimal residue generation.

CEP system design allows for predictable product formation based on the metal solvents, reactants and co-feeds used. System operators control the waste feeds and reactants, resulting in customer-tailored products.

Using CEP, M4 can create valuable products from both inorganic and organic wastes, as well as by-product and residual streams. Organics are converted to synthesis gas, a chemical feedstock or fuel gas; reducible metals (i.e. iron, chromium, nickel) are converted to alloys;



inorganics and non-reducible metals may be converted to ceramics, spec y gases (i.e. anhydrous hydrogen chloride) or other chemical commodities (i.e. sulphur, sodium hydroxide, etc.). These products can be designed to meet general industry and/or customer-designated specifications through judicious waste stream co-feeding, co-feed addition and process variable optimizations.

Examples of Gas-Phase Products

Synthesis gas or syngas, a mixture of carbon monoxide and hydrogen, is the primary gas-phase product produced by CEP. It is indistinguishable from syngas produced from alternative methods and will meet required boiler specifications as well as federal, state and local requirements for fuel. Large, well-established markets exist for syngas as a feedstock or for use as fuel. Examples of other products from the gas phase of CEP include:

- Value-added products from syngas such as ethanol, methanol, acetic acid, butanol, acetone and ethylene
- Hydrogen
- Carbon monoxide
- Hydrochloric acid/anhydrous hydrogen chloride
- Elemental sulphur
- Sodium hydroxide
- Hydrofluoric acid/anhydrous hydrogen fluoride

Examples of Ceramic Products

M4 has the ability to tailor both the chemical and physical composition of ceramic products to achieve desirable chemical and physical characteristics. Equipment for granulation, casting, separation, spinning or further chemical reaction, augmented with equipment to control the cooling rate, can be installed to enhance the physical properties of the material and transform it into the requisite commercial form. Examples of ceramic products and their uses include:

- Mineral wool/man-made vitreous fibers (textile glass fibers, insulation, rock and wool fibers, refractory ceramic fibers and specialty glass fibers)

- Cement constituent (Portland cement; ready mixed concrete, mortar and grouts; porous concrete pipe, precast concrete traffic barriers, concrete poles and ground-granulated blast furnace slag substitute)
- Component/media for fabricating containers and container liners
- Abrasives (grinding, honing, lapping, superfinishing, polishing, cutting, pressure blasting or barrel finishing)
- Neutralizing agent for wastewater treatment
- Refractory base
- Aggregate for road and paving materials
- Glass base (including ceramic whitewares)
- Steelmaking flux

Examples of Metal Products

Reducible metals in the waste streams form metals and metal alloys analogous to metals produced from primary ores or recovered from other sources (i.e. automobiles, cans, used equipment). The physical and chemical properties of the metal alloy depend on the chemical composition of the metal product. Through judicious co-feed addition strategies, M4 can adjust metal products to meet industry and/or customer-specific standards. Specific uses of metal products include:

- Scrap metal substitute for steelmaking operations or further processing
- Scrap metal as a raw material for producing alloy steels
- Specialty metals (i.e., nickel and nickel products)
- Shielding blocks
- Low-alloy iron containers for waste transportation, storage and disposal
- Containers for radioactive waste and spent nuclear fuel canisters

M4 ENVIRONMENTAL MANAGEMENT INC.

General Partner for M4 Environmental L. P.

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Gail E. Rymer
Director of Public/Community Relations

Using CEP to Destroy Chemical Warfare Agents

M4 Environmental L.P. (M4), a limited partnership between Lockheed Martin Corp. and Molten Metal Technology Inc., is an environmental technology company headquartered in Oak Ridge, Tenn. M4 is meeting the nation's hazardous and radioactive waste challenge by providing the U.S. Departments of Energy and Defense and the United States Enrichment Corp. access to an innovative waste minimization and recycling technology called Catalytic Extraction Processing (CEP). Developed and patented by Molten Metal Technology, CEP uses molten metal to convert hazardous waste into useful industrial products.

Background

The U.S. Army has been directed by Congress to completely dispose of its chemical agents and munitions stockpile by 2004. The stockpile consists of artillery shells and mortar rounds, cartridges, land mines, rockets, and nerve and mustard agents stored in bulk containers. The United States stopped manufacturing chemical weapons in 1968, and much of the stockpile is no longer useful.

Chemical weapons are stored at eight sites in the continental United States: Tooele Army Depot in Utah, Pine Bluff Arsenal in Arkansas, Anniston Army Depot in Alabama, Umatilla Depot Activity in Oregon, Newport Chemical Activity in Indiana, Aberdeen Proving Ground in Maryland, Blue Grass Army Depot in Kentucky and Pueblo Army Depot Activity in Colorado.

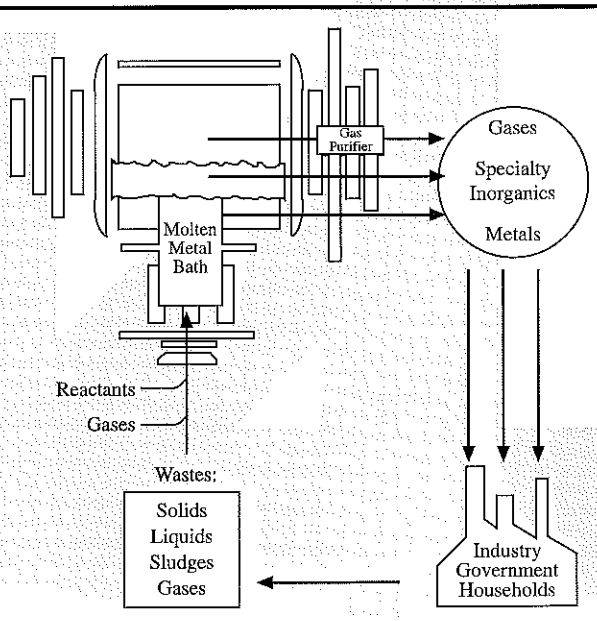
The Army determined that incineration would be the safest way to dispose of its chemical weapons stockpile, and of the two incineration facilities already built, one is operational, and the other is scheduled to begin operating in early 1996. However, the Army established the Alternative Technology Program to look for less costly technologies that can begin operations at low volume bulk agent sites in Aberdeen, Md., and Newport, Ind.

CEP is one of three alternative technologies under review by the Army for its Chemical Demilitarization Program at these low volume bulk agent sites.

The M4 Approach

M4, teamed with Battelle Memorial Institute, Bechtel National Inc. and Fluor Daniel, submitted to the Army in October a conceptual design package with detailed information about CEP's ability to safely dispose of mustard and nerve agents stored at the Aberdeen Proving Ground in Maryland and Newport Chemical Activity in Indiana.

CEP is an innovative technology that converts hazardous materials into recycled products. It uses molten metal to break the chemical bonds of hazardous waste, converting harmful compounds into stable elements. With the addition of chemical reactants, these elements can be recombined to form valuable gaseous, ceramic and metal products.



Catalytic Extraction Processing

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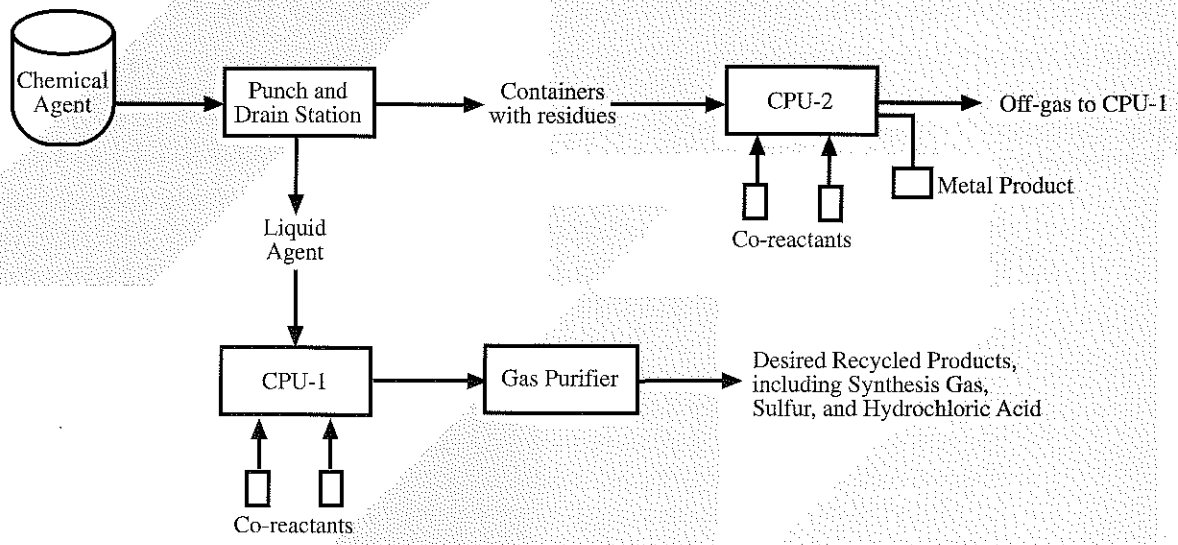
M4 proposes to construct and operate a temporary CEP processing facility at Aberdeen. Construction and processing would take approximately two to three years with an additional year required to tear down the facility and move the equipment to Newport, where the cycle would be repeated. All M4 facilities will have appropriate state and federal operating permits and oversight.

The diagram shows how M4 will apply CEP to the Aberdeen and Newport weapons stockpiles.



Applying CEP to Chemical Warfare Agents

After the containers of agent are punctured and drained, the liquid agent will be processed by Catalytic Processing Unit-1 (CPU- 1) while the containers themselves and any residues within will be processed by CPU-2. The off-gases from CPU-2 will be processed through CPU-1 to ensure complete destruction of all materials. Co-reactants are fed into both CPUs to yield the desired products. No emissions result from the process.

The Advantages of CEP

Through the use of CEP, M4 offers the Army significant advantages in reducing its stockpile of bulk chemical agents. Besides allowing for the complete and safe destruction of chemical warfare agents and their metal containers by 2004, CEP would allow almost 100 percent of nerve and mustard agents to be recycled into useful products such as metal, hydrochloric acid, sulfur and synthesis gas. Because the technology produces almost no waste requiring disposal and because of its ability to recover materials for reuse, CEP is regarded favorably by state and federal regulatory agencies. Most important, CEP occurs in a sealed environment, limiting exposure to workers, the public and the environment.

CEP is different from incineration or other forms of thermal treatment because it does not rely on flame combustion to alter the character and composition of hazardous materials Instead, CEP relies on the catalytic and solvent effects of the molten metal bath to convert hazardous waste into useful products. The U.S. Environmental Protection Agency (EPA) classifies CEP as a waste minimization and recycling technology — not as an incineration technology.

Most important, CEP system design allows for predictable end products based on the solvents and reactants used. System operators control the waste feeds and reactants that go in and the products that come out, ensuring that no process emissions occur.

Preliminary tests at MMT's Fall River (Mass.) facility already have shown 99.9999999 percent destruction — the lowest detectable limit — of materials that simulate the agents in the Army's chemical weapons stockpile, including half mustard. EPA requires incinerators to operate only at a 99.9999 percent destruction level.

By using CEP to destroy its chemical weapons stockpile at the low volume bulk sites, the Army can alleviate public concerns and dramatically reduce the cost of agent destruction.

Next Steps

During the next few months, M4 will perform more extensive tests using chemical warfare agents and will submit this test data to the Army for review. A Defense Acquisition Board review is scheduled for October 1996 to determine if pilot testing of CEP or any of the other alternative technologies is warranted.

Community Involvement

M4 believes much of its success depends on the relationships it forms with the communities in which it will own and operate facilities. M4 is working with the Army and interested citizens in Aberdeen and Newport to provide information about CEP and the company's proposal to process chemical warfare agents there.

About Our Parent Companies

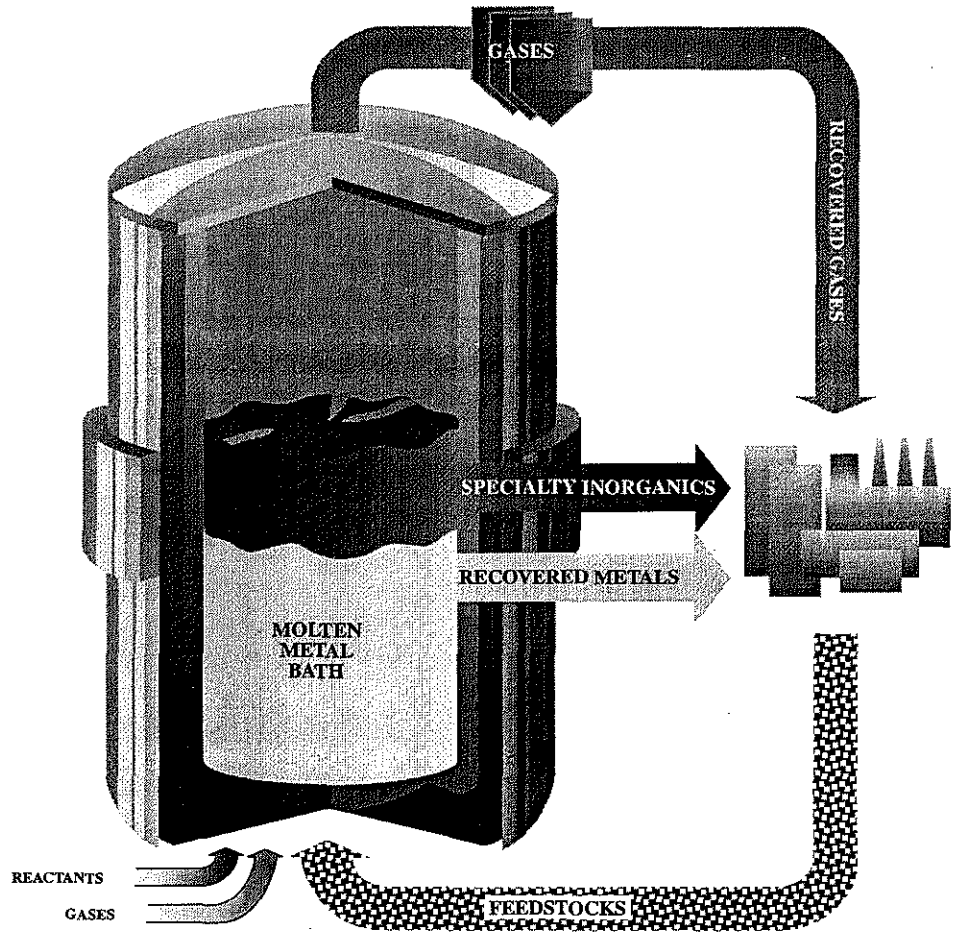
Lockheed and Martin Marietta merged on March 15, 1995, to form one of the world's premier technology enterprises. Founded on the two companies' renowned aerospace and energy heritage, Lockheed Martin strives to meet its customers' needs by supplying high-quality products and services.

Molten Metal Technology, founded in November 1989 and headquartered in Waltham, Mass., developed and patented CEP. The company has completed more than 5,000 CEP demonstrations for the U.S. government, the chemical industry and the commercial hazardous and radioactive waste industries.

M4 Environmental L.P.
Charlie Frye
Vice President
Chemical Demilitarization Program

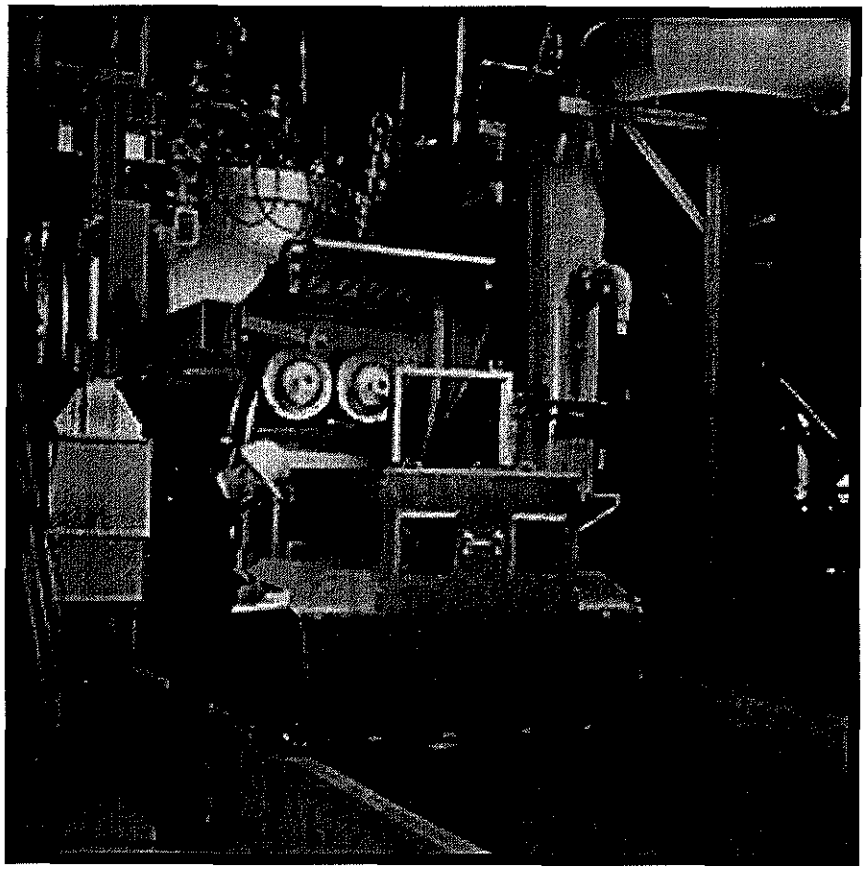
May, 1996

Catalytic Extraction Processing



- **Elemental Recycling Process**
- **What goes in?**
  - solids, sludges, liquids, gases
- **What happens?**
  - dissolution at 2400-3200°F
- **What comes out?**
  - saleable products: metals, gases, inorganics

CEP Provides Superior Technical and Environmental Performance



- **Over a wide range of heterogeneous feeds, long-term operability trial results consistently demonstrated**
  - DRE > 99.9999%
  - NOx and SOx < 3 ppm
  - non-leachable condensed phase products
  - Dioxins/furans non-detectable to targeted regulatory standard of 0.1 ng/Nm^3 TEQ
  - no hazardous wastewater
- **BDAT equivalency designations by EPA and Recycling Certifications by MADEP based on third-party results and assessments**

Representative Feed Processed by the CEP Demonstration Prototype

Feed	Key Elements	Chemical Structure	Product Recovery	DRE
Hydrocarbons				
Polystyrene/ graphite	C, H	Straight chains	99% to syngas	≥99.9999%
Ion Exchange Resin	C, H	Hydrocarbon aromatics	95% to syngas 1% to nitrogen 1% to ferroalloy	≥99.9999%
Oxygen-Bound Compounds				
Acetone	C, H, O	Ketone	99% to syngas	≥99.9999%
Industrial Biosolid waste	C, H, O (P, Na, Ca, Mg)	Highly variable hetero-geneous organics & inorganics	70% to syngas 8% to nitrogen 20% to ceramic 1% to ferroalloy	≥99.9999%
Halogenated Compounds				
Chlorotoluene/ heavy organics	C, H, Cl	Halogenated aromatics	87% to syngas 12% to ceramic	≥99.9999%
K019/K020[1]/ chlorobenzene/ Fuel oil	C, H, Cl	Halogenated aroma-tics, Halogenated straight chains	76% to syngas 23% to ceramic	≥99.9999%
F024[2]/ Fuel oil/ chlorotoluene	C, H, Cl	Halogenated aroma-tics, Halogenated straight chains	82% to syngas 13% to HCl gas <1% to ceramic	≥99.9999%
Nitrogen-Bound Compounds				
Dimethyl Acetamide/ heavy organics	C, H, N	Amides	96% to syngas 3% to nitrogen	≥99.9999%[4]
K027[3]	C, H, N	Isocyanates	93% to syngas 5% to nitrogen <1% to ceramic <1% to ferroalloy	≥99.9999%
Benzonitrile	C, H, N	Cyanides	86% to syngas 13% nitrogen	≥99.9999%
Phosphorous-Bound Compounds				
Diazinon	C, H, N, P, O, S	Pyridine ring, Phosphothioic acid	85% to syngas 4% to nitrogen 8% to ceramic 2% to ferroalloy	≥99.9999%[5]
Sulfur-Bound Compounds				
Diazinon with sulfur	C, H, N, P, O, S	Pyridine ring, Phosphothioic acid	85% to syngas 4% to nitrogen 8% to ceramic 2% to ferroalloy	≥99.9999%[5]
Metal Containing Compounds				
Surplus Metal Componentry	C, H, O, N, Fe, Al, Si, Cu, and other metals	Precious, volatile (Pb, Zn), & reducible met-als (Cr, Ni), plastics, exothermic inorganics	25% to syngas 8% to ceramic 63% to ferroalloy	≥99.9999%

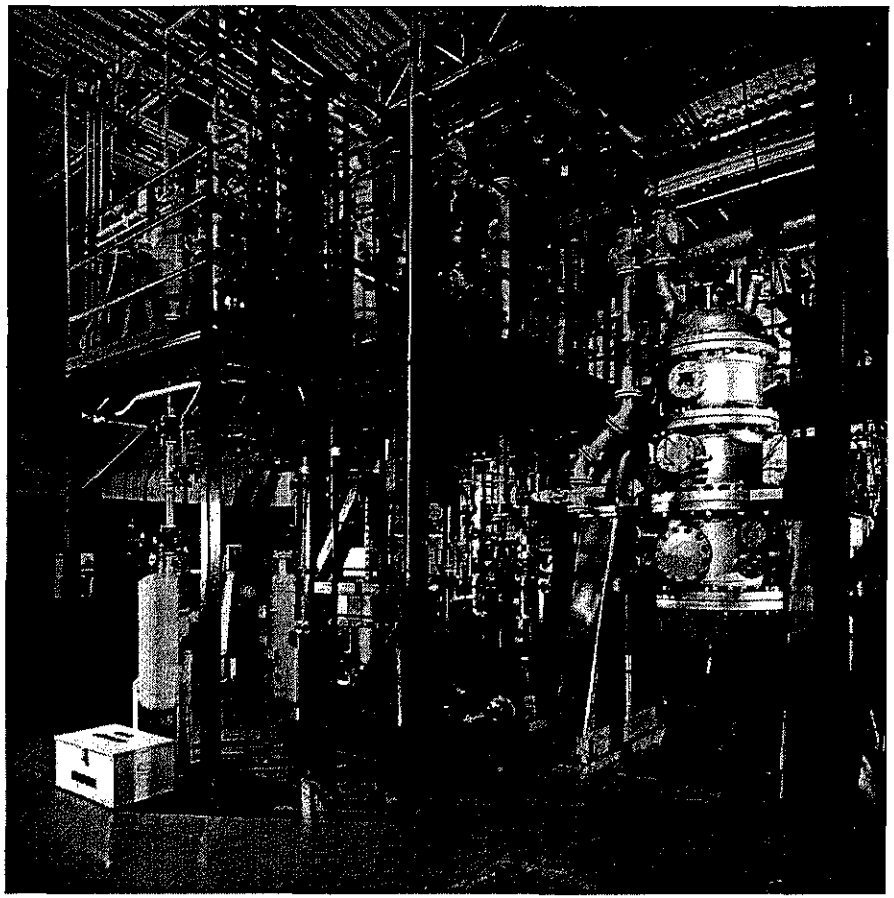
CEP Has Received U.S. Federal Regulatory Acceptance

PROJECT	DATE
WHITE HOUSE ADMINISTRATION	
U.S. Vice President Gore selected MMT's Fall River facility to announce National Environmental Technology Strategy, stating the CEP is a "premier example" of an innovative technology beging used to clean up our environment and at the same time provide jobs and economic growth	4/18/95
US EPA	
EPA Metal Recovery Report to Congress (CEP featured as "Innovative Metal Recovery Technology")	6/17/94
Determination that CEP provides equivalent performance for eight RCRA-listed isocyanate waste codes for which incineration had been mandated Best Demonstrated Available Technology (BDAT)	10/24/94
Determination that CEP provides equivalent performance for F024 RCRA-listed chlorinated organic waste for which incineration had been mandated as BDAT	7/18/95
Permit to Conduct Research and Development Testing of Polychlorinated Biphenyls	11/2/95
EPA amended Land Disposal Restrictions regulations to state that CEP achieves BDAT for all RCRA-listed wastes for which incineration or combustion has been mandated, and formally designated CEP as a "non-combustive" technology	4/08/96
EPA proposes to exclude specified CEP synthesis gas for fuel use from the RCRA definition of solid waste	4/19/96

CEP Has Received State Regulatory Acceptance

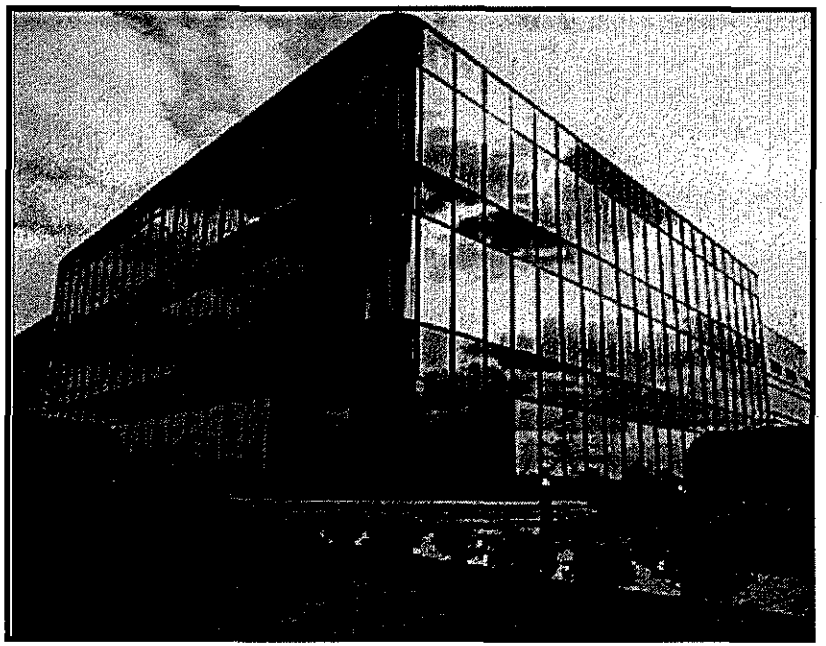
MASSACHUSETTS	
MADEP Recycling R&D Permit (Fall River)	9/20/93
MADEP R&D Recycling Certification (CEP of Wastewater Treatment Biosolids)	12/1/93
MADEP R&D Recycling Certification (CEP of Surplus Electronic Componentry)	5/17/94
MADEP R&D Recycling Certification (CEP of Chlorinated Organic Hazardous Waste, F024, K019, and K020)	1/24/95
MADEP R&D Recycling Certification (CEP of Toluene Diisocyanate Residue K027)	3/01/95
OHIO	
OH EPA Preliminary Recycling Analysis (CEP recycling unit exempt from RCRA-permitting for central hazardous processing facility)	6/28/94
TEXAS	
TNRCC designation of CEP as "Innovative Technology"	8/4/93
TNRCC determination that MMT's Bay City CEP project is legitimate use/reuse recycling and CEP is a non-incineration, non-BIF technology	2/27/96
CALIFORNIA	
Acceptance of CEP into California Technology Certification program and finding that CEP is a non-combustion technology	6/16/95
TENNESSEE	
TNDEC determination that CEP is not combustion and constitutes legitimate use/reuse recycling	5/3/96

APU-10 and Gas Handling Train

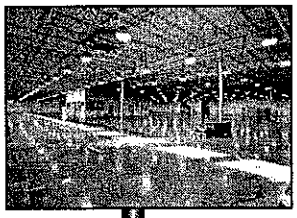


M4 Environmental Mixed Waste Processing Facility

Multiple Units to Support Government and Industrial Mixed Waste Recycling with Site Capacity > 2,000 tpy

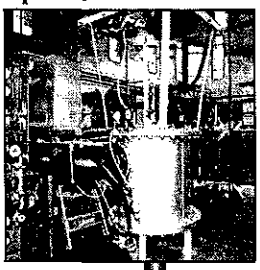


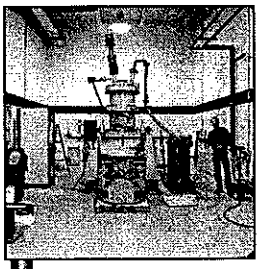
- Location: Oak Ridge, TN
- Customer base: Privatized demonstration facility for DOE hazardous and mixed radioactive waste
- First unit fully commissioned Q4/95
- Initial target feeds: Contaminated organic sludges, inorganic sludges, scrap metal, soils, organic debris, DOE complex wastes
- Recovered products include decontaminated metals, synthesis gas, and ceramics



M4 Acquires Technology Center July 28, 1995

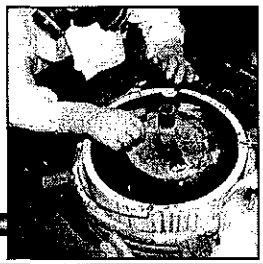
RPU-1 Operational





RPU-3 Vessel Arrives

RPU-1 Processes UF_6



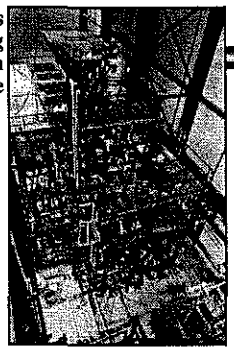
RPU-3 Processes Mixed Waste

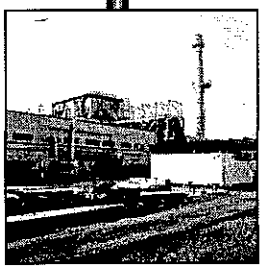
1996

JUL AUG SEP OCT NOV DEC JAN FEB MAR APR MAY

1995

Combo Gas Handling Train Complete

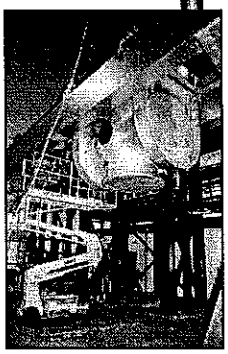




Building Improvements complete at Technology Center

RPU-2 Operational

75% Mechanically Complete Test and Checkout Underway

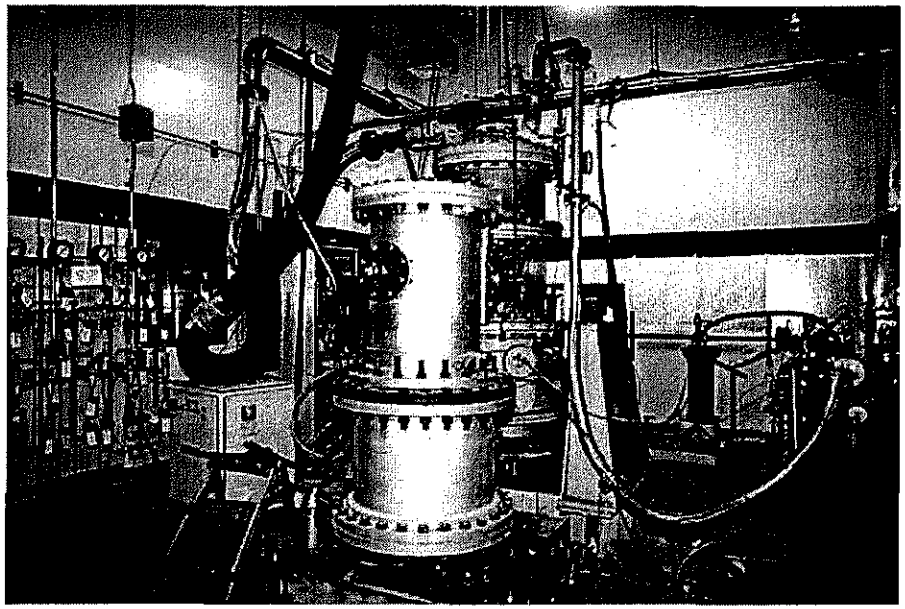


Present Day Combo Combo is 90% Mechanically Complete

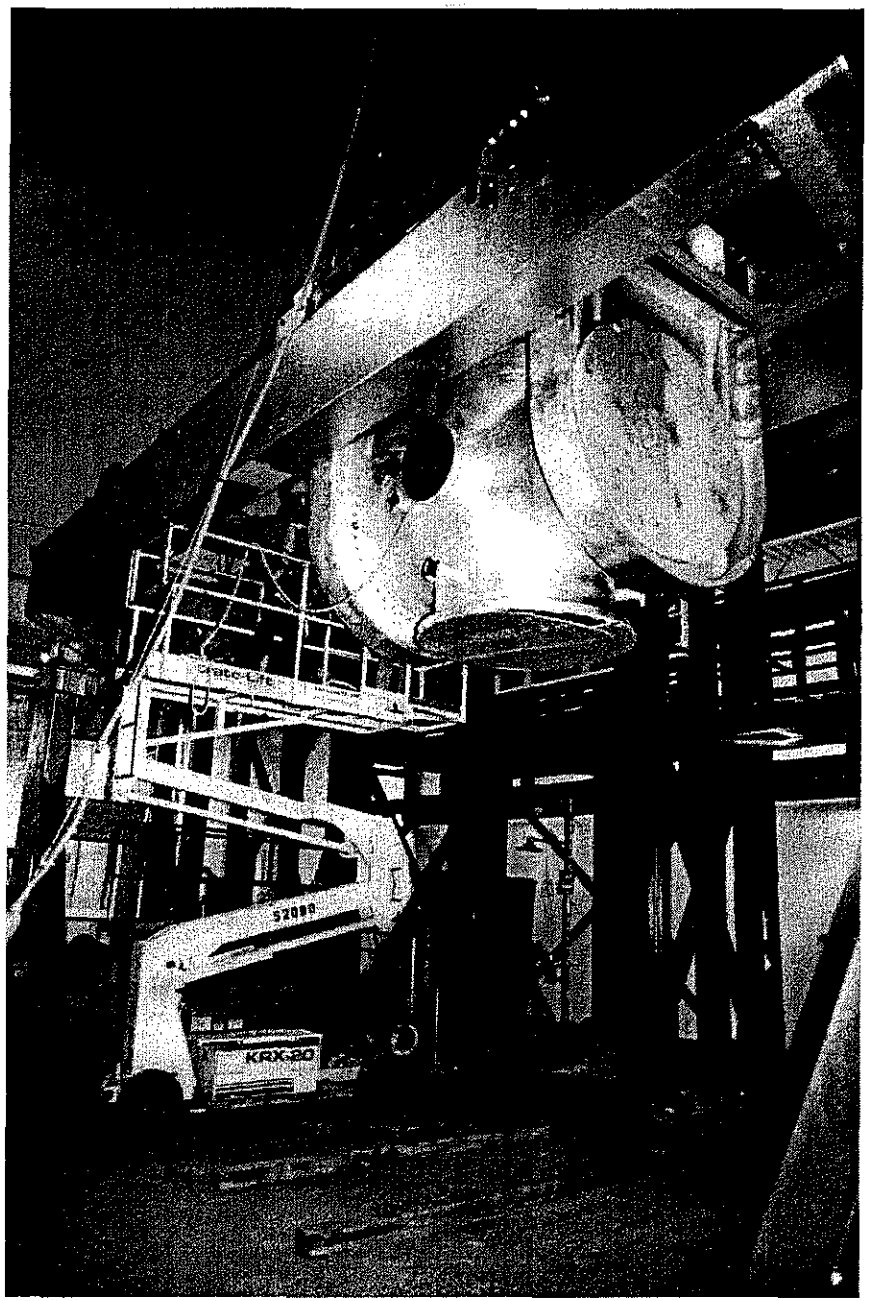
Hot Metal Testing Begins

m4643

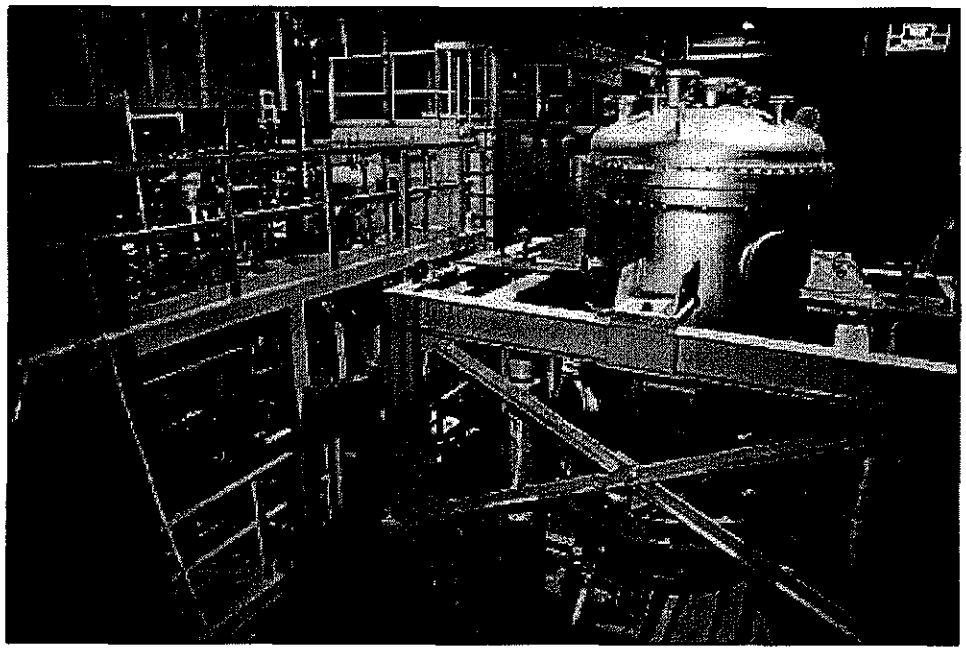
RPU-3

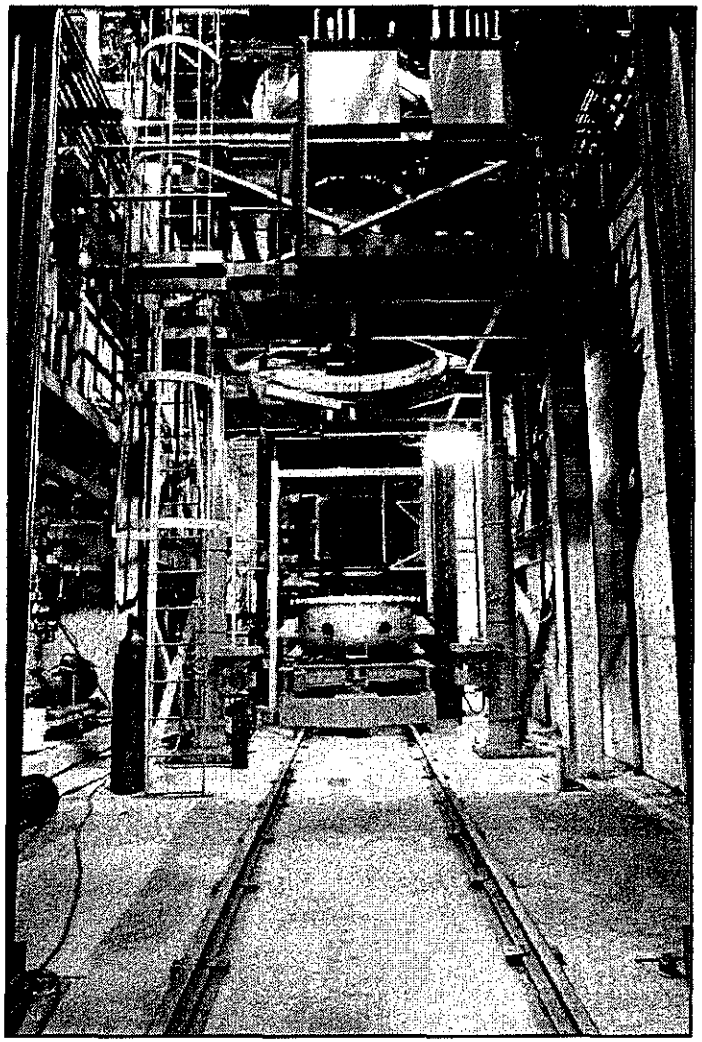


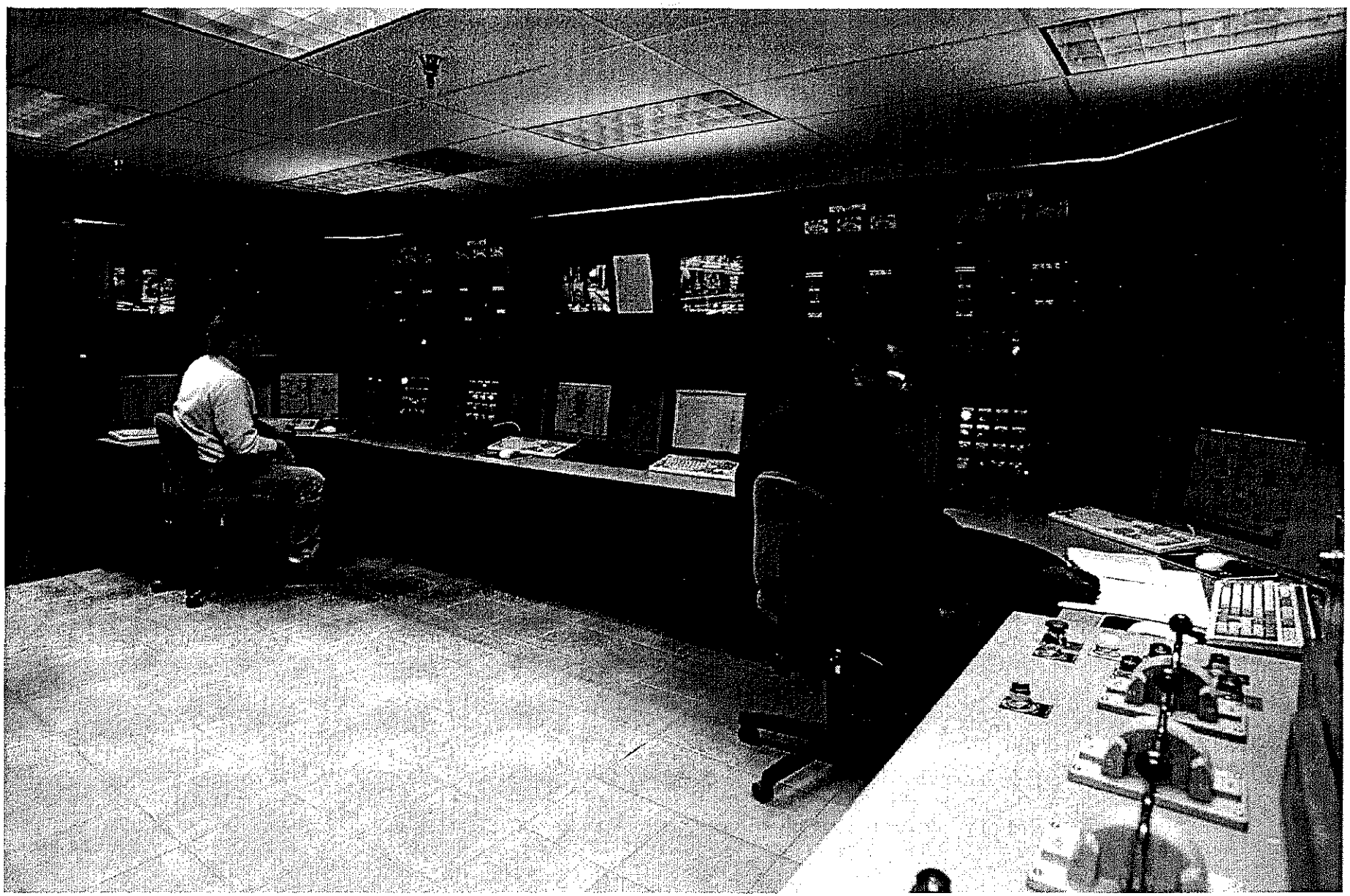
- **It will be used for larger-scale process demonstrations and for processing government and commercial waste streams. 1995.**


KRX-30

SEG Facility







M4 ENVIRONMENTAL L.P.

M4742\12
5/14/96

Destruction Removal Efficiency (DRE) Calculation

- **Standard definition:**
  DRE = 100* [(amount injected) - (amount detected)]/[(amount injected)]
- **DRE calculations:**

Run	Amount Injected (g)	Lower Detection Limit (μg)[a]	DRE
HD-1	31.31	< 0.2	≥ 99.9999994%
HD-2	11.43	< 0.2	≥ 99.9999983%
HD-3	27.29	< 0.2	≥ 99.9999993%
HD-4	33.67	< 0.2	≥ 99.9999994%
HD-5	27.6	< 0.2	≥ 99.9999992%
HD-6	33.4	< 0.2	≥ 99.9999994%
HD-1-FeS	29.14	< 0.2	≥ 99.999998%
HD-2-FeS	28.05	< 0.2	≥ 99.999998%

[a] Analytically limited as discussed previously with NRC and US Army.

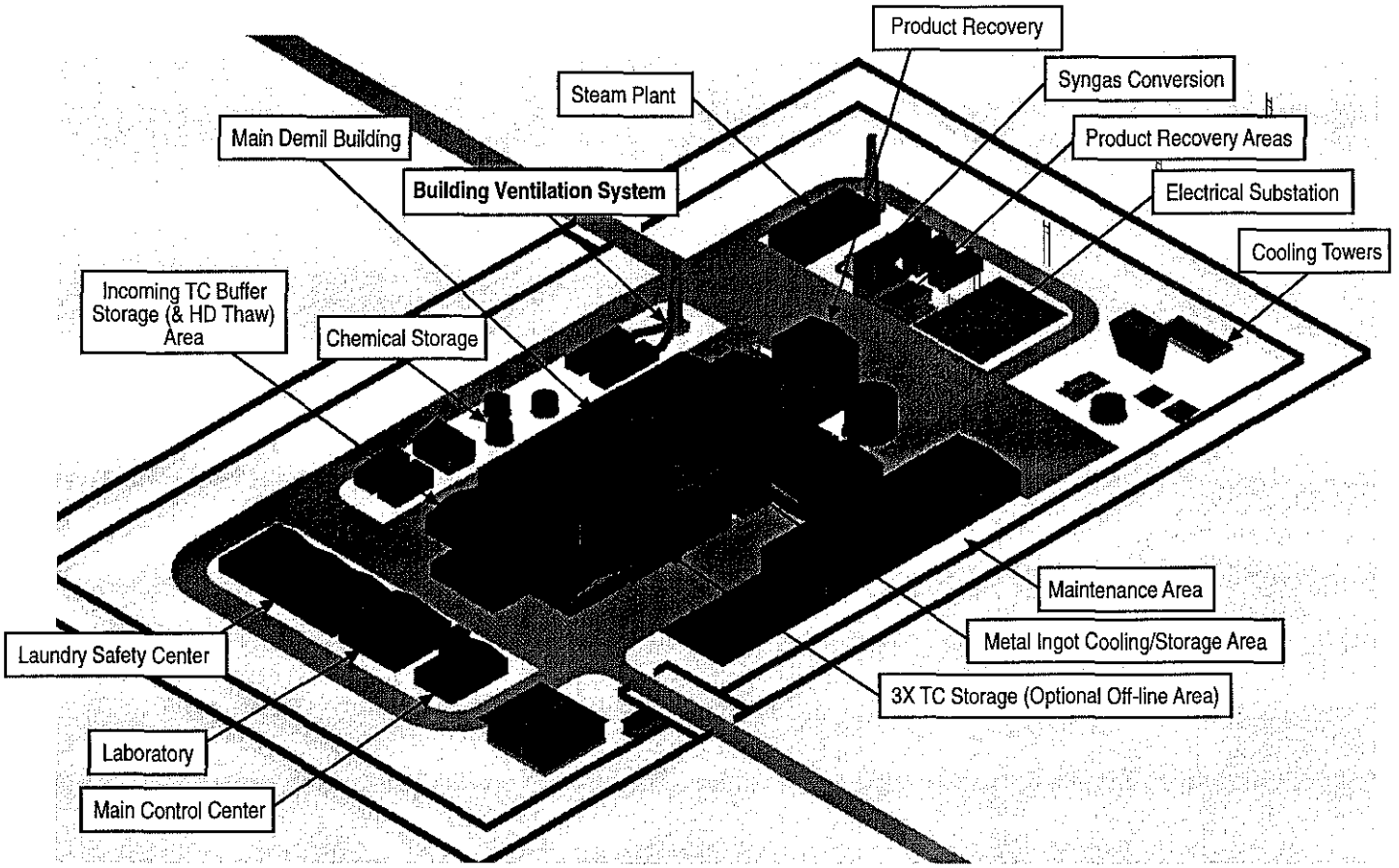
Destruction Removal Efficiency (DRE) Calculation (continued)

- **Standard definition:**
  DRE = 100* [(amount injected) - (amount detected)]/[(amount injected)]
- **DRE calculations:**

Run	Amount Injected (g)	Lower Detection Limit (μg)[a]	DRE
VX-1	24.17	< 0.2	≥ 99.9999992%
VX-2	28.57	< 0.2	≥ 99.9999993%
VX-3	30.61	< 0.2	≥ 99.9999994%
VX-4	22.21	< 0.2	≥ 99.9999991%
VX-5	25.53	< 0.2	≥ 99.999999%
VX-FeP,FeS	21.9	< 0.2	≥ 99.9999988%
VX-FeP,FeS	27.6	< 0.2	≥ 99.999999%

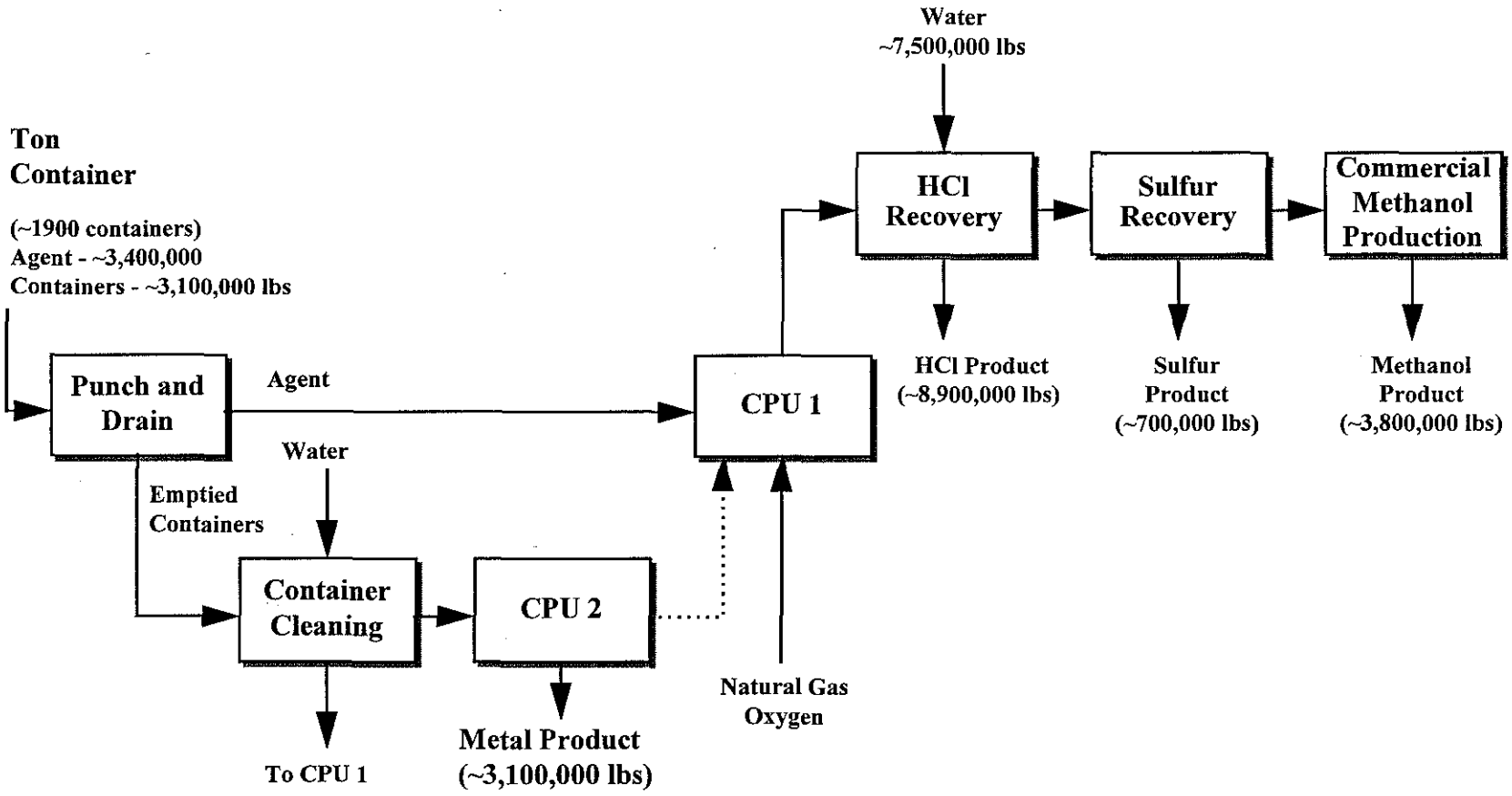
[a] Analytically limited as discussed previously with NRC and US Army.

Chem Demil Facility Concept - Low Volume Bulk Site

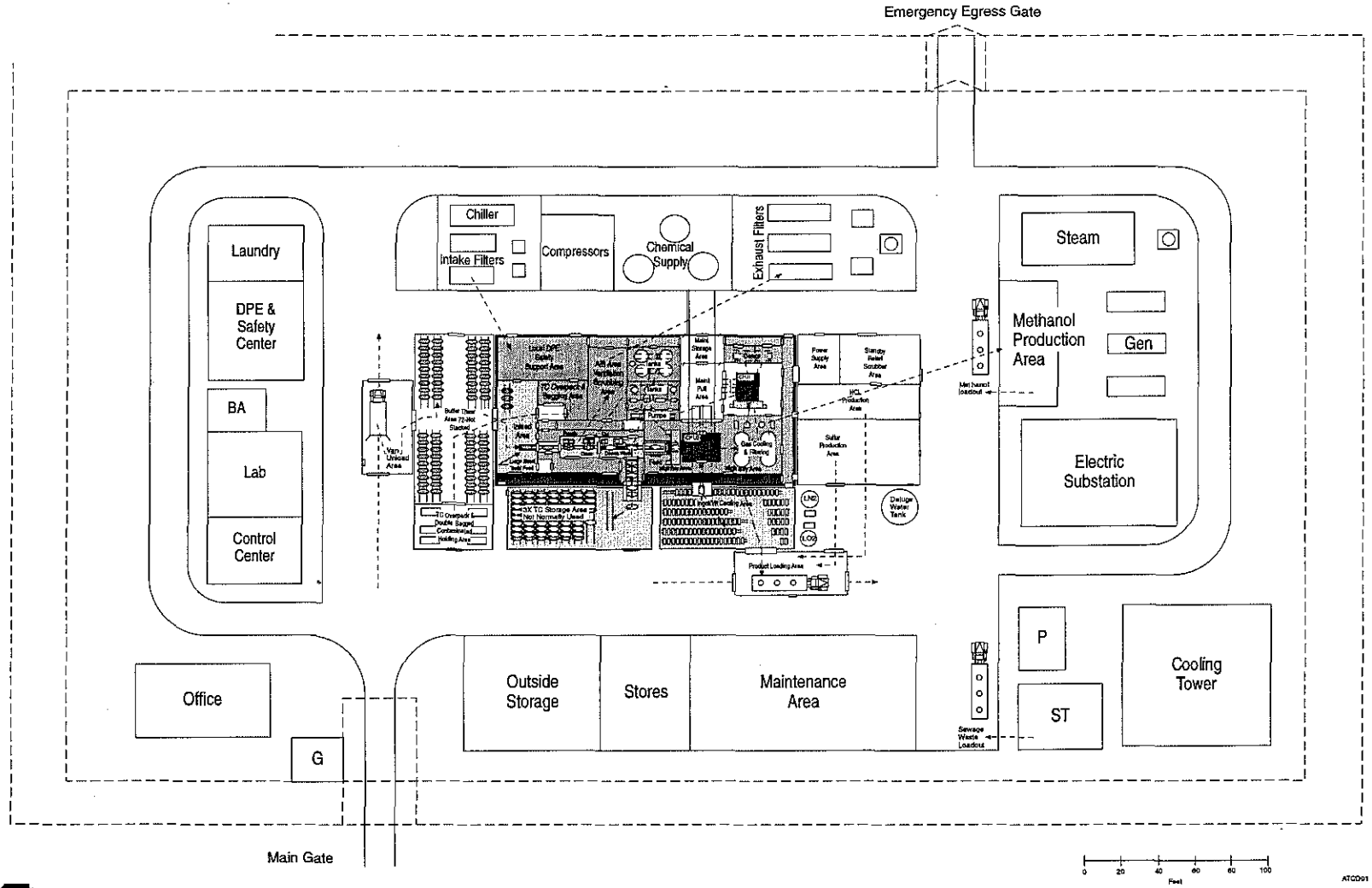


Chemical Demilitarization Project Mustard Destruction at Aberdeen

(Approximate Annual Usage and Production Rate)

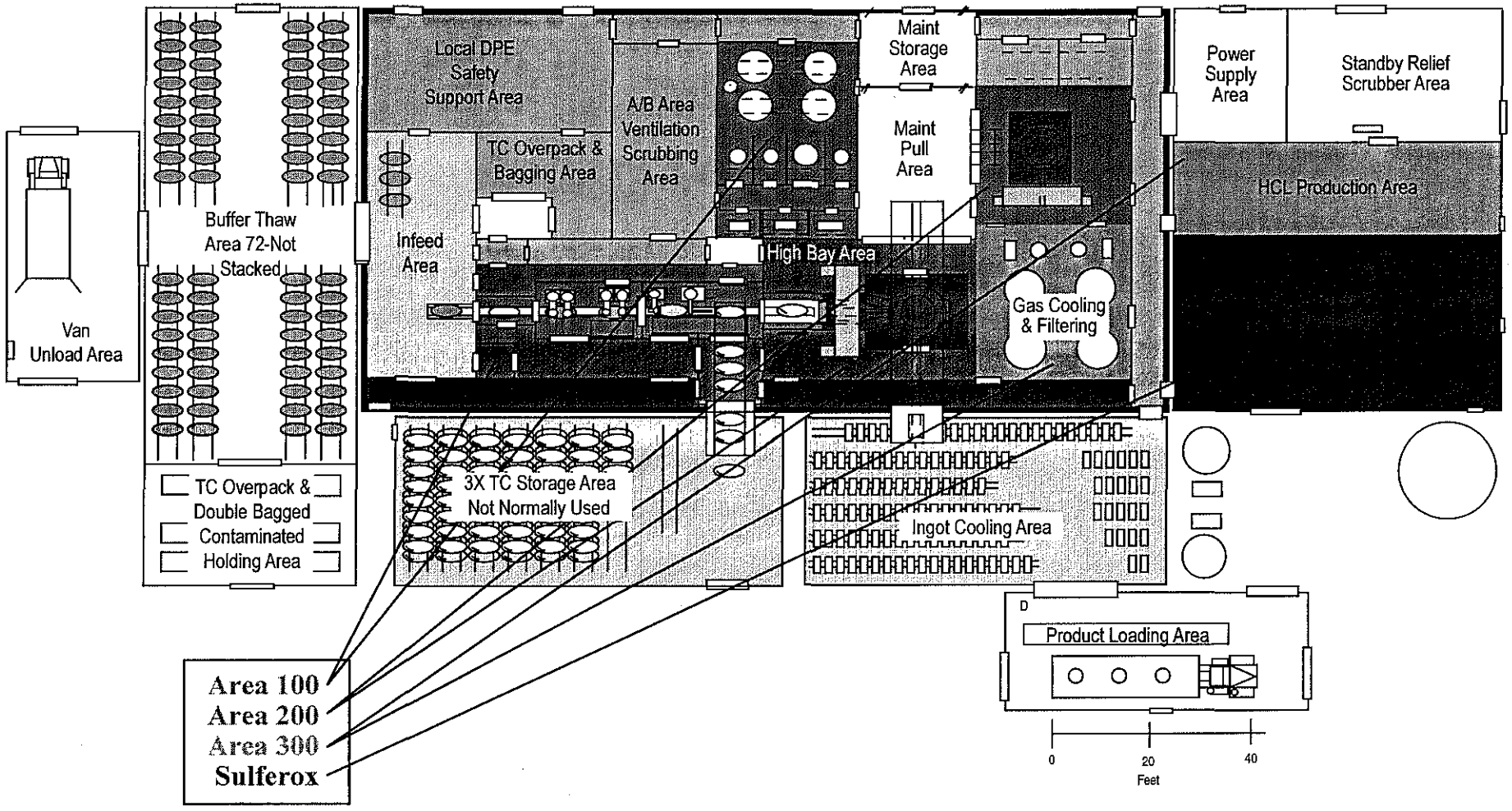


Basic Site Layout for Aberdeen Facility (Power Generation)

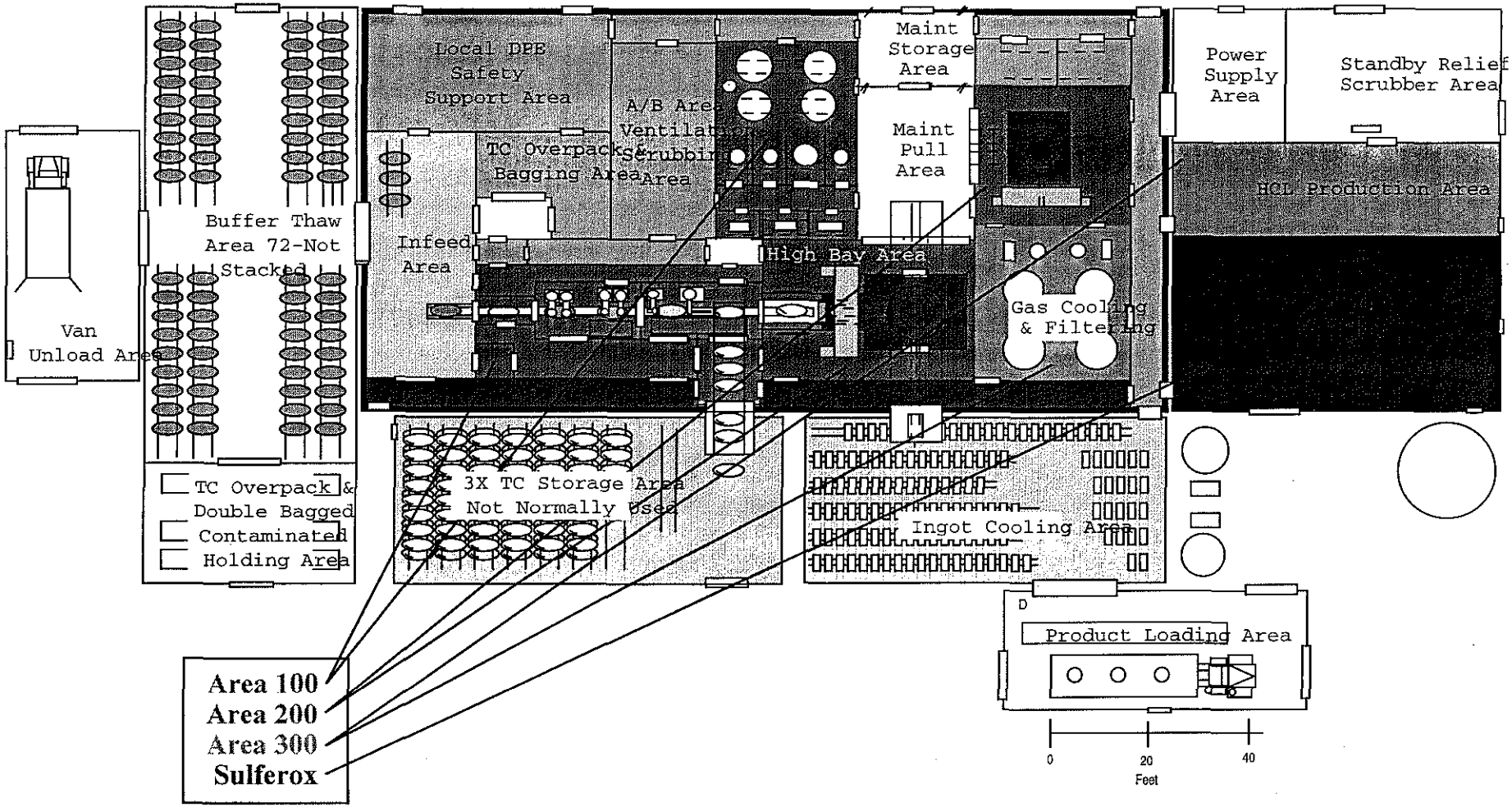


M4 ENVIRONMENTAL L.P.

Basic Site Layout for Aberdeen Facility (Power Generation)



Basic Site Layout for Aberdeen Facility (Power Generation)



Molten Metal - Chem Demil Discriminators

- Superior environmental performance
- Safety emphasis in design, construction, operations
- Substantial pollution prevention/waste minimization benefits
- Complete solution - agent, metal-residuals, dunnage, decon fluids
- Robustness of process
- Well proven technology
- Ease of integration into stockpile programs
- Unique regulatory standing - recycle vs. RCRA treatment
- Cost and schedule advantages
- Strong team with mission success records
- Private sector approach