

Part 2 of 2
OREGON
ENVIRONMENTAL QUALITY
COMMISSION MEETING
MATERIALS 03/01/1990

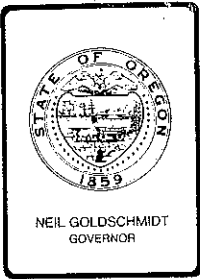


State of Oregon
Department of
Environmental
Quality

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Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990
Agenda Item: K
Division: MSD
Section: Administration

SUBJECT:

Pollution Control Tax Credit Program - Rule Amendments.

PURPOSE:

To adopt Amendments to OAR 340-16-005 through 045 based on statutory revisions from the 1989 State Legislature and to clarify existing rule provisions. The rules were finalized after a public hearing on January 9, 1990.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item for Current Meeting
 - Other: (specify)

- Authorize Rulemaking Hearing
- Adopt Rules
 - Proposed Rules and Summary Attachment A
 - Rulemaking Statements Attachment B
 - Fiscal and Economic Impact Statement Attachment C
 - Public Notice Attachment D

- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment

- Approve Department Recommendation
 - Variance Request Attachment
 - Exception to Rule Attachment
 - Informational Report Attachment
 - Other: (specify) Attachment

Meeting Date: March 2, 1990

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DESCRIPTION OF REQUESTED ACTION:

The proposed rules contain the following modifications:

1. Deletes all provisions relating to preliminary certification, in accord with statutory change.
2. Adds minor corrective language under definition of spill or unauthorized release.
3. Adds language to clarify that Department may reject an application if the applicant fails to provide additional requested information within 180 days.
4. Adds language that a taxpayer's cash investment in a facility partially funded with federal funds is eligible for tax credit, in accord with statutory changes.
5. Adds language to clarify that the portion of facility costs to be certified is not determined until an application is considered filed; clarifies filing.
6. Adds language that facilities must be certified before December 31, 1995, in accord with statutory changes.
7. Adds language to clarify that a facility must be in compliance with DEQ rules, statutes, orders or permit conditions.
8. Adds language to clarify the application of principal purpose and sole purpose.
9. Adds language to clarify that facilities which detect, deter, or prevent spills or unauthorized releases are eligible except if the facility is for the cleanup of a spill or release that has already occurred.
10. Expands list of items not eligible for tax credit to apply to all facilities, in accord with statutory change. Includes asbestos abatement as ineligible facility.
11. Adds language to clarify current policy that requires CPA documentation of facility costs over \$20,000.
12. Adds language to clarify that any savings resulting from a facility is considered part of the facility's gross annual income.
13. Adds language to clarify that Department may require additional documentation or information for gross annual income estimates for further evaluation purposes.
14. Adds language which states that the Department may require additional processing fees, which reflect actual costs, when circumstances require a more extensive analysis of the facility and its costs.

Two changes were made to the rules after the public hearing. Under 340-16-020 2) b) and c) the word "file" has been replaced with "submit" for rule/statutory consistency. This minor change was previously overlooked.

The proposal that went to hearing contained a new provision to provide technical assistance prior to application submittal which stated: "Preapplication technical assistance

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by Department staff is available upon request. Technical assistance is provided to better ensure the facility can be expected to comply with DEQ regulations." It is the Department's position that technical assistance is generally provided within available staff and program capabilities and, therefore, is not needed or considered appropriate to address in the Department's rules.

AUTHORITY/NEED FOR ACTION:

<input type="checkbox"/>	Required by Statute: _____	Attachment	<input type="checkbox"/>
	Enactment Date: _____		
<input checked="" type="checkbox"/>	Statutory Authority: <u>ORS 468.150-468.220</u>	Attachment	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Pursuant to Rule: <u>OAR 340 Division 16</u>	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Pursuant to Federal Law/Rule: _____	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Other: _____	Attachment	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Time Constraints: (explain)		

It is the Department's intent to revise the tax credit administrative rules as expediently as possible in order to provide the public with current program information.

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/>	Advisory Committee Report/Recommendation	Attachment	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Hearing Officer's Report/Recommendations	Attachment	<u>E</u>
<input checked="" type="checkbox"/>	Response to Testimony/Comments	Attachment	<u>F</u>
<input type="checkbox"/>	Prior EQC Agenda Items: (list)	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Other Related Reports/Rules/Statutes:	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Supplemental Background Information	Attachment	<input type="checkbox"/>

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

The removal of mandatory preliminary certification presents potentially positive and negative consequences for the affected public. The new application process is streamlined and requires less of the applicant in that only one application must be filed. The penalties associated with the preliminary filing requirements have been removed, and, filing is not required before facility construction. There is, however, increased responsibility placed on the applicant to be informed of certification requirements prior to submitting an application.

The comments from public notice have been summarized in Attachments E and F.

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PROGRAM CONSIDERATIONS:

The proposed rules reflect changes enacted by the Oregon Legislature and provide clarification of key provisions that have posed interpretative problems.

There is no anticipated change in program staffing needs as a result of the proposed rule amendments.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

The Department considered drafting temporary or emergency rules because the new legislative changes became effective October 3, 1989. However, Department legal counsel advised staff that the nature of the changes did not warrant emergency action or rulemaking.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends the Environmental Quality Commission adopt proposed amendments to OAR Chapter 340 Division 16.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

The proposed rule is consistent with the agency's current program policy and will carry out the intent of recent legislative revisions.

ISSUES FOR COMMISSION TO RESOLVE:

None.

INTENDED FOLLOWUP ACTIONS:

1. File rules with Secretary of State.
2. Provide notice of new rules to tax credit mailing list.
3. Print Amended rules and provide as needed.

Approved:

Section: Roberta Young

Division: Pete A. Dalbo

Director: Paul Hansen

Report Prepared By: Roberta Young

Phone: 229-6408

Date Prepared: January 30, 1990

RY:y
MY100289
February 16, 1990

PROPOSED ADMINISTRATIVE RULE SUMMARY
CHAPTER 340, DIVISION 16

Page A-1

340-16-010 (2): Proposed deletion of preliminary certification provisions because the preliminary certification requirement has been statutorily removed.

Page A-2

(11) Proposed deletion - relates to preliminary certification which was statutorily removed.

(10) (b) Minor editing corrections in the definition of unauthorized spill or release.

Page A-3

340-16-015: Proposed deletion - relates to preliminary certification which was statutorily removed.

Page A-4

340-16-020: Proposed deletion of "final"; with elimination of the preliminary certification process there is a single application process.

(1) (a)-(i): Reorganization and expansion of text to clarify filing requirements.

Page A-5

(2) (h): Clarification that the Department can reject an application if the applicant does not submit requested additional information within 180 days of the request.

Page A-6

(3) (b) (B): Proposed language to address statute amendment which allow taxpayers to apply for tax credit for their own cash investment in a facility if federal funding is provided.

(3) (b) (C): Proposed language to clarify that certified costs are determined after an application is filed which is the time the application is considered complete and ready for processing.

(2) (b) (E): Amends effective date for certification per statutory amendment; program was extended to December 31, 1995.

Page A-7

(4) Proposed language to clarify that appeals process applies to those applications rejected by the Commission. Applications can be rejected by the Department if requested additional information is not submitted within a timeframe of 180 days.

340-16-025 (1): Clarifies that facilities are to achieve compliance before certification. This section was amended in 1984 to require compliance before certification. The intent, however, was not clearly stated in the rule.

Page A-8

(1)(a) and (b): The application of principal and sole purpose are clarified because of staff's past difficulty with interpretation. In 1983, the definition of "substantial purpose" was believed to have been too broad in that: facilities did not have to be required by DEQ; facilities did not have to produce significant environmental benefit; and, pollution control did not have to be a major purpose of the facility. Consequently, the Department proposed to separate and narrow the definition of purpose by stating that a facility is eligible if it is required by DEQ, the federal EPA, or regional air pollution authority; or, a facility installed voluntarily is eligible if its sole function is pollution control and it results in significant environmental benefit. The Legislature adopted the Department's recommendations with the terms "principal" and "sole" purpose.

Under principal purpose, a facility is eligible if it is an acceptable solution to a compliance requirement and if the most important or primary function or use of the facility is pollution control or material recovery. If there are non pollution control benefits, such as savings from increased processing efficiencies or creation of a new salable product, these benefits are removed through the return on investment calculation which determines the amount that is allocable to pollution control.

Under the "sole purpose" definition, the entire or exclusive function or use of the facility must be pollution control or material recovery. "Sole purpose" can be applied to facilities that also provide non pollution control benefits, which are addressed in the ROI calculation, if the function test is met. The "sole purpose" provision is intended to provide an incentive for voluntary pollution control and material resource recovery.

Page A-9

(2)(g): Deletion proposed. Proposed clarification that facilities which detect, deter, or prevent spills or unauthorized releases are eligible for tax credit certification except when the facility applies to a spill or unauthorized release which has already occurred.

(3)(d): In accordance with statutory amendment, items that are not considered to be pollution control facilities for solid waste, hazardous waste or used oil are expanded to apply to all media facilities.

Page A-10

(3)(f): In accordance with statutory amendment, proposes "asbestos abatement" as item that is not considered a pollution control facility.

Page A-11

(5) (A): Deletes statutory cite that relates to preliminary certification.

Page A-12

340-16-030 (1)(c): Insert language that claimed facility costs over \$20,000 must be certified by an independent Certified Public Accountant. This is an existing requirement that is identified in the tax credit application.

(1) (d): Addition of language to clarify that savings that result from the facility are considered part of the gross annual income.

Page A-13

(4): Proposed OAR cite revision in accord with elimination of preliminary certification.

(5)(a): Expands to specify that the Department may require additional information on gross annual income estimates. This applies to higher cost facilities where a more detailed evaluation of income estimates may be needed.

Page A-16

340-16-045: Proposed minor correction as result of statutory elimination of preliminary certification.

(6): Proposed language which allows the Department to require processing fees beyond the maximum \$5000 when circumstances require an unusually extensive evaluation or analysis of the application. This may apply to cases where the Department may opt to have an outside consultant review facility costs, or, where there is an exceptionally complex application.

1\29\90 rccrule

OREGON ADMINISTRATIVE RULES
FOR POLLUTION CONTROL TAX CREDITS
CHAPTER 340, DIVISION 16

340-16-005 PURPOSE

The purpose of these rules is to prescribe procedures and criteria to be used by the Department and Commission for issuance of tax credit for pollution control facilities. These rules are to be used in connection with ORS 468.150 to 468.190 and apply only to facilities on which construction has been completed after December 31, 1983, except where otherwise noted herein.

340-16-010 DEFINITIONS

- (1) "Circumstances beyond the control of the applicant" means facts, conditions and circumstances which applicant's due care and diligence would not have avoided.
- ~~{(2) "Commencement of erection, construction or installation" means the beginning of a continuous program of on-site construction, erection or modification of a facility which is completed within a reasonable time, and shall not include site clearing, grading, dredging, landfilling or similar physical change made in preparation for the facility.}~~
- ~~{(3)}~~ (2) "Commission" means Environmental Quality Commission.
- ~~{(4)}~~ (3) "Department" means Department of Environmental Quality.
- ~~{(5)}~~ (4) "Facility" means a pollution control facility.
- ~~{(6)}~~ (5) "Like-for-like replacement cost" means the current price of providing a new facility of the same type, size and construction materials as the original facility.
- ~~{(7)}~~ (6) "Material recovery process" means any process for obtaining from solid waste, hazardous waste or used oil, by presegregation or otherwise, materials which still have useful physical or chemical properties after serving a specific purpose and can, therefore, be reused or recycled for the same or other purpose. This does not include any process in which the major purpose is the production of fuel from solid waste, hazardous waste or used oil which can be utilized for heat content or other forms of energy. It does not include any type of process which burns waste to produce energy or to reduce the amount of waste. However, it does not eliminate from eligibility a pollution control device associated with a process which burns waste if such device is otherwise eligible for pollution control tax credit under these rules.

- ~~{(8)}~~ (7) "Principal purpose" means the most important or primary purpose. Each facility may have only one principal purpose.
- ~~{(9)}~~ (8) "Reconstruction or replacement" means the provision of a new facility with qualities and pollution control characteristics equivalent to the original facility. This does not include repairs or work done to maintain the facility in good working order.
- ~~{(10)}~~ (9) "Sole purpose" means the exclusive purpose.
- ~~{(11)}~~ (10) "Special circumstances" means emergencies which call for immediate erection, construction or installation of a facility; cases where applicant has relied on incorrect information provided by Department personnel as demonstrated by letters; records of conversations or other written evidence; or similar adequately documented circumstances which directly resulted in applicant's failure to file a timely application for preliminary certification. Special circumstances shall not include cases where applicant was unaware of tax credit certification requirements or applied for preliminary certification in a manner other than that prescribed in 340-16-015(1).
- ~~{(12)}~~ (10) (a) "Spill or unauthorized release" means the discharge, deposit, injection, dumping, spilling, emitting, releasing, leakage or placing of oil, hazardous materials or other polluting substances into the air or into or on any land or waters of the state, as defined in ORS 468.700, except as authorized by a permit issued under ORS Chapter 454, 459, 468 or 469, ORS 466.005 to 466.385, 466.880(1) and (2), 466.890 and 466.995(1) and (2) or federal law while being stored or used for its intended purpose.
- (b) For purposes of determining eligibility for tax credits under these rules, polluting substances released into the environment in conjunction with operation of a previously approved facility or activity where such facility or activity was operated in compliance with requirements imposed by the Department or ~~{of}~~ the Federal Environmental Protection Agency, and where the polluting substances which must now be cleaned up ~~{is}~~ are determined by the Department to have been an unanticipated result of the approved facility or activity and ~~{is}~~ are not deemed to be a "spill or unauthorized release".
- ~~{(13)}~~ (11) "Substantial Completion" means the completion of erection, installation, modification, or construction of all elements of the facility which are essential to perform its purpose.
- ~~{(14)}~~ (12) "Useful life" means the number of years the claimed facility is capable of operating before replacement or disposal.

(1) Filing of Application:

- (a) Any person proposing to apply for certification of a pollution control facility pursuant to ORS 468.165, shall file an application for preliminary certification with the Department of Environmental Quality 30 days before the commencement of erection, construction or installation of the facility. -- The application shall be made on a form provided by the Department. -- The preliminary certificate need not be issued prior to construction for compliance with this requirement. --
- (b) If the application is filed less than 30 days before commencement of construction, the application will be rejected as incomplete due to failure to comply with ORS 468.175(1) and OAR 340-16-015(a).
- (c) The Commission may waive the filing of the application if it finds the filing inappropriate because special circumstances render the filing unreasonable and if it finds such facility would otherwise qualify for tax credit certification pursuant to ORS 468.150 to 468.190.
- (d) If the Department reviews the application within 30 days of filing, and finds it complete, the Department shall notify the applicant in writing that the application is complete and ready for processing, and that the applicant may proceed with construction without waiting 30 days and without being rejected as incomplete. --
- (d) Within 30 days of the filing of an application the Department shall request any additional information that applicant needs to submit in order for the application to be considered complete. -- After examination thereof, the Department may request corrections and revisions to the plans and specifications. -- The Department may, also, require any other information necessary to determine whether the proposed construction is in accordance with Department statutes, rules and standards. --
- (e) The application shall not be considered complete until the Department receives the information requested and notifies the applicant in writing that the application is complete and ready for processing. -- However, if the Department does not make a timely request pursuant to subsection (d) above, the application shall be deemed complete 30 days after filing. --
- (f) Notice of the Department's recommended action to deny an application shall be mailed at least seven days before the Commission meeting where the application will be considered unless the applicant waives the notice requirement in writing.

(2) Approval of Preliminary Certification:

- (a) If the Department determines that the proposed facility is eligible it shall issue a preliminary certificate approving the erection, construction or installation within 60 days of receipt of a completed application. It is not necessary for this certificate to include a determination of the full extent a facility is eligible for tax credit.
- (b) If within 60 days of the receipt of a completed application, the Department fails to issue a preliminary certificate of approval and the Commission fails to issue an order denying certification, the preliminary certificate shall be considered to have been issued. The construction must comply with the plans, specifications and any corrections or revisions thereto, if any, previously submitted.
- (c) Issuance of a preliminary tax credit certification does not guarantee final tax credit certification.

(3) Denial of Preliminary Certification: - If the Department determines that the erection, construction or installation does not comply with the Department statutes, rules and standards, the Commission shall issue an order denying certification within 60 days of receipt of a completed application.

(4) Appeal: - Within 20 days from the date of mailing of the order the applicant may demand a hearing. The demand shall be in writing, shall state the grounds for hearing and shall be mailed to the Director of the Department. The hearing shall be conducted in accordance with the applicable provisions of ORS 183.310 to 183.550.

340-16-020 PROCEDURES FOR RECEIVING [FINAL] TAX CREDIT CERTIFICATION

(1) Filing of Application:

- (a) A written application for [final] tax credit certification shall be submitted to the Department on a form provided by the Department.
- [d] (b) The application shall be [filed] submitted within two years of substantial completion of construction of the facility. Failure to [file] submit a timely application shall make the facility ineligible for tax credit certification.
- [e] (c) The Commission may grant an extension of time to [file] submit an application if circumstances beyond the control of the applicant would make a timely filing unreasonable.

- ~~[(f)]~~ (d) An extension shall only be considered if applied for within two years of substantial completion of construction of the facility. An extension may be granted for no more than one year. Only one extension may be granted.
- ~~[(b)]~~ (e) Within 30 days of receipt of an application, the Department shall request any additional information that applicant needs to submit in order for the application to be considered complete. The Department may also require any other information necessary to determine whether the construction is in accordance with Department statutes, rules and standards.
- ~~[(e)]~~ (f) An application shall not be considered filed until all requested information is furnished by the applicant, and the Department notifies the applicant in writing that the application is complete and ready for processing.
- (g) An application may be withdrawn and resubmitted by applicant at any time within two years of substantial completion of construction of the facility without paying an additional processing fee, unless the cost of the facility has increased. An additional processing fee shall be calculated by subtracting the cost of the facility on the original application from the cost of the facility on the resubmitted application and multiplying the remainder by one-half of one percent.
- (h) If the Department determines the application is incomplete for processing and the applicant fails to submit requested information within 180 days of the date when the Department requested the information, the application will be rejected~~{};~~ by the Department unless applicant requests in writing additional time to submit requested information.
- (i) If the application is submitted after the two year period following substantial completion and the applicant has not filed an extension request, the application will be rejected by the Department.

(2) Commission Action:

- (a) Notice of the Department's recommended action on the application shall be mailed at least seven days before the Commission meeting where the application will be considered unless the applicant waives the notice requirement in writing. The Commission shall act on an application for certification before the 120th day after the filing of a complete application. The Commission may consider and act upon an application at any of its regular or special meetings. The matter shall be

conducted as an informal public informational hearing, not a contested case hearing, unless ordered otherwise by the Commission.

(b) Certification:

(A) If the Commission determines that the facility is eligible, it shall make appropriate findings and certify the actual cost of the facility and the portion of the actual cost properly allocable to pollution control, material recovery or recycling as set forth in ORS 468.190. Each certificate shall bear a separate serial number for each such facility.

(B) The actual cost or portion of the actual cost certified shall not exceed the taxpayer's own cash investment in the facility or portion of the facility.

~~{(B)}~~ (C) No determination of the proportion of the actual cost of the facility to be certified shall be made until a complete application is filed. ~~{receipt of the application.}~~

~~{(G)}~~ (D) If two or more facilities constitute an operational unit, the Commission may certify such facilities under one certificate.

~~{(D)}~~ (E) A certificate is effective for purposes of tax relief in accordance with ORS 307.405, 316.097 and 317.116 if erection, construction or installation of the facility was completed and certified before December 31, ~~{1990.}~~ 1995.

~~{(E)}~~ (F) Certification of a pollution control facility qualifying under ORS 468.165(1) shall be granted for a period of 10 consecutive years. The 10-year period shall begin with the tax year of the person in which the facility is certified under this section. However, if ad valorem tax relief is utilized by a corporation organized under ORS Chapter 61 or 62 the facility shall be exempt from ad valorem taxation, to the extent of the portion allocable, for a period of 20 consecutive years, or 10 years if construction is commenced after June 30, 1989 and completed before December 31, 1990, from the date of its first certification by the Commission.

~~{(F)}~~ (G) Portions of a facility qualifying under ORS 468.165(1)(c) may be certified separately under this section if ownership of the portions is in more than one person. Certification of such portions of a facility shall include certification

of the actual cost of the portion of the facility to the person receiving the certification. The actual cost certified for all portions of a facility separately certified under this subsection shall not exceed the total cost of the facility that would have been certified under one certificate. The provisions of ORS 316.097(8) or 317.116 whichever is applicable, shall apply to any sale, exchange or other disposition of a certified portion of a facility.

- (c) Rejection: If the Commission rejects an application for certification, or certifies a lesser actual cost of the facility or a lesser portion of the actual cost properly allocable to pollution control, material recovery or recycling than was claimed in the application for certification, the Commission shall cause written notice of its action, and a concise statement of the findings and reasons therefore, to be sent by registered or certified mail to the applicant.
- (3) Appeal: If the application is rejected by the Commission for any reason, or if the applicant is dissatisfied with the certification of actual cost or portion of the actual cost properly allocable to pollution control, resource recovery or recycling, the applicant may appeal from the rejection as provided in ORS 468.110. The rejection of the certification is final and conclusive on all parties unless the applicant takes an appeal therefrom as provided in ORS 468.110 before the 30th day after notice was mailed by the Commission.

340-16-025 QUALIFICATION OF FACILITY FOR TAX CREDITS

- (1) "Pollution control facility" or "facility" shall include any land, structure, building, installation, excavation, machinery, equipment or device, or alternative methods for field sanitation and straw utilization and disposal as approved by the Field Burning Advisory Committee and the Department, or any addition to, reconstruction of or improvement of, land or an existing structure, building, installation, excavation, machinery, equipment or device reasonably used, erected, constructed or installed by any person, which will achieve compliance with Department statutes and rules or Commission orders or permit conditions before certification, where applicable, if:
 - (a) The principal purpose of the facility is to comply with a requirement imposed by the Department, the Federal Environmental Protection Agency or regional air pollution authority to prevent, control or reduce air, water or noise pollution or solid or hazardous waste or to recycle or provide for the appropriate disposal of used oil[; -or]_.

To meet the definition of principal purpose, the facility must be established to comply with the environmental requirements specified in this subsection for the control, reduction, or prevention of pollution, or for the material recovery of solid waste, hazardous waste or used oil. Other benefits of economic value that are a result of the facility, are not eligible for tax credit and must be eliminated through the return on investment calculation; or

- (b) The sole purpose of the facility is to prevent, control or reduce a substantial quantity of air, water or noise pollution or solid or hazardous waste or to recycle or provide for the appropriate disposal of used oil.

In order to meet the definition of sole purpose, the only function or use of the facility must be the control, reduction, or prevention of pollution, or, for the material recovery of solid waste, hazardous waste or used oil. Sole purpose is not applicable where the facility is established in response to the environmental requirements identified in (a) of this subsection. Other benefits of economic value which result from the facility are not eligible for tax credit and must be eliminated through the return on investment calculation.

- (2) Such prevention, control or reduction required by this subsection shall be accomplished by:
 - (a) The disposal or elimination of or redesign to eliminate industrial waste and the use of treatment works for industrial waste as defined in ORS 468.700;
 - (b) The disposal or elimination of or redesign to eliminate air contaminants or air pollution or air contamination sources and the use of air cleaning devices as defined in ORS 468.275;
 - (c) The substantial reduction or elimination of or redesign to eliminate noise pollution or noise emission sources as defined by rule of the Commission;
 - (d) The use of a material recovery process which obtains useful material that would otherwise be solid waste as defined in ORS 459.005, hazardous waste as defined in ORS 466.005, or used oil as defined in ORS 468.850;
 - (e) The treatment, substantial reduction or elimination of or redesign to treat, substantially reduce or eliminate hazardous waste as defined in ORS 466.005; or
 - (f) Approved alternative field burning methods and facilities which shall be limited to:

- (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) Propane flammers or mobile field sanitizers which are alternatives to open field burning and reduce air quality impacts; and
 - (C) Drainage tile installations which will result in a reduction of grass seed acreage under production.
- (g) Installation or construction of facilities which will be used to detect, deter, or prevent spills or unauthorized releases. This does not include any facility installed, constructed or used for cleanup after a spill or unauthorized release has occurred.
- (3) "Pollution control facility" or "facility" does not include:
- (a) Air conditioners;
 - (b) Septic tanks or other facilities for human waste;
 - (c) Property installed, constructed or used for moving sewage to the collecting facilities of a public or quasi-public sewerage system;
 - (d) Any distinct portion of a pollution control [~~solid waste, -hazardous waste or -used oil~~] facility that makes an insignificant contribution to the principal or sole purpose of [~~utilization of solid waste, -hazardous waste or -used oil~~] the facility including the following specific items:
 - (A) Office buildings and furnishings;
 - (B) Parking lots and road improvements;
 - (C) Landscaping;
 - (D) External lighting;
 - (E) Company or related signs; and
 - [~~(F) --Artwork; -and~~]
 - [~~(G)~~] (F) Automobiles.
 - (e) Facilities not directly related to the operation of the industry or enterprise seeking the tax credit;

(f) Asbestos abatement; or

- ~~(f)~~ (g) Replacement or reconstruction of all or a part of any facility for which a pollution control facility certificate has previously been issued under ORS 468.170, except:
- (A) If the cost to replace or reconstruct the facility is greater than the like-for-like replacement cost of the original facility due to a requirement imposed by the Department, the Federal Environmental Protection Agency or a regional air pollution authority, then the facility may be eligible for tax credit certification up to an amount equal to the difference between the cost of the new facility and the like-for-like replacement cost of the original facility; or
 - (B) If a facility is replaced or reconstructed before the end of its useful life then the facility may be eligible for the remainder of the tax credit certified to the original facility.
- (h) Property or facilities installed, constructed or used for cleanup of emergency spills or unauthorized releases. This includes any facility installed, constructed or used for cleanup after a spill or unauthorized release has occurred.
- (4) Any person may apply to the Commission for certification under ORS 468.170 of a pollution control facility or portion thereof erected, constructed or installed by the person in Oregon if:
- (a) The air or water pollution control facility was erected, constructed or installed on or after January 1, 1967.
 - (b) The noise pollution control facility was erected, constructed or installed on or after January 1, 1977.
 - (c) The solid waste facility was under construction on or after January 1, 1973, or the hazardous waste, used oil, material recovery, or recycling facility was under construction on or after October 3, 1979, and if:
 - (A) The facility's principal or sole purpose conforms to the requirements of ORS 468.155(1);
 - (B) The facility will utilize material that would otherwise be solid waste as defined in ORS 459.005, hazardous waste as defined in ORS 466.005 or used oil as defined in ORS 468.850:

- (i) By mechanical processing or chemical processing; or
- (ii) Through the production, processing, presegregation, or use of:
 - (I) Materials which have useful chemical or physical properties and which may be used for the same or other purposes; or
 - (II) Materials which may be used in the same kind of application as its prior use without change in identity;
- (C) The end product of the utilization is an item of real economic value;
- (D) The end product of the utilization, is competitive with an end product produced in another state; and
- (E) The Oregon law regulating solid waste imposes standards at least substantially equivalent to the federal law.
- (d) The hazardous waste control facility was erected, constructed or installed on or after January 1, 1984 and if:
 - (A) The facility's principal or sole purpose conforms to the requirements of ORS 468.155(1); and
 - (B) The facility is designed to treat, substantially reduce or eliminate hazardous waste as defined in ORS 466.005.
- (5) The Commission shall certify a pollution control, solid waste, hazardous waste or used oil facility or portion thereof, for which an application has been made under ORS 468.165, if the Commission finds that the facility:
 - (A) Was erected, constructed or installed in accordance with the requirements of ORS 468.165(1); {and 468.175;}
 - (B) Is designed for, and is being operated or will operate in accordance with the requirements of ORS 468.155; and
 - (C) Is necessary to satisfy the intents and purposes of and is in accordance with the applicable Department statutes, rules and standards.

340-16-030 DETERMINATION OF PERCENTAGE OF CERTIFIED FACILITY COST ALLOCABLE TO POLLUTION CONTROL

(1) Definitions:

- (a) "Annual operating expenses" means the estimated costs of operating the claimed facility including labor, utilities, property taxes, insurance, and other cash expenses, less any savings in expenses attributable to installation of the claimed facility. Depreciation, interest expenses, and state and federal taxes are not included.
- (b) "Average annual cash flow" means the estimated average annual cash flow from the claimed facility for the first five full years of operation calculated as follows:
 - (A) Calculate the annual cash flow for each of the first five full years of operation by subtracting the annual operating expenses from the gross annual income for each year; and
 - (B) Sum the five annual cash flows and divide the total by five. Where the useful life of the claimed facility is less than five years, sum the annual cash flows for the useful life of the facility and divide by the useful life.
- (c) "Claimed facility cost" means the actual cost of the claimed facility minus the salvage value of any facilities removed from service. Certification of the actual cost of the claimed facility must be documented by a certified public accountant for facilities with a claimed facility cost over \$20,000.
- (d) "Gross annual income" means the estimated total annual income from the claimed facility derived from sale or reuse of recovered materials or energy or any other means ~~[-:]~~ including savings that may occur as a result of the facility.
- (e) "Salvage value" means the value of a facility at the end of its useful life minus what it costs to remove it from service. Salvage value can never be less than zero.

- (2) In establishing the portion of costs properly allocable to the prevention, control or reduction of air, water or noise pollution or solid or hazardous waste or to recycling or properly disposing of used oil for facilities qualifying for certification under ORS 468.170, the Commission shall consider the following factors and make appropriate findings regarding their applicability:

- (a) The extent to which the facility is used to recover and convert waste products into a salable or usable commodity;
 - (b) The estimated annual percent return on the investment in the facility;
 - (c) The alternative methods, equipment and costs for achieving the same pollution control objective;
 - (d) Related savings or increase in costs which occur or may occur as a result of the installation of the facility; or
 - (e) 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, water or noise pollution or solid or hazardous waste or to recycling or properly disposing of used oil.
- (3) The portion of actual costs properly allocable shall be from zero to 100 percent in increments of one percent. If zero percent, the Commission shall issue an order denying certification.
- (4) In considering the factors listed in OAR 340-16-030, the Commission may determine in its findings that one or more factors are more important than others and may assign different weights to the factors when determining the portion of costs properly allocable to pollution control.
- (5) When considering the estimated annual percent return on investment in the facility, subsection (2)(b), the following steps will be used:
- (a) Determine the claimed facility cost, average annual cash flow and useful life of the claimed facility. The Department may require additional information on or documentation of gross annual income estimates for evaluation purposes.
 - (b) Determine the return on investment factor by dividing the claimed facility cost by the average annual cash flow.
 - (c) Determine the annual percent return on investment by using Table 1. At the top of Table 1, find the number equal to the useful life of the claimed facility. In the column under this useful life number, find the number closest to the return on investment factor. Follow this row to the left until reaching the first column. The number in the first column is the annual percent return on investment for the claimed facility.

For a useful life greater than 30 years, or percent return on investment greater than 25 percent, Table 1 can be extended by utilizing the following equation:

$$I_R = \frac{1 - (1+i)^{-n}}{i}$$

Where: I_R is the return on investment factor.
 i is the annual percent return on investment.
 n is the useful life of the claimed facility.

- (d) Determine the reference annual percent return on investment from Table 2. Select the reference percent return from Table 2 that corresponds with the year construction was completed on the claimed facility. For each future calendar year not shown in Table 2, the reference percent return shall be the five-year average of the rate of return before taxes on stockholders' equity for all United States manufacturing corporations for the five years prior to the calendar year of interest.
- (e) Determine the percentage of actual costs properly allocable to pollution control from the following equation:

$$P_A = \frac{(RROI - ROI)}{RROI} \times 100$$

Where: P_A is the percentage of actual costs properly allocable to pollution control in percent, rounded off to the nearest whole number.
 ROI is the annual percent return on investment from Table 1.
 $RROI$ is the reference annual percent return on investment from Table 2.

If ROI is greater than or equal to $RROI$, then the portion of actual costs properly allocable to pollution control shall be zero percent.

340-16-035 PROCEDURE TO REVOKE CERTIFICATION

- (1) Pursuant to the procedures for a contested case under ORS 183.310 to 183.550, the Commission may order the revocation of the final tax credit certification if it finds that:
- (a) The certification was obtained by fraud or misrepresentation;
or
- (b) The holder of the certificate has failed substantially to operate the facility for the purpose of, and to the extent necessary for, preventing, controlling or reducing air, water or noise pollution or solid waste, hazardous wastes or

recycling or disposing of used oil as specified in such certificate, or has failed to operate the facility in compliance with Department or Commission statutes, rules, orders or permit conditions where applicable.

- (2) As soon as the order of revocation under this section has become final, the Commission shall notify the Department of Revenue and the county assessor of the county in which the facility is located of such order.
- (3) If the certification of a pollution control or solid waste, hazardous waste or used oil facility is ordered revoked pursuant to subsection (1)(a) of this rule, all prior tax relief provided to the holder of such certificate by virtue of such certificate shall be forfeited and the Department of Revenue or the proper county officers shall proceed to collect those taxes not paid by the certificate holder as a result of the tax relief provided to the holder under any provision of ORS 307.405, 316.097 and 317.116.
- (4) Except as provided in subsection (5) of this rule, if the certification of a pollution control or solid waste, hazardous waste or used oil facility is ordered revoked pursuant to subsection (1)(b) of this rule, the certificate holder shall be denied any further relief provided under ORS 307.405, 316.097 or 317.116 in connection with such facility, as the case may be, from and after the date that the order of revocation becomes final.
- (5) Once a determination has been made under section (1) of this rule, the Commission may revoke tax credits held for any facility or piece of equipment which is for the purpose of preventing, controlling, reducing, or eliminating pollution to the same media and which is at a location adjacent to the non-complying facility.
- (6) Upon notification by the certificate holder that the facility has been inspected by DEQ and found to be in compliance, the Commission may reinstate any revoked tax credit certification if the Commission finds the non-complying facility has been brought into compliance.
- (7) If the Commission reinstates certification, the Commission shall notify the Department of Revenue or the county assessor of the county in which the facility is located that the tax credit certification is reinstated for the remaining period of the tax credit, less the period of revocation. The period of revocation would be from the date the Commission revokes the certificate to the date the Commission reinstates the certificate.
- (8) The Commission may withhold revocation of a certificate when operation of a facility ceases if the certificate holder indicates in writing that the facility will be returned to operation within five years time. In the event that the facility is not returned to operation as indicated, the Commission shall revoke the certificate.

340-16-040 PROCEDURES FOR TRANSFER OF A TAX CREDIT CERTIFICATE

To transfer a tax credit certificate from one holder to another, the Commission shall revoke the certificate and grant a new one to the new holder for the balance of the available tax credit following the procedure set forth in ORS 307.405, 316.097, and 317.116.

340-16-045 FEES FOR [FENAL] TAX CREDIT CERTIFICATION

- (1) An application processing fee of one-half of one percent of the cost claimed in the application of the pollution control facility to a maximum of \$5,000 shall be paid with each application. However, if the application processing fee is less than \$50, no application processing fee shall be charged. A non-refundable filing fee of \$50 shall be paid with each application. No application is complete until the filing fee and processing fee are submitted. An amount equal to the filing fee and processing fee shall be submitted as a required part of any application for a pollution control facility tax credit.
- (2) Upon the Department's receipt of an application, the filing fee becomes non-refundable.
- (3) The application processing fee shall be refunded in whole if the application is rejected.
- (4) The fees shall not be considered by the Environmental Quality Commission as part of the cost of the facility to be certified.
- (5) All fees shall be made payable to the Department of Environmental Quality.
- (6) Notwithstanding subsection (1), the Department may increase the processing fee above the maximum of \$5,000, when an application necessitates an unusually extensive evaluation or analysis to determine the portion of the facility allocable to pollution control or material recovery.

340-16-050 TAXPAYERS RECEIVING TAX CREDIT

- (1) A person receiving a certificate under this section may take tax relief only under ORS 316.097 or 317.116, depending upon the tax status of the person's trade or business except if the taxpayer is a corporation organized under ORS Chapter 61 or 62, or any predecessor to ORS Chapter 62 relating to incorporation of cooperative associations, or is a subsequent transferee of such a corporation, the tax relief may be taken only under ORS 307.405.
- (2) If the person receiving the certificate is an electing small business corporation as defined in section 1361 of the Internal Revenue Code, each shareholder shall be entitled to take tax credit relief as provided in ORS 316.097, based on that shareholder's pro rata share of the certified cost of the facility.

- (3) If the person receiving the certificate is a partnership, each partner shall be entitled to take tax credit relief as provided in ORS 316.097, based on that partner's pro rata share of the certified cost of the facility.
- (4) Upon any sale, exchange or other disposition of a facility written notice must be provided to the Department of Environmental Quality by the company, corporation or individual for whom the tax credit certificate has been issued. Upon request, the taxpayer shall provide a copy of the contract or other evidence of disposition of the property to the Department of Environmental Quality.
- (5) The company, corporation or individual claiming the tax credit for a leased facility must provide a copy of a written agreement between the lessor and lessee designating the party to receive the tax credit and a copy of the complete and current lease agreement for the facility.
- (6) The taxpayer claiming the tax credit for a facility with more than one owner shall provide a copy of a written agreement between the owners designating the party or parties to receive the tax credit certificate.

TABLE 1

RETURN ON INVESTMENT PERCENTAGE
 BASED ON R.O.I. FACTOR (FACILITY COST/AVRG. ANNUAL CASH FLOW)
 AND THE EXPECTED USEFUL LIFE OF THE NEW FACILITY
 01/06/84

X R.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	1	2	3	4	5	6	7	8	9	10
0.00	1.000	2.000	3.000	4.000	5.000	6.000	7.000	8.000	9.000	10.000
0.25	0.998	1.993	2.985	3.975	4.963	5.948	6.931	7.911	8.889	9.864
0.50	0.995	1.985	2.970	3.950	4.926	5.896	6.862	7.823	8.779	9.730
0.75	0.993	1.978	2.956	3.926	4.889	5.846	6.795	7.737	8.672	9.600
1.00	0.990	1.970	2.941	3.902	4.853	5.795	6.728	7.652	8.566	9.471
1.25	0.988	1.963	2.927	3.878	4.818	5.746	6.663	7.563	8.462	9.346
1.50	0.985	1.956	2.912	3.834	4.733	5.697	6.598	7.486	8.361	9.222
1.75	0.983	1.949	2.898	3.831	4.748	5.649	6.535	7.405	8.260	9.101
2.00	0.980	1.942	2.884	3.808	4.713	5.601	6.472	7.325	8.162	8.993
2.25	0.978	1.934	2.870	3.785	4.679	5.554	6.410	7.247	8.066	8.866
2.50	0.976	1.927	2.856	3.762	4.646	5.503	6.349	7.170	7.971	8.752
2.75	0.973	1.920	2.842	3.739	4.613	5.462	6.289	7.094	7.878	8.640
3.00	0.971	1.913	2.829	3.717	4.580	5.417	6.230	7.020	7.786	8.530
3.25	0.969	1.907	2.815	3.695	4.547	5.373	6.172	6.946	7.696	8.422
3.50	0.966	1.900	2.802	3.673	4.515	5.329	6.115	6.874	7.609	8.317
3.75	0.964	1.893	2.788	3.651	4.483	5.285	6.058	6.803	7.521	8.213
4.00	0.962	1.886	2.775	3.630	4.452	5.242	6.002	6.733	7.435	8.111
4.25	0.959	1.879	2.762	3.609	4.421	5.200	5.947	6.664	7.351	8.011
4.50	0.957	1.873	2.749	3.588	4.390	5.158	5.893	6.596	7.267	7.913
4.75	0.955	1.866	2.736	3.567	4.360	5.117	5.839	6.529	7.188	7.816
5.00	0.952	1.859	2.723	3.546	4.329	5.076	5.786	6.463	7.108	7.722
5.25	0.950	1.853	2.711	3.525	4.300	5.035	5.734	6.393	7.029	7.629
5.50	0.948	1.846	2.698	3.505	4.270	4.996	5.683	6.335	6.952	7.538
5.75	0.946	1.840	2.685	3.485	4.241	4.956	5.632	6.272	6.876	7.448

X R.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	11	12	13	14	15	16	17	18	19	20
0.00	11.000	12.000	13.000	14.000	15.000	16.000	17.000	18.000	19.000	20.000
0.25	10.837	11.807	12.775	13.741	14.704	15.665	16.623	17.580	18.533	19.484
0.50	10.677	11.619	12.554	13.489	14.417	15.340	16.259	17.173	18.082	18.987
0.75	10.521	11.433	12.342	13.243	14.137	15.024	15.905	16.779	17.647	18.508
1.00	10.368	11.255	12.134	13.004	13.865	14.713	15.562	16.398	17.225	18.046
1.25	10.218	11.079	11.930	12.771	13.601	14.420	15.230	16.030	16.819	17.599
1.50	10.071	10.908	11.732	12.543	13.343	14.131	14.908	15.673	16.426	17.169
1.75	9.927	10.740	11.538	12.322	13.093	13.850	14.595	15.327	16.046	16.753
2.00	9.787	10.575	11.348	12.106	12.849	13.573	14.292	14.992	15.678	16.351
2.25	9.649	10.415	11.164	11.896	12.612	13.313	13.998	14.662	15.323	15.964
2.50	9.514	10.259	10.933	11.691	12.381	13.055	13.712	14.353	14.979	15.599
2.75	9.382	10.104	10.807	11.491	12.157	12.805	13.435	14.049	14.646	15.227
3.00	9.253	9.954	10.635	11.296	11.938	12.561	13.166	13.754	14.324	14.877
3.25	9.126	9.807	10.467	11.106	11.725	12.324	12.905	13.467	14.012	14.519
3.50	9.002	9.663	10.303	10.921	11.517	12.096	12.651	13.190	13.710	14.212
3.75	8.880	9.523	10.142	10.740	11.315	11.870	12.405	12.920	13.417	13.896
4.00	8.760	9.385	9.986	10.563	11.115	11.652	12.166	12.659	13.134	13.590
4.25	8.644	9.250	9.833	10.391	10.927	11.440	11.933	12.406	12.859	13.294
4.50	8.527	9.119	9.683	10.223	10.740	11.214	11.707	12.160	12.593	13.008
4.75	8.417	8.990	9.537	10.059	10.557	11.033	11.482	11.921	12.335	12.731
5.00	8.306	8.861	9.394	9.899	10.380	10.833	11.274	11.690	12.085	12.462
5.25	8.196	8.740	9.254	9.742	10.206	10.647	11.066	11.465	11.843	12.202
5.50	8.093	8.619	9.117	9.590	10.039	10.462	10.865	11.246	11.608	11.950
5.75	7.989	8.500	8.983	9.441	9.873	10.292	10.655	11.034	11.379	11.706

TABLE 1

RETURN ON INVESTMENT PERCENTAGE
 BASED ON P.O.I. FACTOR (FACILITY COST/AVG. ANNUAL CASH FLOW)
 AND THE EXPECTED USEFUL LIFE OF THE NEW FACILITY
 01/30/74

P.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	21	22	23	24	25	26	27	28	29	30
0.00	21.000	22.000	23.000	24.000	25.000	26.000	27.000	28.000	29.000	30.000
0.25	20.433	21.389	22.324	23.266	24.205	25.143	26.077	27.010	27.940	28.868
0.50	19.888	20.784	21.676	22.563	23.446	24.324	25.198	26.063	26.933	27.794
0.75	19.363	20.211	21.053	21.899	22.719	23.542	24.359	25.171	25.976	26.775
1.00	18.857	19.659	20.456	21.243	22.023	22.795	23.560	24.316	25.066	25.805
1.25	18.370	19.131	19.882	20.624	21.357	22.081	22.796	23.503	24.200	24.889
1.50	17.900	18.621	19.331	20.030	20.720	21.399	22.068	22.727	23.376	24.016
1.75	17.443	18.130	18.801	19.461	20.109	20.746	21.372	21.987	22.592	23.186
2.00	17.011	17.653	18.292	18.914	19.523	20.121	20.707	21.281	21.844	22.394
2.25	16.590	17.203	17.803	18.389	18.962	19.523	20.072	20.608	21.132	21.645
2.50	16.183	16.765	17.332	17.885	18.424	18.951	19.464	19.965	20.454	20.933
2.75	15.793	16.343	16.879	17.401	17.908	18.402	18.883	19.351	19.806	20.249
3.00	15.415	15.937	16.444	16.936	17.413	17.877	18.327	18.764	19.188	19.600
3.25	15.050	15.543	16.024	16.492	16.938	17.373	17.795	18.203	18.599	18.982
3.50	14.698	15.167	15.620	16.058	16.482	16.893	17.285	17.667	18.036	18.392
3.75	14.358	14.803	15.232	15.645	16.043	16.427	16.797	17.154	17.498	17.829
4.00	14.029	14.451	14.857	15.247	15.622	15.983	16.330	16.663	16.984	17.292
4.25	13.712	14.112	14.496	14.866	15.217	15.556	15.881	16.193	16.492	16.779
4.50	13.405	13.784	14.143	14.495	14.828	15.147	15.451	15.743	16.022	16.289
4.75	13.108	13.462	13.812	14.141	14.454	14.753	15.039	15.312	15.572	15.820
5.00	12.821	13.163	13.489	13.799	14.094	14.375	14.643	14.898	15.141	15.372
5.25	12.544	12.868	13.176	13.469	13.747	14.012	14.263	14.502	14.723	14.944
5.50	12.275	12.583	12.875	13.152	13.414	13.662	13.899	14.121	14.333	14.534
5.75	12.015	12.308	12.584	12.846	13.093	13.324	13.547	13.756	13.954	14.141

P.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	1	2	3	4	5	6	7	8	9	10
6.00	0.943	1.833	2.673	3.465	4.212	4.917	5.582	6.210	6.802	7.360
6.25	0.941	1.827	2.661	3.445	4.184	4.879	5.533	6.149	6.728	7.274
6.50	0.939	1.821	2.648	3.426	4.156	4.841	5.485	6.089	6.656	7.189
6.75	0.937	1.814	2.636	3.406	4.128	4.804	5.437	6.030	6.585	7.105
7.00	0.935	1.803	2.624	3.387	4.100	4.767	5.389	5.971	6.515	7.024
7.25	0.932	1.802	2.612	3.368	4.073	4.730	5.343	5.914	6.447	6.943
7.50	0.930	1.794	2.601	3.349	4.044	4.694	5.297	5.857	6.379	6.864
7.75	0.928	1.789	2.589	3.331	4.019	4.658	5.251	5.802	6.312	6.786
8.00	0.925	1.783	2.577	3.312	3.993	4.623	5.206	5.747	6.247	6.710
8.25	0.924	1.777	2.566	3.294	3.967	4.588	5.162	5.693	6.182	6.635
8.50	0.922	1.771	2.554	3.276	3.941	4.554	5.119	5.639	6.117	6.561
8.75	0.920	1.765	2.543	3.258	3.915	4.520	5.075	5.587	6.057	6.489
9.00	0.917	1.759	2.531	3.240	3.890	4.486	5.033	5.535	5.995	6.418
9.25	0.915	1.753	2.520	3.222	3.865	4.453	4.991	5.484	5.935	6.343
9.50	0.913	1.747	2.509	3.204	3.840	4.420	4.950	5.433	5.875	6.274
9.75	0.911	1.741	2.498	3.187	3.815	4.387	4.909	5.384	5.817	6.211
10.00	0.909	1.736	2.487	3.170	3.791	4.355	4.863	5.335	5.759	6.145
10.25	0.907	1.730	2.476	3.153	3.767	4.324	4.829	5.287	5.702	6.079
10.50	0.905	1.724	2.465	3.136	3.743	4.292	4.789	5.239	5.645	6.015
10.75	0.903	1.718	2.454	3.119	3.719	4.261	4.751	5.192	5.591	5.951
11.00	0.901	1.713	2.444	3.102	3.694	4.231	4.712	5.146	5.537	5.889
11.25	0.899	1.707	2.433	3.086	3.673	4.200	4.674	5.101	5.484	5.828
11.50	0.897	1.701	2.423	3.070	3.650	4.170	4.637	5.056	5.431	5.763
11.75	0.895	1.696	2.412	3.053	3.627	4.141	4.600	5.011	5.379	5.700

TABLE 1

 RETURN ON INVESTMENT PERCENTAGE
 BASED ON R.O.I. FACTOR (FACILITY COST/AVRG. ANNUAL CASH FLOW)
 AND THE EXPECTED USEFUL LIFE OF THE NEW FACILITY
 01/06/84

R.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	1	2	3	4	5	6	7	8	9	10
12.00	0.893	1.690	2.402	3.037	3.605	4.111	4.564	4.968	5.328	5.650
12.25	0.891	1.685	2.392	3.021	3.583	4.082	4.528	4.925	5.278	5.593
12.50	0.889	1.679	2.381	3.006	3.561	4.054	4.492	4.882	5.228	5.510
12.75	0.887	1.674	2.371	2.990	3.539	4.026	4.457	4.840	5.180	5.481
13.00	0.885	1.668	2.361	2.976	3.517	3.998	4.423	4.799	5.132	5.426
13.25	0.883	1.663	2.351	2.959	3.496	3.970	4.388	4.758	5.084	5.372
13.50	0.881	1.657	2.341	2.944	3.475	3.943	4.355	4.718	5.038	5.320
13.75	0.879	1.652	2.331	2.929	3.454	3.915	4.321	4.678	4.992	5.267
14.00	0.877	1.647	2.322	2.914	3.433	3.889	4.288	4.639	4.946	5.216
14.25	0.875	1.641	2.312	2.899	3.413	3.862	4.256	4.600	4.902	5.166
14.50	0.873	1.636	2.302	2.884	3.392	3.835	4.224	4.562	4.858	5.115
14.75	0.871	1.631	2.293	2.869	3.372	3.810	4.192	4.524	4.814	5.067
15.00	0.870	1.626	2.283	2.855	3.352	3.784	4.160	4.487	4.772	5.017
15.25	0.868	1.621	2.274	2.841	3.332	3.757	4.129	4.451	4.729	4.971
15.50	0.866	1.615	2.264	2.826	3.313	3.734	4.099	4.415	4.688	4.925
15.75	0.864	1.610	2.255	2.812	3.293	3.709	4.068	4.379	4.647	4.879
16.00	0.862	1.605	2.246	2.798	3.274	3.685	4.039	4.344	4.607	4.833
16.25	0.860	1.600	2.237	2.784	3.255	3.660	4.009	4.309	4.567	4.789
16.50	0.858	1.595	2.228	2.770	3.234	3.636	3.980	4.274	4.527	4.745
16.75	0.857	1.590	2.219	2.757	3.215	3.613	3.951	4.241	4.489	4.701
17.00	0.855	1.585	2.210	2.743	3.199	3.589	3.922	4.207	4.451	4.659
17.25	0.853	1.580	2.201	2.730	3.181	3.566	3.894	4.174	4.413	4.617
17.50	0.851	1.575	2.192	2.716	3.163	3.543	3.866	4.142	4.376	4.575
17.75	0.849	1.570	2.183	2.703	3.145	3.520	3.839	4.109	4.339	4.534

R.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	11	12	13	14	15	16	17	18	19	20
12.00	5.939	6.194	6.424	6.628	6.811	6.974	7.120	7.250	7.366	7.469
12.25	5.873	6.123	6.346	6.544	6.721	6.878	7.019	7.143	7.255	7.354
12.50	5.810	6.053	6.270	6.462	6.633	6.785	6.920	7.040	7.147	7.241
12.75	5.749	5.985	6.195	6.381	6.547	6.693	6.823	6.939	7.041	7.132
13.00	5.687	5.915	6.122	6.302	6.462	6.604	6.729	6.840	6.938	7.025
13.25	5.627	5.852	6.050	6.225	6.380	6.516	6.637	6.743	6.837	6.921
13.50	5.568	5.797	5.979	6.149	6.299	6.431	6.547	6.649	6.739	6.819
13.75	5.510	5.723	5.910	6.075	6.220	6.347	6.459	6.557	6.644	6.720
14.00	5.453	5.660	5.842	6.002	6.142	6.265	6.373	6.467	6.550	6.623
14.25	5.397	5.599	5.774	5.931	6.066	6.185	6.289	6.380	6.459	6.529
14.50	5.341	5.533	5.710	5.861	5.992	6.106	6.206	6.294	6.370	6.437
14.75	5.287	5.479	5.646	5.792	5.919	6.029	6.126	6.210	6.283	6.347
15.00	5.234	5.421	5.583	5.724	5.847	5.954	6.047	6.126	6.193	6.259
15.25	5.181	5.363	5.521	5.658	5.777	5.881	5.970	6.043	6.115	6.174
15.50	5.130	5.307	5.461	5.594	5.707	5.803	5.895	5.969	6.034	6.090
15.75	5.079	5.252	5.401	5.530	5.641	5.738	5.821	5.893	5.955	6.009
16.00	5.029	5.197	5.342	5.466	5.575	5.663	5.749	5.813	5.877	5.929
16.25	4.979	5.144	5.285	5.406	5.511	5.601	5.678	5.745	5.802	5.851
16.50	4.931	5.091	5.222	5.346	5.447	5.534	5.607	5.673	5.729	5.775
16.75	4.883	5.039	5.173	5.287	5.385	5.469	5.541	5.603	5.655	5.700
17.00	4.836	4.988	5.119	5.229	5.324	5.405	5.475	5.534	5.584	5.628
17.25	4.790	4.938	5.065	5.172	5.264	5.343	5.410	5.467	5.515	5.557
17.50	4.745	4.889	5.012	5.117	5.206	5.281	5.346	5.401	5.447	5.487
17.75	4.700	4.841	4.960	5.062	5.148	5.221	5.283	5.336	5.381	5.419

TABLE 1

RETURN ON INVESTMENT PERCENTAGE
 BASED ON R.O.I. FACTOR (FACILITY COST/AVRG. ANNUAL CASH FLOW)
 AND THE EXPECTED USEFUL LIFE OF THE NEW FACILITY
 01/05/84

Z R.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	11	12	13	14	15	16	17	18	19	20
18.00	4.656	4.793	4.910	5.008	5.092	5.162	5.222	5.273	5.316	5.353
18.25	4.613	4.746	4.860	4.955	5.036	5.105	5.162	5.211	5.253	5.288
18.50	4.570	4.700	4.810	4.903	4.982	5.048	5.104	5.151	5.191	5.224
18.75	4.528	4.655	4.762	4.852	4.928	4.992	5.046	5.091	5.130	5.162
19.00	4.486	4.611	4.715	4.802	4.876	4.938	4.990	5.033	5.070	5.101
19.25	4.446	4.567	4.668	4.753	4.824	4.884	4.934	4.976	5.012	5.041
19.50	4.406	4.523	4.622	4.705	4.774	4.832	4.880	4.921	4.954	4.983
19.75	4.366	4.481	4.577	4.657	4.724	4.780	4.827	4.866	4.898	4.926
20.00	4.327	4.439	4.533	4.611	4.675	4.730	4.775	4.812	4.843	4.870
20.25	4.289	4.398	4.489	4.565	4.628	4.680	4.723	4.760	4.790	4.815
20.50	4.251	4.358	4.446	4.520	4.581	4.631	4.673	4.708	4.737	4.761
20.75	4.214	4.318	4.404	4.475	4.534	4.583	4.624	4.657	4.685	4.708
21.00	4.177	4.278	4.362	4.432	4.489	4.536	4.576	4.609	4.635	4.657
21.25	4.141	4.240	4.321	4.389	4.444	4.490	4.528	4.559	4.585	4.606
21.50	4.105	4.202	4.281	4.347	4.401	4.445	4.481	4.511	4.536	4.557
21.75	4.070	4.164	4.242	4.305	4.358	4.400	4.436	4.465	4.488	4.508
22.00	4.035	4.127	4.203	4.265	4.315	4.357	4.391	4.419	4.442	4.460
22.25	4.001	4.091	4.164	4.224	4.274	4.316	4.347	4.374	4.396	4.414
22.50	3.968	4.055	4.127	4.185	4.233	4.272	4.303	4.329	4.350	4.368
22.75	3.935	4.020	4.090	4.146	4.193	4.230	4.261	4.286	4.308	4.323
23.00	3.902	3.985	4.053	4.108	4.153	4.189	4.219	4.243	4.263	4.279
23.25	3.870	3.951	4.017	4.071	4.114	4.149	4.178	4.201	4.220	4.235
23.50	3.838	3.917	3.982	4.034	4.076	4.110	4.138	4.160	4.178	4.193
23.75	3.807	3.884	3.947	3.997	4.038	4.071	4.098	4.120	4.137	4.151

Z R.O.I.	EXPECTED USEFUL LIFE IN YEARS									
	21	22	23	24	25	26	27	28	29	30
18.00	5.384	5.410	5.432	5.451	5.467	5.480	5.492	5.502	5.510	5.517
18.25	5.317	5.342	5.363	5.381	5.397	5.409	5.420	5.429	5.437	5.444
18.50	5.252	5.276	5.296	5.313	5.328	5.340	5.350	5.359	5.366	5.372
18.75	5.189	5.212	5.231	5.247	5.261	5.272	5.282	5.290	5.297	5.303
19.00	5.127	5.149	5.167	5.182	5.195	5.206	5.215	5.223	5.229	5.235
19.25	5.066	5.087	5.104	5.119	5.131	5.141	5.150	5.157	5.163	5.168
19.50	5.007	5.026	5.043	5.057	5.067	5.075	5.082	5.089	5.099	5.104
19.75	4.948	4.967	4.983	4.996	5.007	5.017	5.024	5.031	5.036	5.041
20.00	4.891	4.909	4.925	4.937	4.948	4.956	4.964	4.970	4.975	4.979
20.25	4.835	4.853	4.867	4.879	4.889	4.897	4.904	4.910	4.915	4.919
20.50	4.781	4.797	4.811	4.823	4.832	4.840	4.846	4.852	4.856	4.860
20.75	4.727	4.743	4.756	4.767	4.776	4.783	4.790	4.795	4.799	4.802
21.00	4.675	4.690	4.703	4.713	4.721	4.728	4.734	4.739	4.743	4.746
21.25	4.624	4.638	4.650	4.660	4.668	4.674	4.680	4.685	4.688	4.691
21.50	4.573	4.587	4.598	4.608	4.615	4.622	4.627	4.631	4.635	4.638
21.75	4.524	4.537	4.548	4.557	4.564	4.570	4.575	4.579	4.582	4.585
22.00	4.476	4.488	4.499	4.507	4.514	4.520	4.526	4.528	4.531	4.534
22.25	4.428	4.440	4.450	4.458	4.465	4.470	4.475	4.478	4.481	4.484
22.50	4.382	4.393	4.403	4.410	4.417	4.422	4.425	4.429	4.432	4.434
22.75	4.336	4.347	4.356	4.364	4.369	4.374	4.378	4.381	4.384	4.386
23.00	4.292	4.302	4.311	4.318	4.323	4.328	4.332	4.335	4.337	4.339
23.25	4.248	4.258	4.266	4.273	4.278	4.282	4.286	4.289	4.291	4.293
23.50	4.205	4.214	4.222	4.228	4.234	4.238	4.241	4.244	4.246	4.248
23.75	4.163	4.172	4.179	4.185	4.190	4.194	4.197	4.200	4.202	4.203

Table 2

Reference Annual Percent Return on Investment

<u>Year Construction Completed</u>	<u>Reference Percent Return</u>
1977	21.0
1978	21.9
1979	22.5
1980	23.0
1981	23.6
1982	23.4
1983	21.5
1984	19.9
1985	18.5
1986	17.4
1987	16.1
1988	17.1
1989	18.3

Calculation of the reference percent return was made by averaging the average annual percent return before taxes on stockholders' equity for all manufacturing corporations as found in the Quarterly Financial Report for Manufacturing, Mining and Trade Corporations, published by the U.S. Department of Commerce, Bureau of the Census, for the five years prior to the year shown.

RULEMAKING STATEMENTS

Statement of Need for Rulemaking.

Pursuant to ORS 183.335(7), this statement provides information on the Environmental Quality Commission's intended action to adopt and amend rules.

(1) Legal Authority.

Amendment of the Pollution Control Tax Credit Rules is consistent with enabling Legislation, ORS 468.150 to 468.190 and amendments in HB 2178 approved during the 1989 Legislature.

(2) Need for Rule Amendments.

In order to implement recent statutory changes, amendment of the current rules is necessary. Portions of the current rules are proposed for amendment to bring them within the scope of the recent legislative changes, or, to clarify existing provisions and policy.

(3) Principal Documents Relied Upon in this Rulemaking.

- ORS 468.150 to 468.190
- HB 2178.B Engrossed (1989)
- OAR 340 Division 16

(4) This proposed rule does not affect land use as defined in the Department's Land Use Coordination Program approved by the Land Conservation and Development.

FISCAL AND ECONOMIC IMPACT STATEMENT

1. The elimination of a mandatory preliminary certification may reduce the number of staff hours required to process tax credit applications. This potential decrease is expected to be offset by increased staff assistance provided to applicants before an application is submitted.
2. The legislative revision which allows tax credit for the taxpayers cash investment in facilities funded with federal dollars may result in an increase number of applications.
3. The legislative revision which extends the tax credit program until December 31, 1995 will allow a greater number of tax credits to be certified. This results in a larger amount of tax revenue diverted from the general fund.

The proposed rule modifications present no significant or adverse economic impact on the general public, small businesses, or large businesses. The rules provide for economic assistance to regulated and non-regulated sources for the prevention, control, or reduction of pollution, and, for material recovery.

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

Pollution Control Tax Credit Rule Amendments Public Hearing

Date Prepared: October 31, 1989

Hearing Date: January 9, 1990

Comments Due: January 12, 1990

**WHO IS
AFFECTED:**

Amendment of the rules will affect those individuals applying for pollution control tax credits.

**WHAT IS
PROPOSED:**

The DEQ proposes to adopt amendments to the Pollution Control Tax Credit Rules (OAR 340-16-005 through 340-16-050) to reflect statutory amendments made by the 1989 Legislature and to bring current rules within the bounds of the enabling legislation.

**WHAT ARE THE
HIGHLIGHTS:**

Proposed rule amendments remove the requirement for preliminary certification. Prospective applicants may request staff technical assistance or review prior to application submittal. An application for tax credit must be submitted within two years of substantial completion of a facility.

Proposed amendments allow tax credit for the taxpayers cash investment in a facility that is partially funded with federal dollars.

The proposed amendments clarifies provisions that relate to: the application of "principal purpose" and "sole purpose"; the requirement of DEQ compliance before certification; the eligibility of facilities that are for the cleanup of unauthorized spills or releases; and, the determination of allocable costs.

**HOW TO
COMMENT:**

A public hearing will be held at:

2:00 - 4:30 p.m.
Tuesday, January 9, 1990
DEQ Building
Room 10A
811 SW Sixth Ave.
Portland, Oregon

Written or oral comments may be presented at the hearing. Written comments may also be sent to the Department of Environmental Quality, Management Services Division, 811 S.W. 6th Avenue, Portland, OR 97204, and must be received no later than 5:00 p.m., Friday, January 12, 1990.

(over)



811 S.W. 6th Avenue
Portland, OR 97204

11/1/86

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

Copies of the proposed rule amendments can be obtained from:

Claudia Jones
Management Services Division
811 SW Sixth Avenue
Portland, OR 97204
Telephone: 229-6022
Toll-free 1-800-452-4011

**WHAT IS THE
NEXT STEP:**

The Environmental Quality Commission may adopt new rules identical to the ones proposed, adopt modified rules as a result of testimony received, or may decline to adopt rules. The Commission may consider the proposed new rule and rule revisions at its meeting on February 23, 1990.

MY100289.D (1/30/90)

MEMORANDUM

TO: Environmental Quality Commission

FROM: Roberta Young, Hearings Officer

DATE: January 9, 1990

SUBJECT: Hearings Officer's Report

This is the Hearings Officer's Report on the Department's proposal to amend the Pollution Control Tax Credit Rules, OAR Chapter 340 Division 16.

A joint public hearing was held, January 9, 1990 at DEQ headquarters in Portland, on the Pollution Control Tax Credit proposed rules and proposed Plastics Recycling Tax Credit rules.

One person, Mr. Ted Hughes of the Oregon Plastics Industries, attended the hearing to testify in support of the Plastics Recycling rules. There was no testimony presented on the Pollution Control Tax Credit rules.

The Department received written comments by the January 12, 1990 comment submittal deadline from the following:

1. Liz VanLeeuwen State Representative, District 37
2. Gerald E. Phelan Albany, Oregon
3. Curt Nichols Department of Energy
4. Mae Yih State Senator, Albany, Oregon

Two comment letters were received after the January 12 submittal deadline:

1. Susan Ast Pachard Art Hay Company, Bend, Oregon
2. Bill Johnson E.N.U.F. (End Noxious Unhealthy Fumes), Foster, Oregon

The full text of written comments and an audio cassette of the public hearing are available for examination.

**Response to Comments on Proposed
Pollution Control Tax Credit Rules**

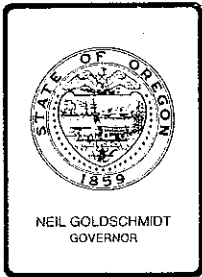
Comment: Incidental off-season use of straw storage sheds should be allowed within the context of the tax credit program.

Response: Legal Counsel has advised the Department that the pollution control tax credit certification is intended by law to apply only to pollution control facilities. The Commission does not have the discretion to approve tax credit for non-pollution control related uses. Therefore, if a facility such as a storage shed is invested in for purposes of reducing the amount of open field burning, any identified portion used for unrelated purposes cannot be eligible for tax credit.

Four other comment letters supported the provision of incidental uses.

Comment: The removal of the preliminary certification process makes it more difficult to determine if an application is submitted to DEQ and the Department of Energy for the same facility.

Response: State law does not allow more than one tax credit for the same facility. Applicants are asked on the DEQ application if tax credit was received from the Department of Energy for the same facility.



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990

Agenda Item: L

Division: Air Quality

Section: Planning & Development

SUBJECT:

Adoption of Incinerator Rules: Amendments to Better Address Municipal, Hospital, and Crematory Units.

PURPOSE:

To adopt new rules for solid, infectious, and crematory incinerators, which will provide better and more uniform protection to the public from particulates, acid gases and toxic air pollutants; and provide uniform performance standards for both incineration equipment and monitoring systems.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item ___ for Current Meeting
 - Other: (specify)

- Authorize Rulemaking Hearing
- Adopt Rules
 - Proposed Rules Attachment C
 - Rulemaking Statements Attachment D
 - Fiscal and Economic Impact Statement Attachment D
 - Public Notice Attachment E

- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment ___

- Approve Department Recommendation
 - Variance Request Attachment ___
 - Exception to Rule Attachment ___
 - Informational Report Attachment ___
 - Other: (specify) Attachment ___

Meeting Date: March 2, 1990
Agenda Item: L
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DESCRIPTION OF REQUESTED ACTION:

The Environmental Quality Commission (EQC, Commission) authorized these proposed rules for public hearing at its October 20, 1989 meeting. The testimony from the hearings held in Portland, Medford, and Bend have been summarized in Attachment F.

The Department of Environmental Quality (DEQ, Department) has proposed incinerator rules which would establish more stringent and uniform emission standards and other requirements for all waste incinerators. In order to meet these tighter emission standards, some municipal and infectious waste facilities would have to install high efficiency particulate and acid gas control equipment. These rules would also require continuous emission monitoring systems (CEMS), which only one facility currently operates. These rules would affect all existing, new or modified solid waste, infectious waste, and crematory incinerators in Oregon. Existing solid waste and infectious waste units would have up to five years to retrofit necessary equipment, while crematories would have three years.

AUTHORITY/NEED FOR ACTION:

<input type="checkbox"/> Required by Statute: _____	Attachment _____
Enactment Date: _____	
<input checked="" type="checkbox"/> Statutory Authority: <u>ORS 468.020/468.295</u>	Attachment _____
<input checked="" type="checkbox"/> Pursuant to Rule: <u>OAR 340-21-025 to -027</u>	Attachment <u>H</u>
<input type="checkbox"/> Pursuant to Federal Law/Rule: _____	Attachment _____
<input checked="" type="checkbox"/> Other: OAR 340-25-055 (NSPS), OAR 340-20-220 to -275	Attachment _____
<input type="checkbox"/> Time Constraints: (explain)	

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/> Advisory Committee Report/Recommendation	Attachment _____
<input checked="" type="checkbox"/> Hearing Officer's Report/Recommendations	Attachment <u>F</u>
<input checked="" type="checkbox"/> Response to Testimony/Comments	Attachment <u>G</u>
<input checked="" type="checkbox"/> Prior EQC Agenda Items:	Attachment <u>I</u>

Request for Hearing Authorization and Attachment A
(original proposed rules) from the October 20, 1989 meeting.

<input type="checkbox"/> Other Related Reports/Rules/Statutes:	Attachment _____
<input checked="" type="checkbox"/> Supplemental Background Information	Attachment _____

Summary of Current Waste Incinerators
in Oregon. Attachment A

Comparison of Proposed and Current
Incinerator Rules. Attachment B

Meeting Date: March 2, 1990
Agenda Item: L
Page 3

Existing waste incinerator rules are fragmented and incomplete, and do not uniformly address all air contaminants emitted from incinerators. This is particularly true for small incinerators. As a result, the Department currently reviews and permits incinerators on a case-by-case basis.

Currently, there are a number of incinerators which operate within the state: one coastal municipal refuse incinerator facility at Coos Bay, one mass burn municipal incinerator facility in Marion County, two commercial infectious waste incinerator facilities in Klamath and Washington Counties, and approximately 36 hospital incinerators and 37 crematoriums.

A summary of requirements for current waste incinerators in Oregon is provided in Attachment A.

Existing rules pertaining to incinerators are focused solely on particulate emissions from refuse burning, municipal waste incinerators in coastal areas, and new or modified incinerators of more than 50 tons per day. Particulate limits, temperature and residence time requirements, carbon monoxide (CO), hydrogen chloride (HCl), and opacity are addressed either by rule or are set on a case-by-case basis through the Department's Air Contaminant Discharge Permits.

A comparison of current incinerator rules with the proposed rules is provided in Attachment B.

As Attachments A and B indicate, only the Marion County incinerator meets nearly all of these proposed requirements. The Klamath County commercial incinerator currently meets some of the proposed requirements (HCl, temperature, and opacity), while the Coos County incinerator meets only one (temperature). While the small Washington County commercial incinerator meets only a few of the proposed requirements, a larger unit (12 tons per day) is planned which would meet nearly all of the requirements. Of the remaining existing hospital incinerators, two meet the temperature and residence time requirements, but the remainder meet none of the proposed requirements.

In promulgating new incinerator rules, the Department determined that emission limits, design standards, and operating and monitoring requirements for solid and infectious waste incinerators should be based on application of Best Available Control Technology (BACT). This technology consists of state-of-the-art pollution control equipment, such as scrubbers and filters, which, combined with optimum combustion, has been demonstrated to reduce emissions from waste incinerators by 95 percent. BACT was not considered a necessary requirement for crematory incinerators since the

Meeting Date: March 2, 1990
Agenda Item: L
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uncontaminated nature of the waste and emissions from these sources do not pose the health risk that solid and infectious waste incinerators do.

Within the last two years many state environmental agencies have adopted new incinerator rules, and all contain similar emission standards based on the application of BACT. In November 1989 the Environmental Protection Agency (EPA) proposed new rules for municipal waste incinerators also based on this technology. EPA's rules will establish similar limits and controls to what other states have adopted, and to what the Department's rules are proposing. Included in the proposed federal rules are similar requirements for design, operation, and continuous emission monitoring.

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

There has been a growing concern by the public on the health impacts of air pollution from waste incineration. Findings from recent health effects studies have shown potential health risks associated with exposure to certain incinerator air emissions, such as dioxins, furans, and other toxics like lead and mercury, and acid gases such as hydrogen chloride and sulfur dioxide. Here in Oregon citizens have recently expressed opposition through petition and public testimony to the siting of infectious waste incinerators in Klamath Falls (Bio-Waste incinerator), Grants Pass (Josephine Hospital incinerator), and Silverton (Silverton Hospital incinerator). These citizens have been demanding tighter air pollution standards for incinerators to protect public health and the environment, and advocating the use of alternatives such as recycling, waste reduction, and waste sterilization over waste disposal by incineration or landfilling.

In response to these public concerns last year, the Department placed a moratorium on all new incinerator permit applications until new incinerator rules could be developed and adopted. As a result of this moratorium, three new incinerator permit applications have been put on hold (one has since withdrawn its application).

The 1989 Oregon Legislature passed the Infectious Waste Law which has a direct effect on waste incineration. This new law (Chapter 763) will take effect July 1, 1990, and will regulate the storage, transport, and disposal of infectious waste. The key provision of this law states that "all pathological wastes shall be treated by incineration in an incinerator that provides complete combustion...", unless incineration is not "reasonably available". It directs the Department to develop rules (to be approved by the Commission) which address the availability of incineration in

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the state and the safe disposal of the ash. The Hazardous and Solid Waste Division received hearing authorization for its Infectious Waste Rules from the EQC during the January 1990 meeting, and anticipates bringing these rules for adoption to the May 1990 EQC Meeting.

The proposed Air Quality Division incinerator rules will require the application of BACT in order to meet the proposed standards. This will require new and existing sources to utilize particulate and gaseous pollution control equipment (such as scrubbers, baghouses, electrostatic precipitators, and auxiliary burners). In addition, the proposed rules will require continuous monitoring equipment systems. The capital investment associated with building or retrofitting this equipment, as originally indicated in the Fiscal and Economic Impact Statement (see Attachment D), will be substantial and may result in closure or costly upgrades of many of the existing hospital incinerators and the coastal solid waste incinerator located in Coos Bay. If this should occur, the Department has determined that while the overall availability of incineration will be reduced, the incinerator capacity in the state would be satisfactory to dispose of all infectious wastes generated in Oregon by units that can comply with the proposed rules. This is based on the continued operation of the two commercial infectious waste incinerators in Klamath and Washington counties. The Marion County municipal incinerator should continue as well, since it meets nearly all of the requirements in the proposed rules. This facility can handle large amounts of municipal waste, and other municipal wastes in the state can be disposed of in landfills. (If the Coos County municipal incinerator is closed, then waste would be hauled to acceptable landfills in the Western interior Valley of the state if necessary.)

Information provided to the Department by the Public Utility Commission indicates that collection and transportation costs to these existing incineration facilities will not vary significantly within the state. In fact, based on the expected capital and operating costs for incinerators operating in compliance with the proposed new emissions limits, the cost of disposal for off-site incinerators is projected to be comparable to disposal costs for on-site incinerators.

The new rules for municipal waste incinerators recently proposed by EPA contains a requirement to separate 25 percent of the reusable components of municipal waste in order to reduce both air emissions and promote recycling. The rules proposed by the Department do not currently contain this provision. When EPA's rules become final at the end of 1990, the Department's rules may need to be slightly amended to

allow the Department to obtain delegation of authority under EPA's New Source Performance Standards (NSPS) program to implement them in Oregon. (Currently, a new law prohibiting the burning of car batteries is the only materials separation requirement that applies to waste incinerators in Oregon.)

The major issues identified during the public comment period can be summarized as follows: 1) no new regulations are needed for small incinerators; 2) all crematory incinerators should be exempted from the proposed rules; 3) there should be special exemptions for small incinerators; 4) adopt tighter new rules and pursue alternatives to infectious waste incineration; and 5) adopt proposed regulations with minor revisions. See Attachment F for hearing officer's report, and Attachment G for Department's response to this testimony.

PROGRAM CONSIDERATIONS:

These incinerator rules are intended to better protect the public from harmful air emissions, as well as to provide uniform protection and reduced risks, and provide uniform performance standards for both incineration equipment and monitoring systems.

Waste incineration in a properly designed incinerator equipped with high efficiency pollution control systems is considered an environmentally acceptable disposal method, in cases where landfilling or other disposal options are limited.

The Department's Air Quality and Hazardous and Solid Waste Divisions have worked closely in coordinating both the proposed incinerator rules and the infectious waste rules. The Department also worked with the State Health Division in developing both sets of rules.

It is anticipated that the new requirements for continuous emission monitoring will lessen staff workload demands related to compliance and enforcement.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

1. Establish a cut-off level for small capacity incinerators under which either no emission standards or monitoring equipment would apply, or only certain limited standards would apply.
2. Adopt even more stringent rules for all incinerators, regardless of size.
3. Specify alternative disposal methods to waste incineration, such as recycling and waste reduction.

4. Incorporate EPA's proposed municipal waste incinerator rules into the Department's proposed rules at this time.
5. Adopt the proposed incinerator rules, including minor revisions as provided during the public testimony (see Hearing Officer's Report, Attachment F)

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

Alternative 1 is not recommended because the Department believes that establishing less stringent requirements for small incinerators would not be consistent with the overall goal of uniformly protecting the public from air pollution, especially highly toxic forms of air pollution. While the Department recognizes that smaller incinerators will be more adversely affected by the costs associated with the proposed limits and controls, establishing less stringent limits and controls would represent applying a "double standard" to waste incineration, leaving some of the public at higher risk to toxic air pollutants. The Department believes that until more is known about safe levels of exposure to dioxin and other carcinogenic compounds, uniform standards should be established for waste incineration which afford the greatest level of protection to the public and the environment by applying the best available control technology.

The Department does not recommend Alternative 2 because it believes the limits and controls specified in the proposed rules represent stringent controls for waste incineration, which if more stringent, would go beyond what is considered to be reasonably achievable by current technology. This could potentially eliminate incineration as an option, which would be in conflict with 1989 state legislation identifying incineration as the preferred means of infectious waste disposal.

The Department supports Alternative 3, in that it agrees that other waste disposal options need to be developed and pursued, but recognizes that alternatives to landfilling and incineration at this time are very limited. The Department will be considering adding a materials separation requirement to its rules when the proposed federal municipal waste incinerator rules are finalized.

The Department also supports Alternative 4, and has incorporated most of the proposed criteria into its rules. Most significant were the .015 and .030 g/scf particulate limits for new and existing incinerators, respectively. The Department originally proposed .020 g/scf for units over 50 tons per day, and .030 g/scf for units under 50 tons per day, for both new and existing units. The Department agrees that .015 g/scf is appropriate for all new units regardless of

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size, and .030 g/scf for all existing units regardless of size. Space and siting limits prohibit existing facilities from installing a dry scrubber/baghouse control system capable of attaining the .015 limit. Wet scrubbing systems are smaller but can only be expected to meet .030 g/scf. Given these factors, and that wet scrubbers provide for high rates of acid gas and organic removal, the Department finds the .030 limit to be acceptable. The Department decided not to fully incorporate all the proposed federal rules because these rules are currently in the public comment period, and therefore subject to change. Once the federal rules become final, the Department will review the final provisions and determine what, if any, other changes should be made.

The Department recommends alternative 5 (to adopt proposed rules with some minor revisions). This approach represents a balance between continuing incineration as a viable waste disposal alternative to landfilling, and minimizing the health risks from incineration through the application of efficient combustion and control equipment technology. As a result of the testimony, the Department has amended the originally proposed rule as follows: removing the hydrogen chloride monitoring requirement in favor of a case-by-case determination of need by permit; shortening the retrofit period for crematories from five to three years; requiring Department approval for operator training and certification; changing the particulate emission limits of .020 and .030 g/scf for both new and existing units to .015 for new and .030 g/scf for existing as mentioned above; and adding a 15 minute period for temperature/carbon monoxide fluctuations not to be subject to the waste feed lock-out provision.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

The proposed rule is consistent with the new infectious waste law (Chapter 763 of Oregon Laws 1989) recently adopted by the Oregon Legislature. It is also consistent with the Department's Hazardous and Solid Waste proposed revisions to OAR 340-61-010 and 340-61-060 regarding the availability of waste incineration in Oregon.

The Department is not aware of conflicts involving this proposed rule with any plan, agency, or legislative policies.

ISSUES FOR COMMISSION TO RESOLVE:

1. Do small capacity incinerators constitute a sufficient pollution concern to warrant additional, tighter regulations?

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2. Do the proposed rules go far enough in protecting public health and the environment?
3. Should other waste disposal alternatives, such as recycling and waste reduction, be given higher priority than waste incineration?
4. Should the Department consider further alignment of its proposed rules with EPA's, or wait until after EPA's rules are final?
5. Should new incinerator rules be adopted which apply uniformly to all new and existing, large and small, and solid and infectious waste incinerators, or should rules differentiate by type?

INTENDED FOLLOWUP ACTIONS:

1. File adopted rules with the Secretary of State.

Approved:

Section: Nick Nobile for JFK

Division: Nick Nobile

Director: Full Han

Report Prepared By: Brian Finneran

Phone: 229-6278

Date Prepared: February 16, 1990

BRF:a
PLAN\AH873
(2/16/90)

SUMMARY OF REQUIREMENTS FOR CURRENT WASTE INCINERATORS IN OREGON

	<u>Daily Capacity</u>	<u>Particulate</u>	<u>Hydrogen Chloride</u>	<u>Opacity</u>	<u>Temperature</u>	<u>GEMS</u>
Marion County Mass Burn Municipal Waste Incinerator	624 tons per day	.03 g/scf ¹	90% Removal	10%	1800° F	Opacity, Oxygen
Coos Bay Municipal Waste Incinerator	125 tons per day	.02 g/scf	---	20%	1800° F	Temperature
Klamath County Commercial Infectious Waste Incinerator	11 tons per day	.07 g/scf	50 ppm or 95% Removal	10%	1800° F	---
Washington County Commercial Infectious Waste Incinerator	1/4 ton per day	Annual limit ²	---	20%	1800° F	---
36 Hospital Incinerators	.01 to 3.5 tons per day	.10 to .30 g/scf ³	---	20%	1200° -1800° F	---
37 Crematory Incinerators	.01 to 1 ton per day	.10 g/scf	---	20%	1200° -1800° F	---

FOOTNOTES:

- ¹ Grains per standard cubic foot
- ² Limit of .23 tons per year instead
- ³ Most small hospital incinerators have annual particulate limit (tons/year)

COMPARISON OF PROPOSED AND CURRENT INCINERATOR RULES

Requirement	PROPOSED RULES - (OAR 340-25-850 to 905) Solid and Infectious Waste and Incineration	CURRENT RULES - Refuse Incinerators, Coastal Municipal Waste Incinerators, New Municipal Waste Incinerators (OAR 340-21-015-025, -027, and 340-25-555)
Particulate	.015 g/scf ¹ (new) .030 g/scf (existing) .080 g/scf (crematories)	.080 g/scf (new-over 50 tons/day) .1 to .3 g/scf (existing)
Hydrogen Chloride	50 ppm ² , or reduced 70% (n/a crematories)	None ³
Sulfur Dioxide	50 ppm, or reduced 70% (n/a crematories)	None
Carbon Monoxide	100 ppm (n/a crematories)	None
Nitrogen Oxide	200 ppm (new, over 250 tons/day (n/a crematories)	None
Temperature & Residence Time	1800° F 1 second	1800° F 1 second
Opacity	10%	20-40%
CEMS ⁴	- HCl, SO ₂ , CO, Temp., Opacity (Solid waste incinerators) - CO, Temp, Opacity (Infectious waste incinerators) - Temp. (crematories)	None

FOOTNOTES:

- 1 Grains per standard cubic foot
- 2 Parts per million
- 3 Currently these are case-by-case permit requirements applied only to larger facilities, such as Marion County mass burn municipal waste incinerator, and to Klamath County commercial infectious waste incinerator.
- 4 Continuous Emission Monitoring System

Incinerator Regulation
OAR 340-25-850 to -905

Purposes and Application

340-25-850 The purpose of these rules is to establish state of the art emission standards, design requirements, and performance standards for all solid and infectious waste and crematory incinerators in order to minimize air contaminant emissions and provide adequate protection of public health. The rules apply to all existing waste incinerators and to all that will be built, modified, or installed in the State of Oregon.

Definitions

340-25-855 (1) "Acid Gases" means any exhaust gas which includes hydrogen chloride and sulfur dioxide.

(2) "Best Available Control Technology (BACT)" means an emission limitation as defined by OAR 340-20-225 (4).

(3) "Continuous Emission Monitoring" means a monitoring system for continuously measuring the emissions of a pollutant from an affected incinerator. Continuous monitoring equipment and operation shall be certified in accordance with EPA performance specifications and quality assurance procedures outlined in 40 CFR 60, Appendices B and F, and the Department's CEM Manual.

(4) "Crematory Incinerator" means an incinerator used solely for the cremation of human and animal bodies.

(5) "Department" means the Department of Environmental Quality.

(6) "Dry Standard Cubic Foot" means the amount of gas that would occupy a volume of one cubic foot, if the gas were free of uncombined water at standard conditions. When applied to combustion flue gases from waste or refuse burning, "Standard Cubic Foot (scf)" implies adjustment of gas volume to that which would result at a concentration of 7% oxygen or 50% excess air.

(7) "Emission" means a release into the atmosphere of air contaminants.

(8) "Fugitive Emissions" means the same as defined in section 340-20-225 (11).

(9) "Incinerator" means any structure or furnace in which combustion takes place, the primary purpose of which is the reduction in volume and weight of unwanted material.

(10) "Infectious Waste" means waste as defined in ORS 763, Oregon Laws 1989, which contains or may contain any disease producing microorganism or material, and includes, but not limited to the following:

(a) "Biological waste," which includes blood and blood products, and body fluids that cannot be directly discarded into a municipal sewer system, and waste materials saturated with blood or body fluids, but does not include soiled diapers.

(b) "Cultures and stocks," which includes etiologic agents and associated biologicals; including specimen cultures and dishes, devices used to transfer, inoculate and mix cultures, wastes from production of biologicals, and serums and discarded live and attenuated vaccines. "Cultures" does not include throat and urine cultures.

(c) "Pathological waste," which includes biopsy materials and all human tissues, anatomical parts that emanate from surgery, obstetrical procedures, autopsy and laboratory procedures and animal carcasses exposed to pathogens in research and the bedding and other waste from such animals. "Pathological wastes" does not include teeth or formaldehyde or other preservative agents.

(d) "Sharps," which includes needles, IV tubing with needles attached, scalpel blades, lancets, glass tubes that could be broken during handling and syringes that have been removed from their original sterile containers.

(11) "Infectious Waste Facility" means an incinerator which is operated or utilized for the disposal or treatment of infectious waste, including combustion for the recovery of heat, and which utilizes high temperature thermal destruction technologies.

(12) "Opacity" means the degree to which an emission reduces transmission of light and obscures the view of an object in the background.

(13) "Particulate Matter" means all solid or liquid material, other than uncombined water, emitted to the ambient air as measured by EPA Method 5 or an equivalent test method in accordance with the Department Source Test Manual. Particulate matter emission determinations by EPA Method 5 shall use water as the cleanup solvent instead of acetone, and consist of the average of three (3) separate consecutive runs having a minimum sampling time of 60 minutes each, a maximum sampling time of eight (8) hours each, and a minimum sampling volume of 31.8 dscf each.

(14) "Parts Per Million (ppm)" means parts of a contaminant per million parts of gas by volume on a dry-gas basis (1 ppm equals 0.0001% by volume).

(15) "Person" means individuals, corporations, associations, firms, partnerships, joint stock companies, public and municipal corporations, political subdivisions, the state and any agencies thereof, and the federal government and any agencies thereof.

(16) "Primary Combustion Chamber" means the discrete equipment, chamber or space in which drying of the waste, pyrolysis, and essentially the burning of the fixed carbon in the waste occurs.

(17) "Secondary (or Final) Combustion Chamber" means the discrete equipment, chamber, or space in which the products of pyrolysis are combusted in the presence of excess air such that essentially all carbon is burned to carbon dioxide.

(18) "Solid Waste" means refuse, more than 50 percent of which is waste consisting of a mixture of paper, wood, yard wastes, food wastes, plastics, leather, rubber, and other combustible materials, and noncombustible materials such as metal, glass, and rock.

(19) "Solid Waste Facility" means an incinerator which is operated or utilized for the disposal or treatment of solid waste including combustion for the recovery of heat, and which utilizes high temperature thermal destruction technologies.

(20) "Standard Conditions" means temperature of 68 degrees fahrenheit (15.6 degrees Celsius) and a pressure of 14.7 pounds per square inch absolute (1.03 kilograms per square centimeter).

(21) "Startup/Shutdown" means the time during which an air contaminant source or emission control equipment is brought into normal operation and normal operation is terminated, respectively.

(22) "Transmissometer" means a device that measures opacity and conforms to EPA Specification Number 1 in Title 40 Code of Federal Regulations, Part 60, Appendix B.

Solid and Infectious Waste Incinerators

Best Available Control Technology

340-25-860 (1) Notwithstanding the specific emission limits set forth in rule 340-25-865, in order to maintain overall air quality at the highest possible levels, all incinerator facilities are required to use best available control technology (BACT). In no event shall the application of BACT result in emissions of any air contaminant which would exceed the emission limits set forth in these rules.

(2) All installed equipment shall be operated and maintained in such a manner that emissions of air contaminants are kept at lowest possible levels.

Emission Limitations

340-25-865 (1) No person shall cause, suffer, allow, or permit the operation of any waste incinerator in a manner which violates the following emission limits and requirements:

(a) Particulate Emissions:

(A) For new incinerator facilities, emissions from each stack shall not exceed 0.015 grains per dry standard cubic foot of exhaust gases corrected to 7 percent O₂ at standard conditions.

(B) For existing incinerator facilities, emissions from each stack shall not exceed 0.030 grains per dry standard cubic foot of exhaust gases corrected to 7 percent O₂ at standard conditions.

(b) Hydrogen Chloride (HCl) for all incinerator facilities, emissions of hydrogen chloride from each stack shall not exceed 50 ppm during any 60-minute period corrected to 7 percent O₂; or shall be reduced by at least ninety (90) percent by weight on an hourly basis.

(c) Sulfur Dioxide (SO₂) for all incinerator facilities, emissions of sulfur dioxide from each stack shall not exceed 50 ppm as a running three-hour average corrected to 7 percent O₂; or shall be reduced by at least seventy (70) percent by weight on a three-hour basis.

(d) Carbon Monoxide (CO) for all incinerator facilities, emissions of carbon monoxide from each stack shall not exceed 100 ppm as a running eight-hour average corrected to 7 percent O₂.

(e) Nitrogen Oxide (NO_x). Emissions of nitrogen oxide from each stack shall not exceed 200 ppm as a running 24-hour average corrected to 7 percent O₂ for new incinerator facilities capable of processing more than 250 tons/day of wastes.

(f) Opacity. The opacity as measured visually or by a transmissometer shall not exceed 10 percent for a period aggregating more than six minutes in any 60 minute period.

(g) Fugitive Emissions. Solid waste incinerator facilities shall be operated in a manner which prevents or minimizes fugitive emissions, including the paving of all normally traveled roadways within the plant boundary and enclosing all material transfer points.

(h) Other Wastes. No incinerator subject to these rules shall burn radioactive or hazardous waste, or any other wastes not specifically authorized in the Department's Air Contaminant Discharge Permit.

(i) Other Contaminants. In the absence of an air-contaminant-specific emission limit or ambient air quality standard, the Department may establish by permit emission limits for any hazardous air contaminants that are more protective of human health and the environment for any waste incinerator subject to these rules.

Design and Operation

340-25-870 (1) Temperature and Residence Time. Each incinerator shall be designed to maintain combustion gases at a minimum temperature of 1800°F for at least one second residence time. For a multi-chamber incinerator, these parameters must be met after the primary combustion chamber, which shall be maintained at no less than 1400°F.

(2) Auxiliary Burners. Each incinerator shall be designed with automatically controlled auxiliary burners capable of maintaining the combustion chamber temperatures specified in (1), and shall have sufficient auxiliary fuel capacity to maintain said temperatures.

(3) Interlocks. Each incinerator shall be designed with an interlock system which:

(a) prevents charging until the final combustion chamber reaches 1800°F;

(b) for batch-fed incinerators, prevents recharging until each combustion cycle is complete;

(c) ceases charging if the incinerator temperature falls below either 1800°F for any continuous 15-minute period; and

(d) ceases charging if carbon monoxide levels exceed 150 ppm, corrected to 7 percent O₂ over a continuous 15-minute period.

Existing incinerators may request from the Department, and the Department may grant, an exemption for installing an interlock system, if it can be shown to the satisfaction of the Department that such a system would not allow sufficient flexibility in operation, or that significant technical or economic constraints would prevent retrofitting.

(4) Air Locks. All infectious waste facilities with mechanically fed incinerators shall be designed with an air lock control system to prevent opening the incinerator to the room environment. The volume of the loading system must be designed so as to prevent overcharging to assure complete combustion of the waste.

(5) Flue Gas Outlet Temperature. Each incinerator shall be designed such that the flue gas temperature at the outlet from the primary control device does not exceed 350°F, unless it can be demonstrated that a greater collection of condensible matter can be achieved at a higher outlet temperature.

(6) Combustion efficiency. Except during periods of startup and shutdown, all waste incinerators shall achieve a combustion efficiency of 99.9 percent based on a running eight-hour average, computed as follows:

$$CE = \frac{CO_2}{(CO_2 + CO)} \times 100$$

CO = Carbon monoxide in the exhaust gas, parts per million by volume (dry)

CO₂ = Carbon dioxide in the exhaust gas, parts per million by volume (dry)

(7) Stack Height. All incinerator stacks shall be designed in accordance with Good Engineering Practice (GEP) as defined in Title 40, Code of Federal Regulations, Parts 51.100(ii) and 51.118, in order to assure compliance with applicable air standards, and to avoid the flow of stack pollutants into any building ventilation intake plenum.

(8) Operator Training and Certification. Each incinerator shall be operated at all times under the direction of one or more individuals who have received training necessary for proper operation. A description of the training program shall be submitted to the Department for approval. A satisfactory training program shall consist of any of the following:

(a) Certification by the American Society of Mechanical Engineers (ASME) for solid waste incinerator operation; or

(b) For infectious waste incineration, successful completion of EPA's Medical Waste Incinerator Operator training course; or

(c) Other certification or training by a qualified organization as to proper operating practices and procedures, which has been pre-approved by the Department prior to enrollment. In addition, the owner or operator of an incinerator facility shall develop and submit a manual for proper operation and maintenance, to be reviewed with employees responsible for incinerator operation on an annual basis.

(9) In cases where incinerator operation may cause odors which unreasonably interfere with the use and enjoyment of property, the Department may require by permit the use of good practices and procedures to prevent or eliminate those odors.

Continuous Emission Monitoring

340-25-875 (1) All solid waste incinerators shall operate and maintain continuous monitoring for the following:

(a) Sulfur dioxide;

(b) Carbon monoxide;

(c) Opacity;

(d) Final Combustion Chamber Exit Temperature;

(e) Control Equipment Outlet Temperature;

(f) Oxygen; and

(g) Nitrogen Oxide - new facilities only (over 250 tons/day).

(2) All infectious waste incinerators shall operate and maintain continuous monitoring for the following:

(a) Carbon monoxide;

(b) Opacity; and

(c) Final Combustion Chamber Exit Temperature

(3) The Department may at any time following the effective date of these rules, require the installation of hydrogen chloride monitors for any solid and infectious waste incinerator, or sulfur dioxide monitors for any infectious waste incinerator, if the Department determines such monitoring is necessary, in order to demonstrate compliance with the hydrogen chloride emission limit.

(4) The monitors specified above shall comply with EPA performance specifications in Title 40, Code of Federal Regulations, Part 60, Appendix B., and the Department's CEM Manual. All monitoring equipment shall be located so as to accurately monitor emission levels, in order to demonstrate compliance with section 340-25-865 of these rules.

Reporting and Testing

340-25-880 (1) Reporting:

(a) Stack test results shall be reported to the Department within sixty (60) days of completion.

(b) 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 one year and shall be furnished to the Department upon request.

(2) Source Testing:

(a) All waste incinerators subject to these rules must be tested to demonstrate compliance with the standards in these rules.

(b) Source testing shall be conducted at the maximum design rate using waste that is representative of normal operation. If requested by the owner/operator, source testing may be performed at a lower rate, however, permit limits will be established based on the lower rate of operation.

(c) Unless otherwise specified by the Department, each incinerator shall be tested at start-up and annually thereafter for particulate, hydrogen chloride, sulfur dioxide, and carbon monoxide emissions.

(3) Hazardous or Toxic Air Contaminant Source Testing. The Department may at any time after the effective date of this rule, conduct or require source testing and require access to information specific to the control, recovery, or release of hazardous or toxic air contaminants.

Compliance

340-25-885 (1) All existing waste incinerators must demonstrate compliance with the applicable provisions of these rules within five (5) years of the effective date of these rules. Existing data such as that collected in accordance with the requirements of an Air Contaminant Discharge Permit may be used to demonstrate compliance.

(2) All existing waste incinerators shall be subject to these rules upon demonstration of compliance pursuant to paragraph (1) of this section. Until compliance is demonstrated, existing sources shall continue to be subject to the provisions of OAR 340-21-025 and OAR 340-21-027 and all applicable permit conditions.

(3) New waste incinerators must demonstrate compliance with the emission limits and operating requirements of these rules in accordance with a schedule established by the Department before commencing regular operation.

(4) Compliance with these rules does not relieve the owner or operator of the source from the responsibility to comply with requirements of the Department's Solid and Hazardous Waste rules, Oregon Administrative Rules, Chapter 340, Division 61, regarding the disposal of ash generated from waste incinerators.

Crematory Incinerators

Emission Limitations

340-25-890 (1) No person shall cause to be emitted particulate matter from any crematory incinerator in excess of 0.080 grains per dry standard cubic foot of exhaust gases corrected to 7 percent O₂ at standard conditions.

(2) Opacity. The opacity as measured visually shall not exceed 10 percent for a period aggregating more than six minutes in any 60 minute period.

(3) Other Wastes. As defined in section 340-25-855 (4) of these rules, crematory incinerators may only be used for incineration of human and animal bodies. No other waste, including infectious waste as defined in section 340-25-855(10) of these rules, may be incinerated unless specifically authorized in the Department's Air Contaminant Discharge Permit.

Design and Operation

340-25-895 (1) Temperature and Residence Time. The temperature at the final combustion chamber of shall be 1800°F for new incinerators, and 1600°F for existing, with a residence time of at least one second. At no time while firing waste shall the temperature in the final chamber fall below 1400°F.

(2) Operator Training and Certification. Each crematory incinerator shall be operated at all times under the direction of individuals who have received training necessary for proper operation. A description of the training program shall be submitted to the Department for approval.

(3) Odors. In cases where incinerator operation may cause odors which unreasonably interfere with the use and enjoyment of property, the Department may require by permit the use of good practices and procedures to prevent or eliminate those odors.

Monitoring and Reporting

340-25-900 (1) All crematory incinerators shall operate and maintain continuous monitoring for final combustion chamber exit temperature.

(2) 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 one year and shall be furnished to the Department upon request.

(3) All crematory incinerators must conduct testing to demonstrate compliance with these rules in accordance with a schedule specified by the Department.

Compliance

340-25-905 (1) All existing crematory incinerators must demonstrate compliance with the applicable provisions of these rules within three (3) years of the effective date of these rules. Existing data such as that collected in accordance with the requirements of an Air Contaminant Discharge Permit may be used to demonstrate compliance.

(2) All existing crematory incinerators shall be subject to these rules upon demonstration of compliance pursuant to paragraph (1) of this section. Until compliance is demonstrated, existing sources shall continue to be subject to the provisions of OAR 340-21-025 and all applicable permit conditions.

(3) New crematory incinerators must demonstrate compliance with the emission limits and operating requirements of these rules in accordance with a schedule established by the Department before commencing regular operation.

**RULEMAKING STATEMENTS FOR
PROPOSED INCINERATOR RULES**

STATEMENT OF NEED FOR RULEMAKING

Pursuant to ORS 183.335(7), this statement provides information on the intended action to develop rules.

Legal Authority

This proposal creates Oregon Administrative Rules (OAR) 340-25-850 to 340-25-910. It is proposed under authority of Oregon Revised Statutes (ORS) Chapter 468.020, 468.280, and 468.295.

Need for these rules

The proposed rules are necessary to better protect the public from particulates, acid gases, and toxics emitted by incinerators, by providing a uniform basis for evaluating proposed installations and comparative risks, and providing uniform performance standards for both incineration equipment and monitoring systems.

Principal Documents Relied Upon

Colorado Department of Health: Part B, Regulation No.6, Standards of Performance for New Stationary Sources (Non-Federal NSPS) - Municipal and Biomedical Waste Incinerators, July 20, 1989.

EPA Office of Air Quality Planning and Standards: Proceedings from the National Workshop on Hospital Waste Incineration and Hospital Sterilization, January 1989.

EPA Office of Research and Development: Municipal Waste Combustion Study - Report to Congress, June 1987.

Maryland Department of the Environment: Amendments to Incinerator Rule 26.11.08, October 3, 1988.

Minnesota Pollution Control Agency: Proposed Permanent Rules Relating to Waste Combustors and Co-Fired Units, Standards of Performance, August 1989.

New York Department of Environmental Conservation: Proposed Adoption of Title 6 NYCRR Part 219, Incinerators, July 15, 1988.

Pennsylvania Department of Environmental Resources: Best Available Technology and Chapter 127 Plan Approval Criteria for Municipal and Hospital/Infectious Waste Incineration Facilities, August 16, 1989.

Wisconsin Department of Natural Resources: Guidelines for Infectious Waste Incinerators, April 1988.

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

NOTICE OF PUBLIC HEARING

Hearing Dates: December 13, 15, and 18, 1989
Comments Due: December 22, 1989

**WHO IS
AFFECTED:**

Any municipal or infectious waste incinerator facility subject to requirements and provisions of an Air Contaminant Discharge Permit in Oregon.

**WHAT IS
PROPOSED:**

The Department of Environmental Quality is proposing new waste incinerator rules OAR 340-25-850 to 885.

**WHAT ARE THE
HIGHLIGHTS:**

The Department is proposing new waste incinerator rules which will serve to better protect the public from particulates, acid gases, and toxics, provide a uniform basis for evaluating proposed installations and comparative risks, and provide uniform performance standards for both incineration equipment and monitoring systems, and allow existing installations up to five years to comply.

**HOW TO
COMMENT:**

Copies of the complete proposed rule package may be obtained from the Air Quality Division in Portland 811 S.W. Sixth Avenue or the regional office nearest you. For further information contact Brian R. Finneran at (503) 229-6278.

Public hearings will be held before a hearings officer at:

10:00 AM
Wednesday, December 13, 1989
Rm 4A, 4th Fl, Executive Bldg.
Dept. of Environmental Quality
811 SW 6th Ave
Portland, OR 97204

9:00 AM
Friday, December 15, 1989
Jackson County Courthouse
10 S Oakdale
Medford, Oregon

12:00 PM
Monday, December 18, 1989
Deschutes County Adm. Bldg.
1130 NW Harriman
Bend, Oregon 97701

Oral and written comments will be accepted at the public hearings. Written comments may be sent to the DEQ, but must be received by no later than Friday, December 22, 1989.

E-1



811 S.W. 6th Avenue
Portland, OR 97204

11/1/86

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

LAND USE CONSISTENCY STATEMENT

The Department has concluded that the proposed rule amendments do not appear to affect land use and will be consistent with Statewide Planning Goals and Guidelines. With regard to Goal 6, (air, water, and land resources quality), the proposed changes are designed to enhance and preserve air quality in the state and are considered consistent with the goal. The proposed rule changes do not appear to conflict with the other goals.

Public comment on any land use issue involved is welcome and may be submitted in the same fashion as indicated for other testimony on these rules.

It is requested that local, state, and federal agencies review the proposed action and comment on possible conflicts with their programs affecting land use and with Statewide Planning Goals within their expertise and jurisdiction.

FISCAL AND ECONOMIC IMPACT STATEMENT

Sources affected by these proposed rules are waste incinerators which, as required by OAR 340-20-140, must obtain an Air Contaminant Discharge Permit and comply with the permit conditions and current applicable air quality regulations. As a result, sources are subject to the costs of control and compliance for limiting incinerator emissions. The proposed new rules may significantly increase these costs by requiring new and existing sources to install additional particulate and gaseous pollution control equipment (scrubbers, baghouses, ESP's), auxiliary burners, and continuous monitoring equipment systems (CEMS) in order to meet tighter particulate emission levels than current standards, more stringent standards for HCl, SO₂, and CO, and operation and performance testing requirements. Existing sources will be given up to five years to retrofit with the necessary equipment.

The additional capital and operating costs associated with these rules depends on factors such as the size and type of the incinerator, whether it is a new or existing unit, and the collection efficiency needed to meet the proposed emission levels.

Estimates of capital costs vary considerably based on the amount and price of control and monitoring equipment purchased, the installation cost and auxiliary equipment associated with this equipment, and any replacement or overhaul plans for existing incinerator facilities. Likewise, annual operation and maintenance costs vary considerably based on the type of equipment purchased, manpower requirements, operating time, frequency of maintenance, electricity usage, etc.

Given these variables, an estimated range of costs associated with emissions control, utilizing an electrostatic precipitator or baghouse for particulate control and a wet or dry scrubbing system for acid gas control, would be from \$300,000 - \$700,000. For continuous emission monitoring of the parameters contained in these rules, the total estimated costs would be between \$200,000 - \$400,000. Additional costs could be incurred in providing operator training if sources are to ensure that proper startup, operation and shutdown procedures are followed in order to minimize emissions.

**WHAT IS THE
NEXT STEP:**

After the public hearings, the Environmental Quality Commission may adopt rule amendments identical to the proposed amendments, adopt modified rule amendments on the same subject matter, or decline to act. The adopted rules will be submitted to the U. S. Environmental Protection Agency as part of the State Clean Air Act Implementation Plan. The Commission's deliberation should come in February 22, 1990 as part of the agenda of a regularly scheduled Commission meeting.

A Statement of Need, Fiscal and Economic Impact Statement, and Land Use Consistency Statement are attached to this notice.

PLAN\AR1424

MEMORANDUM

HEARINGS OFFICER'S REPORT

TO: Environmental Quality Commission

FROM: Brian Finneran, Hearings Officer

DATE: January 19, 1990

SUBJECT: Public Hearings: December 13, 1989, Portland
December 15, 1989, Medford
December 18, 1989, Bend

Proposed Incinerator Rules - Amendments to Better Address Municipal Waste, Infectious Waste, and Crematory Units.

Schedule and Procedures

The Department of Environmental Quality held three public hearings on these proposed rules in Portland, Medford, and Bend Oregon, at the times and places announced in the Secretary of State's Bulletin, The Oregonian, The Medford Mail Tribune, and The Bend Bulletin.

A total of 60 people attended the public hearings, with 19 persons providing verbal testimony. Twenty-seven people attended the Portland hearing, five testifying; 29 attended the Medford hearing, 13 testifying; and four attended the Bend hearing, one testifying. Eighteen separate statements were received as written testimony during the public comment period, which ended December 22, 1989.

Primary Positions

Of the 37 people providing verbal and written testimony, 19 indicated that they primarily favored the proposed incinerator rules, 12 indicated they primarily opposed the proposed rules, and 6 indicated a neutral position.

A list of the persons providing testimony is attached to this report. The list includes the name, affiliation, submittal of written testimony, and primary position on the proposed rules as indicated on the witness registration form or by testimony.

Major Issues

The major issues identified during the public comment period are summarized below. The issues can be characterized as follows: 1) no new regulations for small incinerators; 2) crematory incinerators should be exempted, 3) there should be exemptions for small incinerators; 4) adopt tighter new rules/pursue alternatives to infectious waste incineration; and 5) adopt proposed regulations with minor revisions.

The Department's responses to these issues are summarized in Attachment G.

ISSUE NO. 1.: Small Incinerators do not need new regulations.

Testimony was provided by 15 industry representatives, with the majority of these hospital representatives. There were 5 industry representatives who testified that small waste incinerators (under 5 - 10 tons/day), particularly hospital incinerators, which are operated for only a few hours a day, do not have significant emissions, and should not be subject to any new regulation. They added that the costs associated with proposed rules would represent very significant financial hardship, especially for hospitals, and that it could be anticipated that most facilities with small incinerators would be forced to cease operation.

ISSUE NO. 2.: Crematory incinerators should be exempted.

Testimony was provided by 3 persons representing the crematory industry. They stated that crematory incinerators should not be compared with municipal and infectious waste incinerators in terms of both the amount of emissions generated and the risk posed by the emissions. They indicated that crematory incinerators produce very little pollution, and burn virtually no plastic - the primary health risk from incineration. Based on these differences, they stated that the new rules for crematories were unnecessary.

ISSUE NO. 3.: There should be some exemptions for small incinerators under the proposed new rules.

Testimony was provided by 6 persons representing the hospital industry. They testified that the proposed incinerator rules should contain less stringent requirements for small incinerators, citing those reasons specified above in Issue No. 1. The testimony supported adoption of Alternative 4 presented on page 4 of the October 20, 1989 EQC Staff Report, which indicated that the Department considered the option of establishing a "cut-off level for small capacity incinerators under which certain emission standards or monitoring equipment would not apply". Most of this testimony did not recommend a specific cut-off level, or specific limits/controls which should be relaxed. Some testimony did refer favorably to the 2.5 tons/day cutoff mentioned by the Department in the staff report, and to the difficulty in meeting the costs associated with obtaining continuous emission monitoring equipment. However, one industry representative recommended a 10 tons/day cutoff with no continuous emission monitoring, while another recommended a 1 ton/day cutoff with no continuous monitoring and no emission limits for acid gases and carbon monoxide.

ISSUE NO. 4.: Adopt tighter rules and pursue alternatives to infectious waste incineration.

Testimony was received from 16 people generally supporting the proposed rules, but favoring tighter restrictions requiring disposal alternatives to incineration. Most of this testimony came from members of the following organizations: American Lung Association, Citizens for BACT, Coalition to Improve Air Quality, Concerned Citizens for Klamath Quality Living, League of Women Voters, and the Sierra Club. The focus of this testimony was on these main points:

- 1). Greater care must be taken in siting incinerator plants. All testimony on this item objected to the locating of the Bio-Waste Incinerator facility located near Klamath Falls, Oregon. Cited was the lack of an environmental impact study for the site, and concern over the facility's recent startup and dioxin emissions.
- 2). Classify all infectious waste as hazardous waste, so that greater care will be taken in its handling and transport, and in the disposal of ash.
- 3). Monitor incinerator emissions for carcinogenic compounds, such as dioxins and cadmium, to ensure that levels are below current acceptable levels.
- 4). Do not permit incinerators to combine solid and infectious waste in the same unit.
- 5). Require incinerator facilities to curtail operations during periods of poor air quality, air inversions, and "no burn" woodstove days.
- 6). Alternatives to waste incineration should be pursued, such as waste reduction, recycling, and sterilization. Material separation should be practiced so that the amount of plastic burned is minimized.

ISSUE NO. 5.: Adopt the proposed rules with minor revisions.

Testimony was provided by 6 people supporting the proposed rules, with minor revisions. This testimony came from representatives of the following organizations: the U.S. Environmental Protection Agency, Oregon Health Division, Josephine County Infectious Waste Committee, Ogden-Martin Systems, Inc., and Therm-Tec, Inc. The primary revisions requested in the testimony are listed below:

- 1). Remove the requirement for continuous emission monitoring of hydrogen chloride (HCl), as this monitoring method has not been certified by EPA, and the only reliable HCL monitor on the market is too expensive (over \$100,000).
- 2). Shorten the compliance time for all existing incinerators from 5 to 3 years. Three years provides enough time to retrofit.

- 3). Expand on the requirement for "an independently trained operator". Rules should require that an operator be certified, not just independently trained.
- 4) Make changes to the following limits: a) change flue gas outlet temperature from 300°F to 350°F; b) tighten particulate emissions from .020 and .030 to .010 or .015 gdsf; c) change 10% opacity to 5%; and d) change the 150 ppm CO lockout requirement to allow startup and shutdown periods.

INCINERATOR RULE PUBLIC TESTIMONY

TESTIMONY	¹	NAME	AFFILIATION	PRIMARY POSITION	²
1.	v	Tony Burg	Bay Area Hospital		O
2.	b	Ray Mensing	Oregon Hospital Association		O
3.	b	Drew Lehman	Ogden-Martin Systems, Inc.		N
4.	b	Duane Ohlsen	St. Vincent Hospital		N
5.	v	A.J. Haber	Oregon Society for Hospital Engineering		O
6.	b	Robert Howard	Merle West Medical Center		O
7.	b	Craig Hartl	Rogue Valley Medical Center		O
8.	b	Wallace Skyrman	Citizen		F
9.	b	John Yarbrough	Concerned Citizens for Klamath Quality Living		F
10.	b	Jen Love	Concerned Citizens for Klamath Quality Living		F
11.	b	C. Herschel King M.D.	Sierra Club		F
12.	b	Robert Palzer M.D.	Coalition to Improve Air Quality		F
13.	b	Vera Morrell	Coalition to Improve Air Quality		F
14.	v	Mavis McCormic	Citizen		F
15.	b	Wendy Dickerman	Citizens for BACT		F
16.	b	Vickie Anderson	Citizens for BACT		F
17.	b	Andrew Gigler	Citizen		F
18.	v	Gary Lundberg	Lundberg Funeral Home		O
19.	v	Lee Wilson	Blue Mountain Hospital		O
20.	w	Frank Hirst	Citizen		F
21.	w*	Colleen Bennett, Jeanne Roy	League of Women Voters		N
22.	w	Patricia Kuhn	Coalition to Improve Air Quality		F
23.	w	Virginia Killion	Citizens for BACT		F
24.	w	Candice Bartow	City of Grants Pass		F
25.	w	Bill Olson	Josephine County Infectious Waste Committee		F
26.	w	Diana Coogle	Sierra Club		F
27.	w	Dean Robbins	Therm-Tec, Inc.		N
28.	w	James Sears	Marion County Solid Waste Dept.		N
29.	w	Mona Elkan	Citizen		F

30.	w	Ronald Ponto	Providence Hospital	O
31.	w	Donna Clark	Oregon Health Division	F
32.	w	Richard Posse	St. Helens Hospital	O
33.	w	George Abel	U.S. Environmental Protection Agency	F
34.	w	David Hamilton	Twin City Cemetery	O
35.	w*	Gordon Ross, Doc Stevenson, Jack Beebe	Coos County Board of Commissioners	O
36.	w	James Garrett	Oregon Funeral Directors Association Association for Funeral Services Professionals Oregon Cemetery Association	N
37.	w	Paul Reed	Sacred Heart Hospital	O

1 Testimony v = Verbal
 w = Written
 b = Both

2 Primary Position F = Favor
 O = Opposed
 N = Neutral

* Written statement signed by more than one person

BRF:a
 PLAN\AH839 (1/90)

**DEPARTMENT'S RESPONSE TO TESTIMONY RECEIVED AT THE
PUBLIC HEARINGS ON PROPOSED INCINERATOR RULES**

Issue No. 1.: Small Incinerators do not need new regulations.

Small waste incinerators (under 5 - 10 tons/day), particularly hospital incinerators, which are operated for only a few hours a day, do not have significant emissions, and should not be subject to any new regulation. In addition, the costs associated with proposed rules would represent very significant financial hardship, especially for hospitals, and most facilities with small incinerators would be forced to cease operation.

Response: The Department recognizes the costs associated with the proposed rules will be substantial, as indicated in the Fiscal and Economic Statement, and that for smaller incinerator facilities these costs may be prohibitive. However, the Department disagrees that small incinerators generate air contaminants that are "insignificant". Findings from recent health effects research has prompted many states and the Environmental Protection Agency to take significant steps to reduce air contaminants from waste incinerators. There is growing evidence to indicate that current air pollution standards do not adequately protect the public and the environment from the fine particulates, acid gases, and toxic organic compounds generated by any size of incinerator. This condition is magnified in Oregon, which has more restricted ventilation than most states. In addition, most waste incinerators operate uncontrolled, with little or no pollution control equipment, nor do they achieve the high temperatures and combustion efficiency necessary to limit the formation of toxic air contaminants such as dioxins and furans. Limited risk assessments conducted by the Department on small incinerators have indicated that, despite lower emission rates, hazards exist from toxic air pollutants similar to large facilities. This is the case because smaller units are normally located closer to population and have lower stack heights, which limit plume rise and cause increased ground-level impacts. Despite limited information on areawide and near-source concentrations of toxic air contaminants in Oregon, there is nonetheless sufficient justification to warrant proposing new rules which would significantly reduce all air emissions from waste incinerators, regardless of size. New state legislation specifies incineration of infectious waste as the primary disposal means. This legislation could greatly increase the incineration of such waste, thus creating a greater need to insure such emissions do not cause any adverse impacts.

Issue No. 2.: Crematory incinerators should be exempted.

Crematory incinerators should not be compared with municipal and infectious waste incinerators in terms of both the amount of emissions generated and the risk posed by the emissions. These incinerators produce very little

pollution, and burn virtually no plastic - the primary health risk from incineration. Based on these differences, the new rules for crematories are unnecessary.

Response: The Department recognizes the differences between crematory and municipal/infectious waste incinerators, particularly that there is a significantly greater amount of plastic burned in the latter. It was because of this factor that the Department's proposed rules contain less stringent emission, design, operation, monitoring, testing and reporting requirements for crematories than for solid/infectious waste incinerators. The Department believes that while the proposed requirements for crematory incinerators are already considerably less stringent than those for solid/infectious waste incinerators, they contain necessary standards for minimizing emissions from this kind of incineration to insure protection of public health.

Issue No. 3.: There should be some exemptions for small incinerators under the proposed new rules.

The proposed incinerator rules should contain less stringent requirements for small incinerators, since they produce considerably less pollution than larger incinerators, and that they will find it more difficult to meet the costs associated with the proposed rules. Adopt Alternative 4, as discussed on page 4 of the October 20, 1989 EQC Staff Report. This alternative establishes a "cut-off level for small capacity incinerators under which certain emission standards or monitoring equipment would not apply". Possible cut-off levels could be 1, 2.5, or 10 tons/day. For incinerators of this capacity, eliminate all or part of the continuous emission monitoring requirements, and/or the emission limits for acid gases and carbon monoxide.

Response: The Department stated in the October 20, 1989 EQC Staff Report on page 5 (Department Recommendations) that while it recognizes that smaller incinerators "will be more adversely affected by the costs associated with the proposed limits and controls...establishing less stringent requirements for these units, as proposed in Alternative 4, would not be consistent with the overall goal of uniformly protecting the public from incinerator pollution". The Department disagrees with the testimony that less stringent limits or controls should be established for smaller incinerators. This would represent applying a "double standard" to waste incineration, leaving some of the public at higher risk to toxic air pollutants than others. The Department believes that until more is known about safe levels of exposure to dioxin and other carcinogenic compounds, uniform standards should be established for waste incineration which affords the greatest level of protection to the public and the environment by applying the best available control technology.

Issue No. 4.: Adopt tighter rules and pursue alternatives to infectious waste incineration.

- 1). Establish requirements for siting incinerator plants. An environmental impact study should be required for each site.

- 2). Classify all infectious waste as hazardous waste, so that greater care will be taken in its handling and transport, and in the disposal of ash.
- 3). Monitor incinerator emissions for carcinogenic compounds, such as dioxins and cadmium, to ensure that levels are below current acceptable levels.
- 4). Do not permit incinerators to combine solid and infectious waste in the same unit.
- 5). Require incinerator facilities to curtail operations during periods of poor air quality, air inversions, and "no burn" woodstove days.
- 6). Pursue alternatives to waste incineration, such as waste reduction, recycling, and sterilization. Minimize the amount of plastic that is burned.

Response:

- 1). The Department does not currently have any requirements for an environmental impact study. Instead, the Department addresses all issues during the permit issuance process. The Bio-Waste facility received a technical evaluation to determine if it could meet existing requirement for Highest and Best Practicable Treatment and Control. The Department found the facility to be capable of meeting these requirements, and the permit was approved. Included in this was an assessment that the incinerator design would essentially destroy toxic organic materials, including dioxins, and that the pollution control equipment (wet scrubber) would effectively capture emissions not incinerated. In addition, under the proposed new incinerator rules, the facility would meet nearly all of the new requirements.
- 2). Infectious waste does not currently meet the definitions of hazardous waste (ORS 459-410 and OAR-61-010) in Oregon. However, current DEQ policy requires the testing of ash from infectious waste incinerators to determine whether it should be classified as hazardous. This testing is in accordance with EPA test methods. If the ash is determined to be hazardous, disposal must occur at a hazardous waste disposal facility permitted under the Department's hazardous waste statutes and rules.

In terms of the safe handling and transport of waste, many hospitals already contract with private companies for the collection of infectious wastes at regional facilities. The new infectious waste law passed by the 1989 Legislature (Chapter 763, Oregon Laws), which essentially mandates incineration as the preferred alternative, will have significant impact on the storage, transport, and disposal of infectious waste. Medical facilities will be required to segregate infectious waste from noninfectious waste at the medical facility. Waste collection companies will be required to transport infectious waste in separate, non-compacting trucks. Currently, vehicles used to transport must comply with all applicable federal, state, and local

requirements for commercial transportation. The Department's authority contained in OAR 340-61-070 and -075 requires that vehicles and containers used to collect and transport waste be constructed, operated and maintained so as to not release contaminants into the environment.

- 3). The Department has specifically incorporated into its proposed incinerator rules the primary mechanisms for effectively controlling carcinogenic air emissions: 1) use of good combustion technology (i.e., requirements for 1800°F, 1 second residence time, and 99.9% combustion efficiency); 2) high particulate capture rate; and 3) high acid gas controls. These factors along with the other requirements for BACT, good operation and maintenance, and source testing, will insure that toxic emission levels stay below currently acceptable limits.
- 4). The Department can restrict by permit the types of waste an incinerator facility can burn. The proposed rules would prohibit the burning of hazardous and radioactive waste. The combination of solid and infectious waste was not considered to be a problem since control requirements are essentially the same, and is not addressed in the rules. If necessary, this restriction could be specified as a permit condition.
- 5). Restricting incinerator operation in an area experiencing poor air quality or a strong inversion is again a matter to be addressed by permit condition rather than by administrative rule. In order to curtail operation under these conditions, it would need to be shown on a case-by-case basis that the incinerator facility would have a measurable impact on air quality within the airshed. With the application of BACT; however, it is anticipated that incinerator emissions will not be significant.
- 6). The Department agrees that alternatives to waste incineration need to be developed and actively pursued. Other than landfilling and incineration, disposal options for waste at present are extremely limited. Recycling poses a problem for infectious waste, due to the presence of pathological waste and other putrescible material. Given the limits on availability of landfill space, and the environmental damage and health risk associated with landfills, incineration of waste in well designed incinerators equipped with high efficiency pollution control systems has become a more acceptable alternative. In fact, the new state infectious waste law passed by the 1989 Oregon Legislature requires it to be disposed of by incineration rather than landfilling.

Issue No. 5.: Adopt the proposed rules with minor revisions.

- 1). Remove the requirement for continuous emission monitoring of hydrogen chloride (HCl), as this monitoring is not certified by EPA, and the only reliable HCL monitor on the market is too expensive (over \$100,000).
- 2). Shorten the compliance time for all existing incinerators from 5 to 3 years. Three years provides enough time to retrofit.

- 3). Include in the requirement for "an independently trained operator" that the operator also be certified.
- 4). Change the following limits: a) flue gas outlet temperature should be 350°F not 300°F; b) particulate emissions .020 and .030 changed to .010 or .015 gdsf; c) 10% opacity changed to 5%; and d) the 150 ppm CO lockout requirement changed to allow startup and shutdown periods.

Response:

- 1). Department staff contacted continuous emissions monitoring equipment vendors concerning the reliability and cost of HCl monitors, and found that reliable monitors are very expensive (over \$100,000). There are less expensive monitors available (in the range of \$30,000 to \$40,000), but they are not "state-of-the-art" equipment and may be subject to interference causing inaccurate readings. Given the fact that wet scrubbing systems provide good control of acid gas emissions, and that SO₂ continuous monitoring can serve as a general indicator of acid gas emissions, the Department is removing the HCl continuous monitoring requirement. Instead, the Department will only require HCl continuous monitoring on a case-by-case basis if acceptable control of acid gas emissions cannot be demonstrated by the source. Also, the Department will keep the requirement for periodic HCl source testing and continuous SO₂ monitoring.
- 2). Due to the many new limits and controls contained in the proposed rules for existing solid and infectious waste incinerators, the Department believes shortening the compliance period from 5 to 3 years would be a burden to these sources, and is therefore inappropriate. However, since the new requirements for crematory incinerators have many fewer limits and controls requiring retrofitting, the Department believes this revision from 5 to 3 years provides an adequate time period and is appropriate, and has added this to the proposed rules.
- 3). The Department agrees that an expansion to this requirement is warranted. Since the initial preparation of the proposed incinerator rules, EPA has issued proposed new rules for municipal waste incineration. Contained in these proposed rules is a requirement for operator training and certification. The Department has taken this language, along with other language for hospital incinerator training, and added it to its proposed rules.
- 4).
 - a). The Department has agreed to the change in flue gas exit temperature from 300°F to 350°F, as it concurs that adequate condensation of trace organics and metals can be obtained at the higher temperature.
 - b). The Department also agrees that .015 gscf is an appropriate particulate standard for new incinerators, but not for existing incinerators. It is anticipated that space and siting limits might prevent existing facilities from installing a dry scrubber/baghouse control system. While wet scrubbing systems can be expected to meet only .030 gscf, they provide for high rates of

acid gas and organic removal, and are smaller and less expensive than baghouse systems. Therefore, the proposed rules have been changed to reflect particulate limits of .015 gscf and .030 gscf for new and existing incinerators, respectively.

- c). The Department disagrees that the opacity limit should be reduced from 10% to 5%, since such a limit could not be determined through human observation. The federal smoke observer certification requirement, as defined in 40 CFR 60 Appendix A, specifies that visual observation readings are acceptable to a plus or minus 7.5% accuracy. A 5% opacity reading would have questionable enforceability under the terms of existing compliance methods.
- d). The requirement in the proposed rules for an interlock system which ceases charging if carbon monoxide levels fall below 150 ppm has been revised to allow for a period of startup and shutdown. The Department has added language which allows for a "continuous 15 minute period" to satisfy this requirement.

PLAN\AH872

EXISTING INCINERATOR RULES

OREGON ADMINISTRATIVE RULES

CHAPTER 340, DIVISION 21 - DEPARTMENT OF ENVIRONMENTAL QUALITY

(a) As dark or darker in shade as that designated as No. 1 on the Ringlemann Chart; or

(b) Equal to or greater than 20% opacity.

(3) Exceptions to sections (1) and (2) of this rule:

(a) Where the presence of uncombined water is the only reason for failure of any emission to meet the requirements of sections (1) and (2) of this rule, such sections shall not apply;

(b) Existing fuel burning equipment utilizing wood wastes and located within special control areas shall comply with the emission limitations of section (1) of this rule in lieu of section (2) of this rule.

[Publications: The publication(s) referred to or incorporated by reference in this rule are available from the office of the Department of Environmental Quality.]

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 16, f. 6-12-70, ef. 7-11-70

Fuel Burning Equipment Limitations

340-21-020 (1) No person shall cause, suffer, allow, or permit the emission of particulate matter, from any fuel burning equipment in excess of:

(a) 0.2 grains per standard cubic foot for existing sources;

(b) 0.1 grains per standard cubic foot for new sources.

(2) For sources burning salt laden wood waste on July 1, 1981, where salt in the fuel is the only reason for failure to comply with the above limits and when the salt in the fuel results from storage or transportation of logs in salt water, the resulting salt portion of the emissions shall be exempted from subsection (1)(a) or (b) of this rule and rule 340-21-015. In no case shall sources burning salt laden wood waste exceed 0.6 grains per standard cubic foot. Sources which utilize this exemption, to demonstrate compliance otherwise with subsection (1)(a) or (b) of this rule, shall:

(a) Not exceed a darkness of Ringleman 2 from the boiler stacks for more than three minutes in any one hour;

(b) Submit the results of a particulate emissions source test of the boiler stacks bi-annually.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 16, f. 6-12-70, ef. 7-11-70; DEQ 12-1979, f. & ef. 6-8-79; DEQ 6-1981, f. & ef. 2-17-81; DEQ 18-1982, f. & ef. 9-1-82

Refuse Burning Equipment Limitations

340-21-025 No person shall cause, suffer, allow, or permit the emission of particulate matter from any refuse burning equipment in excess of:

(1) For equipment designed to burn 200 pounds of refuse per hour or less, 0.3 grains per standard cubic foot; or

(2) For equipment designed to burn more than 200 pounds of refuse per hour:

(a) 0.2 grains per standard cubic foot for existing sources, or

(b) 0.1 grains per standard cubic foot for new sources, except that small to medium size municipal waste incinerators located in coastal areas as defined in OAR 340-21-005(1) shall be subject to OAR 340-21-027 and larger municipal incinerators shall be subject to provisions of OAR 340-20-220 to 340-20-275.

Stat. Auth.: ORS Ch. 468
Hist.: DEQ 16, f. 6-12-70, ef. 7-11-70; DEQ 1-1984, f. & ef. 1-16-84

Municipal Waste Incinerator in Coastal Areas

340-21-027 (1) No person shall cause, suffer, allow, or permit the operation of any municipal waste incinerator in coastal areas which violates the following emission limits and requirements:

(a) Particulate Emissions:

(A) For municipal waste incinerators capable of processing not more than 50 tons/day of wastes, 0.2 grains per standard cubic foot of exhaust gases,

(B) For municipal waste incinerators capable of processing greater than 50 tons/day of wastes, 0.08 grains per standard cubic foot of exhaust gases.

(b) Minimum Exhaust Gas Temperatures:

(A) Prior to the initial charge of wastes and for the first 30 minutes of incineration of the initial charge, 1600° F. for one second,

(B) For the period beginning 30 minutes after the initial charge of wastes to the time of the final charge, 1800° F. for one second or 1700° F. for two seconds or a temperature and corresponding residence time linearly interpolated between the aforementioned two points,

(C) For a two hour period after the final charge of waste, 1600° F. for one second.

(c) Visible Emissions and Particle Fallout Limitations of OAR 340-21-015 and 340-31-045, respectively.

(2) Each operator of a municipal waste incinerator in a coastal area shall monitor the exhaust gas temperatures of each of its incinerators with a continuous recording pyrometer. The pyrometer shall be located at a point within the incinerator exhaust system which has been judged by the Department through plan review to represent a place that can demonstrate compliance or non-compliance with minimum exhaust gas temperature requirements in subsection (1)(b) of this rule. The operator shall retain its pyrometer records for one year unless at the expiration of the year an enforcement matter is pending against the operator, in which case the operator shall retain the records until the enforcement matter is finally terminated by an Order. The operator shall make its pyrometer records available to the Department of Environmental Quality upon request.

(3) In cases of multiple incinerators at one site, the 0.2 grain per standard cubic foot particulate emission standard in paragraph (1)(a)(A) of this rule for individual municipal waste incinerators up to 50 tons/day capacity, shall apply only up to a combined capacity of 150 tons/day.

(4) Municipal waste incinerators in coastal areas, installed between 1970 and 1982, of 13 tons/day capacity and less, are exempt from subsections (1)(a) and (b) of this rule, but shall emit particulate at a concentration less than 0.30 gr/scf.

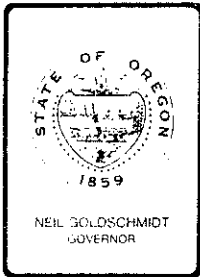
Stat. Auth.: ORS Ch. 468
Hist.: DEQ 1-1984, f. & ef. 1-16-84

Particulate Emission Limitations for Sources Other Than Fuel Burning and Refuse Burning Equipment

340-21-030 No person shall cause, suffer, allow, or permit the emission of particulate matter, from any air contaminant source other than fuel burning equipment or refuse burning equipment, in excess of:

(1) 0.2 grains per standard cubic foot for existing sources; or

(2) 0.1 grains per standard cubic foot for new sources.



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: October 20, 1989
 Agenda Item: S
 Division: Air Quality
 Section: Planning & Development

SUBJECT:

Incinerator Rule - Amendments to Better Address Municipal and Hospital Units

PURPOSE:

New rules for incinerators will serve to better protect the public from particulates, acid gases and toxics, by providing a uniform basis for evaluating proposed installations and comparative risks, and providing uniform performance standards for both incineration equipment and monitoring systems.

ACTION REQUESTED:

- Work Session Discussion
- General Program Background
- Potential Strategy, Policy, or Rules
- Agenda Item for Current Meeting
- Other: (specify)
- Authorize Rulemaking Hearing
- Adopt Rules
- | | |
|--------------------------------------|---------------------|
| Proposed Rules | Attachment <u>A</u> |
| Rulemaking Statements | Attachment <u>B</u> |
| Fiscal and Economic Impact Statement | Attachment <u>B</u> |
| Public Notice | Attachment <u>C</u> |
- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
- | | |
|----------------|------------------------|
| Proposed Order | Attachment <u> </u> |
|----------------|------------------------|
- Approve Department Recommendation
- | | |
|---|------------------------|
| <input type="checkbox"/> Variance Request | Attachment <u> </u> |
| <input type="checkbox"/> Exception to Rule | Attachment <u> </u> |
| <input type="checkbox"/> Informational Report | Attachment <u> </u> |
| <input type="checkbox"/> Other: (specify) | Attachment <u> </u> |

Meeting Date: October 20, 1989
Agenda Item: S
Page 2

DESCRIPTION OF REQUESTED ACTION:

The proposed incinerator rules would:

1. Apply to all existing, new or modified solid waste, infectious waste and crematory facilities in Oregon;
2. Set uniform emission standards for particulate based on capacity (over 50 tons/day - 0.02 grains/standard cubic foot (scf), under 50 tons/day - 0.03 grains/scf)), hydrogen chloride (50 parts per million (ppm)), sulfur dioxide (50 ppm), and carbon monoxide (100 ppm);
3. Set design and operation requirements for temperature (1800°F in final combustion zone), residence time (1-2 seconds), combustion efficiency (99.9 percent), opacity (10 percent), and control equipment (BACT).
4. Require continuous emission monitoring (CEMS) and testing requirements;
5. Develop a procedure for retrofitting existing facilities, allowing up to five years for installation of new equipment.

AUTHORITY/NEED FOR ACTION:

<input type="checkbox"/> Required by Statute: _____	Attachment _____
Enactment Date: _____	
<input checked="" type="checkbox"/> Statutory Authority: <u>ORS 468.020/468.295</u>	Attachment _____
<input checked="" type="checkbox"/> Pursuant to Rule: <u>OAR 340-21-025 to -027</u>	Attachment _____
<input type="checkbox"/> Pursuant to Federal Law/Rule: _____	Attachment _____
<input checked="" type="checkbox"/> Other: OAR 340-25-055 (NSPS), OAR 340-20-220 to -275	Attachment _____
<input type="checkbox"/> Time Constraints: (explain)	

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/> Advisory Committee Report/Recommendation	Attachment _____
<input type="checkbox"/> Hearing Officer's Report/Recommendations	Attachment _____
<input type="checkbox"/> Response to Testimony/Comments	Attachment _____
<input type="checkbox"/> Prior EQC Agenda Items: (list)	Attachment _____
<input type="checkbox"/> Other Related Reports/Rules/Statutes:	Attachment _____
<input type="checkbox"/> Supplemental Background Information	Attachment _____

Existing rules pertaining to incinerators are focused solely on particulate emissions from refuse burning (OAR 340-21-025), municipal waste incinerators in coastal areas (OAR 340-21-027 and OAR 340-20-220 to -275), and new or modified incinerators (Federal new source standards adopted and enforced by the Department of Environmental Quality (DEQ, Department)) of more than 50 tons per day (OAR 340-25-555). Various particulate and opacity standards exist in the current rules, along with temperature and residence time requirements. Air Contaminant Discharge Permits set other limits (CO, NO_x, SO₂, etc.) on a case-by-case basis.

Currently in the state there are two coastal municipal refuse incinerator facilities, one mass burn municipal incinerator facility, one commercial infectious waste incinerator facility, and approximately 31 hospital incinerators and 37 crematoriums.

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

The growing concern about the toxicity of incinerator pollutants, given the increasing trend of waste incineration as an alternative to landfilling, has led to numerous studies which have shown potential health risks associated with exposure to the fine particulates, acid gases, and toxics (such as dioxin) emitted from incinerators. In response to this, many states have revised their waste incinerator regulations based on state of the art pollution control equipment and high efficiency combustion technology, to establish emission standards and operational controls which better protect the public and environment.

The proposed rules will require new and existing sources to utilize particulate and gaseous pollution control equipment (scrubbers, baghouses, electrostatic precipitators, and auxiliary burners). In addition, the proposed rules will require continuous monitoring equipment systems (CEMS) in order to meet tighter particulate emission levels than current state standards, set uniform standards for hydrogen chloride (HCl), sulfur dioxide (SO₂), carbon monoxide (CO), design and operation requirements, and performance testing requirements. Existing sources will be given up to five years to retrofit with the necessary equipment. Cost estimates vary greatly depending on the needs of each facility. However, it is likely the capital investment required to build/retrofit and operate incinerators in compliance with the proposed rules will be high, perhaps as much as double the cost of the facility on an annual basis for smaller facilities. Additional costs may be incurred in providing operator training if sources are to ensure that proper startup, operation, and shutdown procedures are followed in order to minimize emissions.

Meeting Date: October 20, 1989
Agenda Item: S
Page 4

PROGRAM CONSIDERATIONS:

The Department currently reviews and permits incinerators on a case-by-case basis, with respect to the contaminants emitted, and estimates public health risk and environmental effects. Current incinerator rules are fragmented and incomplete, and do not uniformly cover all existing and new facilities in the state, nor uniformly address all air contaminants emitted from incinerator facilities. The issue of health effects has prompted much study on the need for more stringent emission standards for incinerators, with many states recently adopting standards as stringent as those proposed.

These incinerator rules would serve to better protect the public from particulates, acid gases, and toxics, and in addition provide a uniform basis for evaluating proposed installations and comparative risks, and provide uniform performance standards for both incineration equipment and monitoring systems.

It is anticipated that these new operating, monitoring, and reporting requirements will place greater workload demands related to compliance and enforcement on the Department's Regional Operations, and the Air Quality and Hazardous & Solid Waste Divisions.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

1. Do not consider new incinerator rules. The Commission can choose to continue to follow current rules and procedures. The process of review and control requirements for new installations would continue to be tailored for each permit application.
2. Develop new rules to address new or modified sources only. Many states have recently revised their incineration rules for new or modified sources only, due to the growing number of new facilities being proposed. Existing facilities could continue to operate under current rules.
3. Develop rules for new facilities and include existing incinerators, allowing such sources a reasonable period (up to five years) for retrofit.
4. Establish a cut-off level for small capacity incinerators under which certain emission standards or monitoring equipment would not apply. The smaller capacity incinerator will have greater difficulty in meeting the costs associated with the more stringent emission standards than the larger units.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends alternative 3, as it believes that more stringent and uniform limits and controls are needed for all existing and future incinerator facilities in Oregon. The Department recognizes that while smaller incinerator units will be more adversely affected by the costs associated with the proposed limits and controls, establishing less stringent requirements for these units, as proposed in alternative 4, would not be consistent with the overall goal of protecting the public from incinerator pollution. The proposed rules will limit emissions of particulate matter, HCl, SO₂, and CO to the levels achievable using best available control technology (BACT). An accompanying benefit of these stringent levels would be the toxic constituents associated with particulate and acid gas emissions. Other parts of the proposed rules, such as design and operating requirements, as well as continuous emission monitoring, are expected to improve operation and thereby limit occurrences of excess emissions.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

The proposed rules are consistent with House Bill 2865 passed in the last legislative session and recently filed with the Secretary of State's Office (related to the incineration of hospital or infectious wastes). Specifically, this legislation authorizes the Environmental Quality Commission, Health Division, and Public Utility Commission to establish requirements for the collection, transportation, storage, treatment and disposal of infectious waste in a manner that protects public health, safety and welfare. The Department of has also been given responsibility to assist in coordinating rule development and implementation. The effective date of legislation is July 1, 1990.

ISSUES FOR COMMISSION TO RESOLVE:

1. Should new incinerator rules be developed which better protect the public from incineration emissions, or should the present situation, rules, and procedures continue to be followed?
2. Should rules be developed which apply only to new or modified facilities, with existing facilities unaffected? If so, should efforts be made to recommend retrofit of recently permitted incineration facilities, and to phase out and eliminate older, poor efficiency incinerators?

Meeting Date: October 20, 1989
Agenda Item: S
Page 6

3. Should less stringent emission standards and monitoring requirements be developed for existing facilities than for new facilities if the costs to retrofit are higher than to build a new facility?
4. Should a cutoff level be established for small capacity incinerator facilities (2.5 tons/day), under which certain emission standards or monitoring equipment do not apply?

INTENDED FOLLOWUP ACTIONS:

1. File public hearing notice with the Secretary of State
2. Hold a public hearing
3. Review oral and written testimony and revise proposed rules as appropriate
4. Return to Commission for final rule adoption

Approved:

Section: John Kowalzyk

Division: Dick D'Alba

Director: Jul House

Report Prepared By: Brian Finneran

Phone: 229-6278

Date Prepared: September 21, 1989

BRF:r
PLAN\AR1353
(9/89)

Incinerator Regulation

OAR 340-25-850 to -905

Purposes and Application

340-25-850 The purpose of these rules is to establish state of the art emission standards, design requirements, and performance standards for all solid and infectious waste and crematory incinerators in order to minimize air contaminant emissions and provide adequate protection of public health. The rules apply to all existing waste incinerators and to all that will be built and/or installed in the State of Oregon.

Definitions

340-25-855 (1) "Acid Gases" means any exhaust gas which includes hydrogen chloride and sulfur dioxide.

(2) "Best Available Control Technology (BACT)" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction of each air contaminant subject to regulation under the Clean Air Act which would be emitted from any source, and which is achievable through application of production processes or available methods, systems, and techniques; including fuel cleaning or treatment, or innovative fuel combustion techniques for control of such air contaminant. In no event shall the application of BACT result in emissions of any air contaminant which would exceed the emissions allowed by any applicable new source performance standard or any standard for hazardous air pollutants. If an emission limitation is not feasible, a design, equipment, work practice, or operational standard, or combination thereof, may be required. Such

standard shall, to the degree possible, set forth the emission reduction achievable and shall provide for compliance by prescribing appropriate permit conditions.

(3) "Continuous Emission Monitoring" means continuously and simultaneously determining the concentration of a substance or substances, and continuously indicating and/or recording the concentration. For the purpose of these rules, withdrawing a discrete sample, analyzing it, and reporting the results at least once every five minutes shall be considered frequent enough to constitute continuous emission monitoring. Continuous monitoring equipment and operation shall be in accordance with continuous emission monitoring systems guidance provided by the Department and shall be consistent, where applicable, with the EPA performance specifications and quality assurance procedures outlined in 40 CFR 60, Appendices B and F, and the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III.

(4) "Crematory Incinerator" means an incinerator used solely for the cremation of human and animal bodies.

(5) "Department" means the Department of Environmental Quality.

(6) "Dry Standard Cubic Foot" means the amount of gas that would occupy a volume of one cubic foot, if the gas were free of uncombined water at standard conditions. When applied to combustion flue gases from waste or refuse burning, "Standard Cubic Foot (scf)" implies adjustment of gas volume to that which would result at a concentration of 12% carbon dioxide or 50% excess air.

(7) "Emission" means a release into the atmosphere of air contaminants.

(8) "Fugitive Emissions" means dust, fumes, gases, mist, odorous matter, vapors or any combination thereof not easily given to measurement, collection, and treatment by conventional pollution control methods.

(9) "Hazardous Air Contaminant" means any air contaminant considered by the Department or Commission to cause or contribute to an identifiable and significant increase in mortality or morbidity, and for which no ambient air standard exists.

(10) "Incinerator" means a device or system in which waste material is destroyed by combustion.

(11) "Infectious Waste" means and includes the following:

(a) "Biological waste," which includes blood and blood products, and body fluids that cannot be directly discarded into a municipal sewer system, and waste materials saturated with blood or body fluids, but does not include soiled diapers.

(b) "Cultures and stocks," which includes etiologic agents and associated biologicals; including specimen cultures and dishes, devices used to transfer, inoculate and mix cultures, wastes from production of biologicals, and serums and discarded live and attenuated vaccines.
"Cultures" does not include throat and urine cultures.

(c) "Pathological waste," which includes biopsy materials and all human tissues, anatomical parts that emanate from surgery, obstetrical procedures, autopsy and laboratory procedures and animal carcasses exposed to pathogens in research and the bedding and other waste from such animals.
"Pathological wastes" does not include teeth or formaldehyde or other preservative agents.

(d) "Sharps," which includes needles, IV tubing with needles attached, scalpel blades, lancets, glass tubes that could be broken during handling and syringes that have been removed from their original sterile containers.

(12) "Infectious Waste Facility" means an incinerator which is operated or utilized for the disposal or treatment of infectious waste, including

combustion for the recovery of heat, and which utilizes high temperature thermal destruction technologies.

(13) "Opacity" means the degree to which an emission reduces transmission of light and obscures the view of an object in the background.

(14) "Particulate Matter" means any matter, except uncombined water, which exists as a liquid or solid at standard conditions.

(15) "Parts Per Million (ppm)" means parts of a contaminant per million parts of gas by volume on a dry-gas basis (1 ppm equals 0.0001% by volume).

(16) "Person" means individuals, corporations, associations, firms, partnerships, joint stock companies, public and municipal corporations, political subdivisions, the state and any agencies thereof, and the federal government and any agencies thereof.

(17) "Refuse" means all waste material, including but not limited to, garbage, rubbish, incinerator residue, street cleanings, dead animals, and offal.

(18) "Secondary Chamber" or "Final Chamber" means the discrete equipment, chamber, or space in which the products of pyrolysis are combusted in the presence of excess air such that essentially all carbon is burned to carbon dioxide.

(19) "Solid Waste" means all putrescible and nonputrescible materials or substances that are discarded or rejected as being spent, useless, worthless or in excess to the owners at the time of such discard or rejection, including but not limited to garbage, refuse, industrial and commercial waste, rubbish, tires, ashes, contained gaseous material, construction and demolition debris, and discarded automobiles or parts thereof.

(20) "Solid Waste Facility" means an incinerator which is operated or utilized for the disposal or treatment of solid waste including combustion

for the recovery of heat, and which utilizes high temperature thermal destruction technologies.

(21) "Standard Conditions" means temperature of 60 degrees fahrenheit (15.6 degrees Celsius) and a pressure of 14.7 pounds per square inch absolute (1.03 kilograms per square centimeter).

(22) "Startup/Shutdown" means the time during which an air contaminant source of emission control equipment is brought into normal operation and normal operation is terminated, respectively.

(23) "Transmissometer" means a device that measures opacity and conforms to EPA Specification Number 1 in Title 40 Code of Federal Regulations, Part 60, Appendix B.

Solid and Infectious Waste Incinerators

Best Available Control Technology

340-25-860 (1) No waste incinerator facility shall cause or permit air contaminant emissions in excess of the limits described in OAR 340-25-865. In order to maintain the lowest possible emissions, all incinerator facilities are required to use best available control technology (BACT) as defined at the time of construction which may be determined for some facilities to be more stringent than the emissions limitations in this rule and may include waste cleaning or separation.

(2) Whenever more than one regulation applies to the control of air contaminants from a waste incineration facility, the more stringent regulations, control, or emission limit shall apply.

Emission Limitations

340-25-865 (1) No person shall cause, suffer, allow, or permit the operation of any waste incinerator in a manner which violates the following emission limits and requirements:

(a) Particulate Emissions:

(A) Incinerator facilities capable of processing up to 50 tons/day of wastes, emissions from each stack shall not exceed 0.03 grains per dry standard cubic foot of exhaust gases corrected to 12 percent CO₂ at standard conditions.

(B) Incinerator facilities capable of processing more than 50 tons/day of wastes, emissions from each stack shall not exceed 0.02 grains per dry standard cubic foot of exhaust gases corrected to 12 percent CO₂ at standard conditions.

(b) Hydrogen Chloride (HCl):

(A) Emissions of hydrogen chloride from each stack shall not exceed 50 ppm corrected to 12 percent CO₂ over a continuous three-hour average; or shall be reduced by at least eighty (80) percent.

(c) Sulfur Dioxide (SO₂):

(A) Emissions of sulfur dioxide from each stack shall not exceed 50 ppm corrected to 12 percent CO₂ over a continuous three-hour average; or shall be reduced by at least eighty (80) percent.

(d) Carbon Monoxide (CO):

(A) Emission of carbon monoxide from each stack shall not exceed 100 ppm corrected to 12 percent CO₂ over a continuous three-hour average.

(e) Opacity:

(A) The opacity as measured visually or by a transmissometer shall not exceed an average of 10 percent for more than six consecutive minutes in any one hour period.

(f) Fugitive Emissions. Municipal waste facilities shall be operated in a manner which prevents or minimizes fugitive emissions, including the paving of all normally traveled roadways within the plant boundary and enclosing all material transfer points.

(g) Odors. Any person who shall cause or allow the generation of any odor from any source which may unreasonably interfere with any other property owner's use and enjoyment of his property shall use good practices and procedures to reduce those odors.

(h) No incinerator subject to these rules shall burn radioactive or hazardous waste, unless specifically authorized in the Department's Air Contaminant Discharge Permit.

(i) Other Contaminants. No person shall cause or permit other contaminants whose emissions are likely to be injurious to human health, plant, animal life, or property, or which unreasonably interferes with use or enjoyment of property, or may cause public safety hazard.

Design and Operation

340-25-870 (1) Combustion Temperature: The temperature at the final combustion chamber of waste shall be 1800°F for one second or 1700°F for two seconds, or a temperature and corresponding residence time linearly interpolated from the aforementioned two points. At no time shall the temperature in the final chamber fall below 1600°F.

(2) Control Systems:

(a) Infectious waste incinerators must incorporate a lockout control system which will prevent the charging of waste if carbon monoxide levels exceed 150 ppm.

(b) For infectious waste facilities with mechanically fed incinerators, an air lock control system to prevent opening the incinerator to the room

environment must be incorporated. The volume of the loading system must be designed so as to prevent overcharging to assure complete combustion of the waste.

(3) Control Equipment Outlet Temperature: Control equipment for reducing emissions of hydrogen chloride must be operated such that the flue gas temperature at the outlet from the control device does not exceed 300°F, unless it can be demonstrated that a greater collection of condensable matter can be achieved at a higher outlet temperature.

(4) Combustion efficiency: Except during periods of startup and shutdown, all waste incinerators shall achieve a combustion efficiency of 99.9 percent based on a running eight-hour average, and 99.95 percent based on a running seven-day average. Combustion efficiency shall be based on the following equation:

$$\text{CE} = \frac{\text{CO}_2 \times 100}{(\text{CO}_2 + \text{CO})}$$

CO = Carbon monoxide in the exhaust gas, parts per million by volume (dry)

CO₂ = carbon dioxide in the exhaust gas, parts per million by volume (dry)

(5) Stack Height: All incinerator stacks shall be located and of sufficient height to assure compliance with applicable air standards, and to avoid the flow of stack pollutants into any building ventilation intake plenum.

(6) An independently trained incinerator operator shall be present at the facility in which an incinerator is located whenever waste is being burned.

Continuous Emission Monitoring

340-25-875 (1) All solid waste incinerators shall operate and maintain continuous monitoring for the following emission and operating parameters:

- (a) Hydrogen chloride;
- (b) Sulfur dioxide;
- (c) Carbon monoxide;
- (d) Opacity;
- (e) Final Combustion Chamber Exit Temperature;
- (f) Control Equipment Outlet Temperature; and
- (g) Oxygen

(2) All infectious waste incinerators shall operate and maintain continuous monitoring for the following emission and operating parameters:

- (a) Carbon monoxide;
- (b) Either Hydrogen Chloride or Sulfur Dioxide;
- (c) Opacity;
- (d) Final Combustion Chamber Exit Temperature; and
- (e) Control Equipment Outlet Temperature

(3) The monitors for hydrogen chloride, carbon monoxide, opacity and oxygen shall comply with EPA performance specifications in Title 40, Code of Federal Regulations, Part 60, Appendix B.

Reporting and Testing

340-25-880 (1) Reporting:

(a) Stack test results shall be reported to the Department within thirty (30) days of completion.

(b) 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 365 days and shall be furnished to the Department upon request.

(2) Emissions Testing:

(a) Each waste incinerator facility must conduct testing to demonstrate compliance with the standards in these rules. Unless otherwise specified by the Department, the facility must be tested annually thereafter for particulate, hydrogen chloride, and carbon monoxide emissions. These tests may be used to help determine acceptable operating parameters.

(3) Hazardous or Toxic Emissions Testing:

(a) The Department at any time after the effective date of this rule, may conduct or require emissions testing and require access to information specific to the control, recovery, or release of hazardous or toxic air contaminants. As specified by the Environmental Protection Agency in Title 40 Code of Federal Regulations, Part 61, air contaminants currently considered hazardous are asbestos, beryllium, mercury, vinyl chloride, benzene, radionuclides and arsenic.

Compliance

340-25-885 (a) All existing waste incinerators must demonstrate compliance with the applicable provisions of these rules within five (5) years of the effective date of these rules. Existing data such as that collected in accordance with the requirements of an Air Contaminant Discharge Permit may be used to demonstrate compliance.

(b) All existing waste incinerators shall be subject to these rules upon demonstration of compliance pursuant to paragraph (a). Until compliance is demonstrated, existing sources shall continue to be subject to the provisions of OAR 340-21-025 and OAR 340-21-027, and all applicable permit conditions.

(c) New waste incinerators must demonstrate compliance with the emission limits and operating requirements of these rules in accordance with a schedule established by the Department before commencing regular operation.

Crematory Incinerator

Emission Limitations

340-25-890 (1) No person shall cause to be emitted particulate matter from any crematory incinerator in excess of 0.08 grains per dry standard cubic foot of exhaust gases corrected to 12 percent CO₂ at standard conditions.

(2) Opacity:

(a) The opacity as measured visually shall not exceed an average of 10 percent for more than six consecutive minutes in any one hour period.

(3) Odors. Any person who shall cause or allow the generation of any odor from any source which may unreasonably interfere with any other property owner's use and enjoyment of his property shall use good practices and procedures to reduce those odors to a reasonable minimum.

(4) Other Contaminants. No person shall cause or permit other contaminants whose emissions are likely to be injurious to human health, plant, animal life, or property, or which unreasonably interferes with use or enjoyment of property, or may cause public safety hazard.

Design and Operation

340-25-895 (1) Combustion Temperature: The temperature at the final combustion chamber of shall be 1800°F for at least one second. At no time shall the temperature in the final chamber fall below 1400°F.

(2) Control System: For crematory facilities with mechanically fed incinerators, an air lock control system to prevent opening the incinerator to the room environment must be incorporated.

(3) An independently trained incinerator operator shall be present at the facility in which a crematory is being operated.

Monitoring and Reporting

340-25-900 (1) All crematory incinerators shall operate and maintain continuous monitoring for final combustion chamber exit temperature.

(2) 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 365 days and shall be furnished to the Department upon request.

(3) Each crematory incinerator facility must conduct testing to demonstrate compliance with these rules in accordance with a schedule specified by the Department.

Compliance

340-25-905 (a) All existing crematory incinerators must demonstrate compliance with the applicable provisions of these rules within five (5) years of the effective date of these rules. Existing data such as that collected in accordance with the requirements of an Air Contaminant Discharge Permit may be used to demonstrate compliance.

(b) All existing crematory incinerators shall be subject to the provisions of OAR 340-21-030 for a period not to exceed five (5) years from the effective date of these rules.

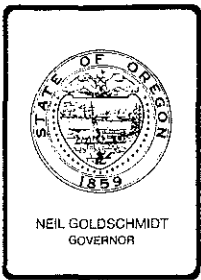
(c) New crematory incinerators must demonstrate compliance with the emission limits and operating requirements of these rules in accordance with a schedule established by the Department.

PLAN\AR1387

PAGE C-2 PARAGRAPH (13)

OR CHANGE TO>

(13) "Particulate Matter" means all solid or liquid material, other than uncombined water, emitted to the ambient air as measured by EPA Method 5 or an equivalent test method in accordance with the Department Source Test Manual. Particulate matter emission determinations by EPA Method 5 shall ~~use water as the cleanup solvent instead of acetone,~~ and consist of the average of three (3) separate consecutive runs having a minimum sampling time of 60 minutes each, ~~a maximum sampling time of eight (8) hours each,~~ and a minimum sampling volume of ~~31.8~~ 30.0 dscf each.



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990
Agenda Item: M
Division: Air Quality
Section: Planning and Development

SUBJECT:

Woodstove Certification Program: Adoption of Proposed Modifications to Conform to New Environmental Protection Agency (EPA) Requirements.

PURPOSE:

Accept EPA's woodstove emission certification program as meeting Oregon's requirements in order to eliminate duplication of effort, reduce requirements imposed on woodstove manufacturers, and reduce staff workload.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item for Current Meeting
 - Other: (specify)

- Authorize Rulemaking Hearing
 - Adopt Rules
 - Proposed Rules Attachment A
 - Rulemaking Statements Attachment B
 - Fiscal and Economic Impact Statement Attachment C
 - Public Notice Attachment D

- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment

Meeting Date: March 2, 1990
Agenda Item: M
Page 2

- | | |
|--|-------------------------------------|
| <input type="checkbox"/> Approve Department Recommendation | |
| <input type="checkbox"/> Variance Request | Attachment <input type="checkbox"/> |
| <input type="checkbox"/> Exception to Rule | Attachment <input type="checkbox"/> |
| <input type="checkbox"/> Informational Report | Attachment <input type="checkbox"/> |
| <input type="checkbox"/> Other: (specify) | Attachment <input type="checkbox"/> |

DESCRIPTION OF REQUESTED ACTION:

Adopt amendments to the Woodstove Certification Program rules OAR 340-21-100 through 340-21-190. A draft of the rules has been prepared (Attachment A) which incorporates amendments suggested by the Department of Environmental Quality (DEQ, Department) and public testimony.

AUTHORITY/NEED FOR ACTION:

- | | |
|---|-------------------------------------|
| <input type="checkbox"/> Required by Statute: _____ | Attachment <input type="checkbox"/> |
| Enactment Date: _____ | |
| <input checked="" type="checkbox"/> Statutory Authority: <u>ORS 468.630 thru .655</u> | Attachment <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Pursuant to Rule: <u>OAR 340-21-100 thru -190</u> | Attachment <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Pursuant to Federal Law/Rule <u>40 CFR Part 60</u>
Subpart AAA | Attachment <input type="checkbox"/> |
| <input type="checkbox"/> Other: | Attachment <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Time Constraints: (explain) | |

The transition to accepting EPA's National Woodstove Certification program would be most smoothly accomplished by the Environmental Quality Commission (EQC, Commission) adopting these amendments and making them effective July 1, 1990 to coincide with EPA's woodstove certification rule implementation date.

DEVELOPMENTAL BACKGROUND:

- | | |
|--|-------------------------------------|
| <input type="checkbox"/> Advisory Committee Report/Recommendation | Attachment <input type="checkbox"/> |
| <input checked="" type="checkbox"/> Hearing Officer's Report/Recommendations | Attachment <u>E</u> |
| <input checked="" type="checkbox"/> Response to Testimony/Comments | Attachment <u>F</u> |
| <input type="checkbox"/> Prior EQC Agenda Items: (list) | Attachment <input type="checkbox"/> |
| <input type="checkbox"/> Other Related Reports/Rules/Statutes: | Attachment <input type="checkbox"/> |
| <input type="checkbox"/> Supplemental Background Information | Attachment <input type="checkbox"/> |

During the September 7, 1989 work session (agenda item 2), the Department requested policy direction on how Oregon's woodstove certification program should be amended to mesh

with the new and similar EPA program. The Department suggested a three part policy package consisting of: (1) accepting EPA's emissions certification, permanent label, and laboratory accreditation for emissions testing as equivalent to Oregon's requirements; (2) adding EPA's 1990 emissions standards to Oregon's program, reducing the certification fees to reflect the reduced cost of the program, and amending the temporary label to show only overall efficiency; and (3) retaining Oregon's laboratory efficiency accreditation and overall retail enforcement authority. The Commission concurred with the suggested direction and authorized the Department to conduct a public hearing during the December 1, 1989 meeting (agenda item P). A draft of the proposed rules has been circulated to all known interested parties, and a public hearing was conducted on January 16, 1990 in Portland, Oregon, to receive verbal and written testimony. Detailed response to testimony is contained in Attachment F.

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

A 1983 Oregon statute directed the Department to require that all new woodstoves advertised for sale, offered for sale, or sold in Oregon to be tested in the laboratory for emissions and efficiency, meet an EQC established emission standard, and be labeled for emissions and efficiency. The EQC's 1988 woodstove emission standard required approximately a 70 percent reduction in particulate emissions as compared to traditional woodstoves. This level of woodsmoke reduction was considered necessary to meet the Federal Clean Air standards in the areas of the state most heavily impacted from woodstove smoke.

The EPA subsequently adopted a national woodstove certification program patterned after Oregon's program. Phase II of EPA's particulate emission performance requirements for woodstoves will become effective July 1, 1990 making the federal emission standards more stringent than Oregon's, by requiring an approximate 75 percent reduction in emissions. Accreditation of testing laboratories, labeling for emissions, and other certification program administrative procedures are at least as stringent as Oregon's program requirements.

The regulated community reacted positively to this proposal but feels that it does not go far enough. They feel Oregon's program should be totally deferred to EPA's program.

PROGRAM CONSIDERATIONS:

The work load and cost to the Department would be reduced by eliminating the need for hiring temporary staff. The reduction in cost would be passed onto the regulated community in the form of reduced certification fees.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

1. Retain existing certification program. This would make Oregon's emission certification requirements less stringent than EPA's; resulting in duplicate emissions labeling requirements, laboratory accreditation, administrative efforts by the Department and EPA, and place a double burden on the manufactures who seek certification.
2. Totally defer Oregon's certification program to EPA. While EPA's particulate emission standards are slightly more stringent than Oregon's, and the other program standards and criteria are similar, Oregon's statutory requirements for testing and labeling for efficiency would not be met and enforcement would not be at a level commensurate with the problem in Oregon. In addition, Oregon would lose its ability to deal with durability problems which are causing in-home performance of certified stoves to fall short of their certification levels. At this time, it is uncertain that EPA's program will adequately deal with this problem.

Industry surveys show that consumers are more likely to be influenced to purchase a woodstove based on its high overall efficiency than its low emissions. Since high efficiency and low emissions are generally related, testing and labeling for efficiency is a highly desirable consumer influence on the sale of the lowest emission certified stoves. Maintaining a retail enforcement capability is also desirable considering the number of woodstoves in the state and the magnitude of the woodsmoke problem. Several air sheds in Oregon need certified woodstoves to perform at their certification level, as a long term strategy, to insure attainment of national PM₁₀ air quality standards.

If the EPA or stove manufacturers do not adequately address the stove durability problem, then the Department may wish to use its certification authority to deal with this problem. Further support for this position is contained in Attachment F.

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3. Accept EPA's emission certification program as being at least as stringent as Oregon's, retain the Department's efficiency certification program and accept EPA's overall thermal efficiency method, when promulgated, if found to be equivalent to Oregon's test method. This alternative satisfies the Department's statutory (ORS 468.630-468.655) requirements, promotes a uniform national emission standard, simplifies the certification process and reduces cost for the regulated community. It also reduces the Department's staff work load, maintains the Department's overall certification authority allowing a more aggressive enforcement program, and provides a means of dealing with stove durability problems, as necessary.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends that it retains its overall certification authority in order to insure that Oregon's serious woodstove problem will be adequately addressed, but it recommends that EPA's emissions certification program be accepted as being at least as stringent as Oregon's, the Department's efficiency certification program be retained, and the EPA's overall thermal efficiency test method be accepted, when promulgated, if found to be equivalent to Oregon's test method (alternative 3). This alternative will satisfy all statutory requirements and is in the best interest of the public, and will serve to reduce their work and burden of certification on the woodstove industry and DEQ as EPA's certification program becomes operational.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

The proposed course of action streamlines the regulations, promotes interagency coordination, and is consistent with legislative and agency policy to restore and maintain acceptable air quality statewide.

ISSUES FOR COMMISSION TO RESOLVE:

1. Policy, technical, and legal issues and alternatives were discussed and resolved during the September EQC work session.

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INTENDED FOLLOW UP ACTIONS:

1. Submit final rules to EQC for adoption.
2. File the rules with the Secretary of State.
3. Provide Notice of new rules to all known interested parties.
4. Print amended rules and provide as needed.

Approved:

Section:

Division:

Director:

John F. Kowalzyk
Nick DeBals
Bill Hansen

Report Prepared By: Stephen Crane

Phone: 229-5353

Date Prepared: February 12, 1990

SDC:a
WOOD\AH806 (2/12/90)

PROPOSED AMENDMENTS
TO
WOODSTOVE CERTIFICATION
RULES

Definitions

340-21-100 Unless otherwise required by context, as used in this Division: (1) "Accredited" means a woodstove testing laboratory holds a valid certificate of accreditation issued by the Department.

(2) "Administrator" means the administrator of the Environmental Protection Agency or the administrator's authorized representative.

~~[(2)]~~ (3) "Audit test" means a test conducted by the Department to verify a laboratory's certification test results.

~~[(3)]~~ "Catalyst-equipped" means a woodstove with a catalytic combustor that is an integral component of the design and manufacture of a woodstove.

~~[(4)]~~ "Certify" means the Department has acknowledged in writing that a woodstove meets Department emission standards when tested by an independent laboratory according to Department test procedures.

~~[(5)]~~ (4) "Consumer" means any person who buys a woodstove for personal use.

~~[(6)]~~ (5) "Dealer" means any person engaged in selling woodstoves to retailers or other dealers for resale. A dealer which is also an Oregon retailer shall be considered to be only a retailer for purposes of these rules.

(6) "Department" means the Oregon Department of Environmental Quality.

(7) "EPA" means the United States Environmental Protection Agency.

(8) "Federal Regulations" means Volume 40 CFR Part 60, Subpart AAA, Sections 60.530 through 60.539b, dated February 26, 1988.

~~[(7)]~~ "Fixed air supply" means an air supply system on a woodstove which has no adjustable or controllable air inlets.

~~[(8)]~~ (9) "Heat output" means the heat output (Btu/hour) of a woodstove during one test run, measured under test conditions prescribed by OAR 340-21-120.

~~[(9)]~~ "Informal Departmental conference" means a meeting of a manufacturer, dealer, retailer, or laboratory representative and a representative of the Department to discuss certification or accreditation denial or revocation, or civil penalties. An informal Departmental conference is not part of a judicial process or the formal hearing process as described in Oregon Administrative Rules Chapter 340, Division 11.

(10) "Manufacturer" means any person who imports a woodstove, constructs a woodstove or parts for woodstoves.

(11) "New Woodstove" means any woodstove that has not been sold, bargained, exchanged, given away or has not had its ownership transferred from the person who first acquired the woodstove from the manufacturer's dealer or agency, and has not been so used to have become what is commonly known as "second hand" within the ordinary meaning of that term.

(12) "Overall efficiency (%)" over the range of heat outputs tested" means the weighted average combustion efficiency (%) multiplied by the weighted average heat transfer efficiency (%) measured under test conditions (range of heat outputs) and calculated according to specific procedures prescribed by OAR 340-21-~~115(5)~~120(1). This definition is applicable to the Stack Loss Methodology. For the Calorimeter Room Method, the weighted average overall efficiency means the useful heat output released to the room, divided by the total heat potential of the fuel consumed.

(13) "Retailer" means any person engaged in the sale of woodstoves directly to consumers.

~~{(14) "Smoke emission rate (grams/hour) over the range of heat outputs tested" means the weighted average particulate emissions (grams/hour) that are produced by a woodstove under test conditions (range of heat outputs) specified in OAR 340-21-120 and calculated according to procedures specified in OAR 340-21-115(5).}~~

~~{(15)}~~(14) "Weighted average" means the weighted average of the test results to the distribution of home heating needs ~~[in Oregon. (Refer to OAR 340-21-115(5))]~~ as prescribed in the Federal regulations, 40 CFR Part 40, Subpart AAA.

~~{(16)}~~(15) "Woodstove"/"Woodheater" ~~{means a wood-fired appliance with a closed fire chamber which maintains an air-to-fuel ratio of less than 30 during the burning of 90 percent or more of the fuel mass consumed in the low firing cycle. The low firing cycle means less than or equal to 25 percent of the maximum burn rate achieved with doors closed or the minimum burn achievable, whichever is greater}~~ means an enclosed, woodburning appliance capable of and intended for space heating and domestic water heating that meets all of the following criteria:

(a) An air-to-fuel ratio in the combustion chamber averaging less than 35-to-1 as determined by the test procedure prescribed in federal regulations 40 CFR part 60, subpart AAA, §60.534 performed at an accredited laboratory.

(b) A usable firebox volume of less than 20 cubic feet.

(c) A minimum burn rate less than 5 kg/hr as determined by the test procedure prescribed in federal regulations 40 CFR part 60, subpart AAA, §60.534 performed at an accredited laboratory, and

(d) A maximum weight of 800 kg. In determining the weight of an appliance for these purposes, fixtures and devices that are normally sold separately, such as flue pipe, chimney, and masonry components that are not an integral part of the appliance or heat distribution ducting, shall not be included.

Requirements for Sale of New Woodstoves in Oregon

340-21-105 (1) On and after July 1, ~~{1986}~~ 1990 a person shall not advertise to sell, offer to sell, or sell a new woodstove in Oregon unless:

(a) The woodstove has been tested, certified and labeled for ~~{to determine its}~~ emission performance ~~{and heating efficiency}~~ in accordance with criteria, emission standards, and procedures specified in ~~{OAR 340-21-120}~~ the federal regulations, 40 CFR Part 60, Subpart AAA; and

(b) The woodstove has been tested for heating efficiency and certified by the Department [~~is certified by the Department~~] in accordance with criteria and procedures in OAR 340-21-~~[125 as meeting the emission performance standards specified in OAR 340-21-115]~~120; and

(c) The woodstove is labelled for emission performance and heating efficiency as specified in OAR 340-21-135; provided, however, that section (1) of this rule shall not apply to any sale from any manufacturer or dealer; to any Oregon manufacturer or dealer; or to any out-of-state manufacturer, dealer or retailer; or to any offer or advertisement for such sale directed only to such a manufacturer, dealer or out-of-state retailer.

(2) No manufacturer, dealer or retailer shall alter [~~either~~] the permanent [~~or removable~~] label in any way from the label approved by the [~~Department~~] Administrator pursuant to [~~OAR 340-21-155~~]Federal Regulations, 40 CFR part 60, subpart AAA, § 60.538(i).

(3) No manufacturer, dealer or retailer shall alter the removable label in any way from the label approved by the Department pursuant to OAR 340-21-155.

~~[(3)]~~ (4) Violators of any of the above rules may be subject to civil penalties pursuant to OAR Chapter 340, Divisions 11 and 12 or other remedies prescribed by rule or statute.

Exemptions

340-21-110 ~~[(1) Wood-fired appliances that are not suitable for heating equipment in or used in connection with residences or commercial installations are excluded from 340-21-105. For example, portable camping stoves.~~

~~(2) Wood-fired forced-air furnaces that primarily heat living space or water through indirect heat transfer using forced-air duct work or pressurized water systems are excluded from 340-21-105.]~~ To be considered eligible for exemption from the requirements and standards of these rules, pellet burning appliances must be tested for air to fuel ratio in strict conformance with criteria and procedures of EPA Method 28A as set forth in the federal regulations, 40 CFR Part 60, Subpart AAA, to determine that the unit qualifies, as exempt, from the definition of a woodstove.

Emissions Performance Standards and Certification

340-21-115 ~~[(1) New woodstoves with minimum "heat output" of less than 40,000 Btu/hr advertised for sale, offered for sale, or sold in Oregon within the period July 1, 1986 to June 30, 1988, shall not exceed the following weighted average particulate emission standards when tested to procedures in OAR 340-21-120:~~

~~(a) 15 grams per hour for a non-catalytic woodstove; or~~

~~(b) 6 grams per hour for a catalyst-equipped woodstove.]~~

(1) Unless exempted or not regulated as an affected facility under § 60.530 of the federal regulation, 40 CFR part 60, subpart AAA, new woodstoves advertised for sale, offered for sale or sold in Oregon between July 1, 1990 and June 30, 1992 shall be certified by the Administrator pursuant to federal regulation as complying with the particulate matter emission limits specified in the federal regulations, 40 CFR Part 60, Subpart AAA, § 60.532(a).

~~{(2) -New woodstoves with minimum "heat output" of less than 40,000 Btu per hour advertised for sale, offered for sale, or sold in Oregon on or after July 1, 1988 shall not exceed the following weighted average particulate emission standard when tested and measured according to test procedures in OAR 340-21-120:}~~

~~{(a) -9 grams per hour for a non-catalytic woodstove; or}~~

~~{(b) -4 grams per hour for a catalyst-equipped woodstove:}~~

(2) Unless exempted or not regulated as an affected facility under §60.530 of the Federal Regulation, 40 CFR Part 60, Subpart AAA, new woodstoves advertised for sale, offered for sale, or sold in Oregon on or after July 1, 1992 shall be certified by the Administrator pursuant to federal regulation as complying with the particulate matter emission limits specified in the federal regulations, 40 CFR Part 40, Subpart AAA, § 60.532(b).

~~{(3) -New woodstoves with a minimum "heat output" of greater than 40,000 Btu per hour, advertised for sale, offered for sale, or sold in Oregon after July 1, 1986 shall not exceed an average particulate emission standard equal to the sum of 8.0 grams per hour plus 0.2 grams per hour for each thousand Btu per hour heat output when tested to procedures in OAR 340-21-120:}~~

~~{(4) -The Department will certify a woodstove as meeting the applicable woodstove emission standard after July 1, 1984 in accordance with procedures in OAR 340-21-125:}~~

~~{(5) -The weighted average particulate emission shall be calculated as set out in Exhibit 1:}~~

Efficiency Testing Criteria and Procedures

340-21-120 (1) To be considered eligible for certification, a woodstove must be tested for efficiency in strict conformance with criteria and procedures contained in the document Standard Method for Measuring the Emissions and Efficiencies of Residential Woodstoves dated June 8, 1984, and incorporated herein by reference and on file at the Department, or in strict conformance with criteria and procedures in Federal Regulations 40 CFR 60 Appendix J, if found to be equivalent by the Department.

(2) All testing for certification purposes, using the Standard Method for Measuring the Emissions and Efficiencies of Residential Woodstoves, shall be conducted by a stove testing laboratory accredited ~~{by the Department}~~ in accordance with procedures specified in OAR 340-21-160.

(3) The Department may permit minor changes in the testing criteria and procedures specified in OAR 340-21-120(2) which the Department believes does not affect its accuracy ~~{with respect to compliance with the emission standard}~~ providing such changes are approved in writing by the Department prior to the actual conducting of such tests.

(4) All testing for certification purposes using the federal regulation 40 CFR 60 Appendix J, if found to be equivalent by the Department, shall be conducted by an accredited laboratory.

General Certification Procedures

340-21-125 (1) Any woodstove manufacturer, or dealer, wishing to obtain certification of a woodstove shall file an application with the Department.

(2) An application for certification must include:

(a) ~~[An appliance description which includes the woodstove model name and design number; a copy of the appliance's operating manual and a photograph of the stove]~~ One complete copy of the EPA application and attachments as specified in the federal regulations, 40 CFR Part 60, Subpart AAA, §60.533(a,b,c,d).

(b) ~~[Design plans of the woodstove, identified by design number, which include overall dimensions of the appliance and all dimensions and specifications of components critical to emission control and heating efficiency performance. These components shall include combustion chamber configurations, all air inlet controls, heat exchanger design and make and model numbers of applicable purchased parts]~~ A copy of the valid Certificate of Compliance issued by the Administrator, pursuant to federal regulation 40 CFR Part 60, Subpart AAA, §60.533.

(c) All test data and support documentation showing that the woodstove has been tested for efficiency in accordance with OAR 340-21-120 ~~[and that it meets the emission performance standard specified in OAR 340-21-115].~~

(d) A non-refundable certification fee, payable to the Department at the time the application is submitted to the Department, is required for each stove model seeking certification. The fee is ~~is~~ ~~[(A) \$1600 for a manufacturer's first model seeking certification; and (B) \$800]~~ 500 for each ~~[additional]~~ model submitted by the manufacturer.

(3) The Department will promptly review an application for certification and:

(a) Notify the applicant in writing within 30 days of receipt of the applications, of any deficiencies in the applications that cause the application to be incomplete.

(b) Notify the applicant within 60 days of receipt of a completed application whether certification is granted or denied pursuant to sections (4) and (7) of this rule.

(4) When all preceding requirements have been met, the Department will issue or deny a certification document to the manufacturer or dealer for the specified woodstove.

(5) If the Department grants certification, the certification status shall be effective for no longer than five years unless extended or terminated by rule or order.

(6) An application for a new document of certification shall be made by submitting a completed application including retests and fees at least 60 days prior to expiration of certification. The Department may waive the retest and fees if the applicant demonstrates the previous evidence used to certify the woodstove has not changed and remains reliable and applicable.

(7) If the Department denies certification of a woodstove, the Department will notify the manufacturer or dealer in writing of the opportunity for hearing pursuant to OAR Chapter 340, Division 11.

Changes in Woodstove Design

340-21-130 Certification of woodstoves shall be valid for only the specific model, design, plans and specifications which were originally submitted, tested and approved for certification. Any modification to the model, design, plans or specifications shall cause the certification to be ineffective and any so modified woodstoves to be uncertified, unless prior to making such modification the certification holder submits the proposed modification to the Administrator [Department] for approval, and the Administrator [Department] approves it. [~~The Department may approve the proposed modification if the holder demonstrates and the Department finds that the proposed modification would not affect emission performance or heating efficiency.~~]

Labelling Requirements

340-21-135 Woodstoves which must be labelled pursuant to OAR 340-21-105 [and] shall have affixed to them:

(1) A permanent label, [~~that has been previously approved by the Department in writing as to form, content and location, that shows the test emissions and heating efficiency for the range of heat outputs tested~~] in accordance with Federal Regulations 40 CFR 60, Subpart AAA, §60.536.

(2) A point-of-sale removable label; [~~that verifies certification and shows how the appliance's emission test results compare with the Oregon emission performance standard, and shows the heating efficiency and heat output range of the appliance. The label shall be affixed to the appliance at the point-of-sale near the front and top of the stove and remain affixed until sold and delivered to the consumer.~~]

(a) If the woodstove was tested for efficiency in conformance with criteria and procedures contained in the document Standard Method for Measuring the Emissions and Efficiencies of Residential Woodstoves, the label must be approved by the Department, verify certification and show the heating efficiency and heat output range of the appliance. The label shall be affixed to the appliance at the point-of-sale near the front and top of the stove and remain affixed until sold and delivered to the consumer.

(b) If the woodstove was tested for efficiency in conformance with criteria and procedures in Federal Regulations 40 CFR 60, Appendix J, the point-of-sale label shall show the measured efficiency in accordance with the requirements in Federal Regulations 40 CFR 60, Subpart AAA, §60.536.

[Permanent Label]

[~~340-21-140 - All woodstoves certified by the Department from July 1, 1984 on, shall be labelled with a permanent and a removable label.~~]

[Contents of Permanent Label]

[~~340-21-145 - (1) The permanent label, or "Certified Test Performance" label, shall contain the following information:~~

- (a) ~~Testing laboratory;~~
- (b) ~~Date tested;~~
- (c) ~~Test procedure used;~~
- (d) ~~Manufacturer of appliance;~~
- (e) ~~Model;~~

- (f) -Design number;
- (g) -The statement: -"Performance may vary from test values depending on actual home operating conditions";
- (h) -A graph showing:
- (A) -Smoke emission rates, in grams/hour, over the range of heat outputs tested.
- (B) -Overall efficiency over the range of heat outputs tested.
- (2) -The axis of the graph shall be identified as follows:
- (a) -Vertical axis, left side: -"Smoke -- grams/hour", with a scale of 0 to a maximum of 20, bottom to top.
- (b) -Vertical axis, right side: -"Efficiency -- %", with a scale of a minimum of 50 to a maximum of 90, bottom to top.
- (c) -Horizontal axis, bottom: -"Heat Output -- Btu/hour", with a scale from 0 to a maximum of 5,000 Btu/hour higher than the highest tested heat output.
- (3) -Curves describing emissions and efficiency at various heat outputs shall be printed on the graph, and will be developed by the Department as follows:
- (a) -The emissions curve will be developed by the Department by fitting the emission test data to the quadratic equation:
- $$y = -a_0 + a_1x + a_2x^2$$
- where
- (A) -y = particulate emissions (grams/hour).
- (B) -x = heat output (Btu/hour).
- (C) -a₀, a₁, a₂ = regression coefficients.
- (b) -The overall efficiency curve shall be developed by the Department by fitting the efficiency test data to the quadratic equation:
- $$y = -a_0 + a_1x + a_2x^2$$
- where
- (A) -y = overall efficiency (%).
- (B) -x = heat output (Btu/hour).
- (C) -a₀, a₁, a₂ = regression coefficients.
- (4) -For woodstoves with a fixed air supply which have only two data points for emissions and two data points for overall efficiency the Department will:
- (a) -Develop the emission performance description by averaging the two emission data points and describe the performance on the graph with a single point representing the average.
- (b) -Develop the overall efficiency performance description by averaging the two efficiency data points and describe the performance on the graph with a single point representing the average.
- (5) -The curves or single points will be developed and fit on the graph by the Department and transmitted to the appliance manufacturer for printing on the label. -Changes from the above criteria may be made by the Department as necessary to insure readability. -Approval of the label design, layout, and location on the woodstove will be made by the Department and shall be obtained pursuant to QAR 340-21-155.
- (6) -The label shall be permanently secured or fixed to the appliance so that it is visibly located on the appliance and legible, and meets the following criteria:
- (a) -A permanent label shall be a label that cannot be removed from the appliance without damage to the label. -The label shall remain legible for the maximum expected useful life of the appliance in normal operation.

(b) A label shall be readily visible after installation. Approval of the location of the label on a woodstove will be made by the Department and shall be obtained pursuant to OR 340-21-155. The label may be located on:

(A) Any visible exterior surface except the bottom of the appliance; or on

(B) Any interior surface of the appliance, within stove compartments, or under overlapping covers or doors; or at another interior location, if the label can be seen after installation and will remain legible for the life of the stove.

(c) A legible label shall be quickly and easily read.

(d) It shall be acceptable to combine the permanent label with another label, such as a safety label, if the design and integrity of the permanent label is not compromised, and if the combination label meets the approval of the Department.

(7) Physical and Material Specifications:

(a) The minimum dimensions of the label shall be at least 3-1/2" long by 2" wide.

(b) The graph on the label shall be at least 3" long by 1-1/2" wide; and any enlargement of the graph shall maintain a proportion represented by the length to width ratio of 2:1.

(c) The label must be made of a material that will satisfy the permanency rule (340-21-145(6)(a)). For instance, it may be made of aluminum, brass, galvanized steel, or another metal, and of a thickness that will ensure permanence of the label.

(d) The information on the label shall be applied to the label in a way that will satisfy the permanency and legibility rules (340-21-145(6)(a) and (c)). For instance, the information may be etched, silk-screened, or die-stamped onto the label.

(e) The label shall be secured to the appliance in a way that it will satisfy the permanency and visibility rules (340-21-145(6)(a) and (b)). For instance, the label may be riveted, screwed, or bolted onto the appliance.]

Removable Label

340-21-150 (1) [The point-of-sale removable label, or "Emissions and Efficiency Performance" label,] For a woodstove with a heating efficiency measured in accordance with OAR 340-21-120(1), an additional point-of-sale removable label shall be affixed and shall contain the following information:

{(a)} "Smoke (Ave.) -----grams/hour", weighted average of tested values.]

{(b)} (a) "Oregon Tested Efficiency (Ave.) _____%", weighted average of tested values.

{(c)} Summary of the applicable emissions standard.]

{(d)} (b) Heat output range, tested values.

{(e)} (c) Manufacturer of appliance.

{(f)} (d) Model of appliance.

{(g)} (e) Design number of model.

{(h)} (f) A statement [verifying certification] acknowledging EPA emission certification meets Oregon emission requirements.

{(i)} (g) The statement "Performance may vary from test values depending on actual home operating conditions".

(2) The label shall be visibly located on the appliance when the appliance is available for inspection by consumers.

(3) This label may not be combined with any other label or with other information.

(4) The label shall be attached to the appliance in such a way that it can be easily removed by the consumer upon purchase. For instance, the label may be attached by adhesive, wire, or string.

Label Approval

340-21-155 ~~{(1)}~~ Permanent label:

~~(a) The Department will provide guidance on the design of labels by supplying information that shall be placed on the label at the time certification is granted.~~

~~(b) The manufacturer or dealer shall submit to the Department:~~

~~(A) The name, phone number and address of the label manufacturer;~~

~~(B) The proof copy of the label, printed on a representative sample of the label stock, shall be submitted to the Department, if practical; if not, a sample of the label stock shall be submitted for review with a proof copy of the label. The copy shall be as representative of the intended final printed label as practical. The copy shall be actual size, and shall show the proposed label design, layout, art work, print size, style and color; and shall show all the information required on the label, including curves or points:~~

~~(C) A drawing, diagram, or photograph that identifies the location of the permanent label on the woodstove.~~

~~(D) Information that describes or shows how the permanent label will be affixed to the woodstove. For instance, it may be description of an adhesive type, adhesive manufacturer, and performance characteristics; or rivet type, rivet manufacturer, and performance characteristics.~~

~~(e) Within 14 days of receipt of all information required in subsection (b) of this section, the Department will approve or deny use of the proposed label.}~~

~~{(2)}~~ (1) Removable label:

(a) For a woodstove with a heating efficiency measured in accordance with OAR 340-21-120(1), ~~{T}~~ the Department will provide the manufacturer or dealer, at the time of certification with:

(A) A copy of the standardized printed removable label, with all printing specifications; and

(B) The specific information that shall be printed in the spaces on the label by the manufacturer.

(b) The manufacturer or dealer shall submit to the Department for review:

(A) A proof copy of the proposed label with the required information printed on the labels.

(B) The method of attaching the removable label to the woodstove.

(C) The name, telephone number, and address of the label printer.

(c) Within 14 days of receipt of all the information required in subsection (b) of this section, the Department will approve or deny use of the proposed label.

~~{(3)}~~ (2) The manufacturer shall submit to the Department three final printed permanent, and three final printed removable labels within one month of receiving the labels from the printer.

Laboratory Accreditation Requirements

340-21-160 A laboratory submitting test data pursuant to requirements in this rule shall have a valid certificate of accreditation issued by the Department. A laboratory may initiate application for an accreditation certificate by submitting written documentation to the Department that accreditation criteria contained in OAR 340-21-165 are met. In addition, the laboratory must demonstrate stove testing proficiency pursuant to OAR 340-21-170, in order to qualify for accreditation.

Accreditation Criteria

340-21-165 (1) All laboratories shall meet the following criteria and standards at the time of application and shall continue to meet these criteria as a condition of maintaining accreditation:

~~[(a) The laboratory shall be an independent third-party testing organization with no organizational, managerial, or financial affiliation with any manufacturer, supplier or vendor of any woodstove covered under its testing programs. -- For example:~~

~~(A) The laboratory shall not be owned by any manufacturer or vendor, or own any manufacturer or vendor of woodstoves;~~

~~(B) The management of the laboratory shall not control or be controlled by any manufacturer or vendor;~~

~~(C) The laboratory shall not be engaged in the promotion or design of the woodstove being evaluated or tested;~~

~~(D) The laboratory shall have sufficient diversity of clients or activity so that the loss or award of a specific contract regarding testing would not be a determinative factor in the financial well-being of the laboratory;~~

~~(E) The employment security status of the personnel of the laboratory shall be free of influence or control on any one or more manufacturers or vendors of woodstoves tested.]~~

(a) Hold a valid certificate of accreditation for emission testing issued by the Administrator.

~~[(b) The laboratory shall be operated in accordance with generally accepted professional and ethical business practices. -- For example:~~

~~(A) The laboratory shall accurately report values that reflect measured data.]~~

(b) Shall hold a valid certificate of efficiency accreditation issued by the Department. To be eligible for efficiency accreditation the laboratory must demonstrate to the Department:

(A) Conformance with the criteria and procedures contained in the document Standard Method for Measuring the Emission and Efficiency of Residential Woodstoves and maintain an efficiency computer program that produces results comparable to the Department's using a standard data set provided by the Department, or;

(B) Conformance and proficiency with the criteria and procedures in Federal Regulation 40 CFR 60, Appendix J, if found to be equivalent by the Department.

~~[(B) The laboratory shall limit certification program test work to that for which it can perform competently;~~

~~(C) The laboratory shall immediately respond and attempt to resolve every complaint contesting test results.]~~

(c) Shall meet all of the requirements as prescribed by federal regulation, 40 CFR Part 60, Subpart AAA, Section 60.535.

[(c) - The laboratory shall be staffed by personnel competent to perform the test procedures for which accreditation is sought, for example:

(A) - The laboratory shall assure the competency of its staff through the observation or examination or both of each relevant staff member in the performance of tests, examinations, and inspections that each member is assigned to perform. - The observations must be conducted at intervals not exceeding one year by one or more individuals judged qualified by the person who has technical responsibility for the operation.

(B) - The laboratory shall make available the description of its training program for assuring that new or untrained staff will be able to perform tests and inspections properly and uniformly to the requisite degree of precision and accuracy.

(C) - The laboratory shall maintain records, including dates of the observation or examination of performance of all personnel.

(d) - The laboratory shall be equipped with the necessary instrumentation and equipment to test all appliances in accordance with the Department's test procedures.

(e) - The laboratory must have in place and maintain a viable record keeping system. - This means that records must be easily accessible, in some logical order and contain complete information on the subject. - Records covering the following items are required and will be physically reviewed during the on-site assessment either in total or by selected sampling:

(A) - Measuring equipment: - each instrument name and description, name of manufacturer, model, style and serial number. - Specifications on range or level of precision, date and documentation of calibration, record of maintenance and frequency of calibration.

(B) - Data systems: - samples of raw and reduced data sheets, test report format, method (manual or automated) of data recording, analysis and reporting.

(C) - Staff training dates and results.

(D) - Staff competency review dates and results.

(E) - Equipment calibration (or verification) records shall include the following: - equipment name or description; model, style, serial number; manufacturer; notation of all equipment variables requiring calibration or verification; the range of calibration/verification; the resolution of the instrument and allowable error tolerances; calibration/verification date and schedule; date and result of last calibration; identity of the laboratory individual or external service responsible for calibration; source of reference standard and traceability.

(F) - Test data and reports, including emissions and efficiency calculations fully documented and all other items required by the specific test method.

(G) - Sample tracking and logging records shall trace the movement of each stove through the laboratory from its receipt through all the tests performed to the final test report. - Dates, condition of sample, and laboratory personnel involved should be included.

(f) - The laboratory shall maintain a quality control system to help assure the accuracy and technical integrity of its work consisting of the following:

(A) -The laboratory's quality control system must include a quality control manual containing written procedures and information in response to the applicable requirements of the test procedures. --The procedures and information may be explicitly contained in the manual or may be referenced so that their location in the laboratory is clearly identified. --The written procedures and information must be adequate to guide a testing technician and inspector in conducting the tests and inspections in accordance with the test methods and procedures required for the stove testing for which accreditation is sought.

(B) -The laboratory shall have a current copy of its quality control manual or laboratory operations control manual available in the laboratory for use by laboratory personnel and shall make the manual available to the Department for review and audit.

(C) -The quality control manual shall consist of general guidelines for the quality control of the laboratory's method of operation. --Specific information shall be provided for portions of individual test methods whenever specifics are needed to comply with the criteria or otherwise support the laboratory's operations. }

{(g)} -The laboratory shall maintain an emissions and efficiency computer program that produces reasonably the same results to the Department's, using a standard data set provided by the Department. }

{(h)} (d) Neither the laboratory owners or business affiliates shall discriminate in management or business practices against any person or business because of race, creed, color, religion, sex, age, or national origin. In addition, neither the laboratory nor its owners or operators shall be certified by any association or {are} members of any association that discriminates {by business or management} in management or business practices against any person or business because of race, creed, color, religion, sex, age, or national origin.

Application for Laboratory Efficiency Accreditation

340-21-170 (1) A laboratory applying for efficiency accreditation shall state in writing and demonstrate by providing documentation, that they comply with the criteria and standards in OAR 340-21-165 at the time of application, and how they will continue to meet the criteria and standards on an on-going basis.

(2) The laboratory shall notify the Department in writing within 30 calendar days should it become unable to conform to any of the criteria and standards in OAR 340-21-165.

{(3)} -The laboratory shall demonstrate to the Department that the laboratory's emission and efficiency computer program produces reasonably the same results to the Department's, using a standard data set provided by the Department. }

{(4)} (3) Deficiency in the application will be identified by the Department in writing, and must be resolved by the laboratory before further processing occurs.

{(5)} (4) The application will not be considered complete for further processing until the laboratory certifies in writing that the deficiencies have been resolved. The application will be considered withdrawn if the applicant fails to certify resolution within 90 days of postmark of notification by the Department.

{(6)}(5) When the application is approvable, the Department will inform the laboratory in writing and schedule an on-site laboratory inspection.

On-Site Laboratory Inspection and Stove Testing Proficiency Demonstration

340-21-175 (1) An on-site inspection {will} may be conducted by a Department representative after all laboratory information required by OAR 340-21-165, has been provided by the laboratory, reviewed and approved by the Department. The on-site visit {will} may be conducted when a laboratory initially applies for accreditation {and} or when the laboratory reapplies for a new certificate of accreditation.

(2) During the on-site inspection, the Department representative will:

(a) Observe the Stove Testing Proficiency Demonstration specified in OAR 340-21-170(3).

(b) Meet with management and supervisory personnel responsible for the testing activities for which the laboratory is seeking accreditation.

(c) Review representative samples of laboratory records. To facilitate examination of personnel competency records, the laboratory should prepare a list of names of staff members who perform the tests.

(d) Observe test demonstrations and talk with laboratory personnel to assure their understanding of the test procedures. Refer to OAR 340-21-120 and 340-21-170(3).

(e) Physically examine selected equipment and apparatus.

(f) At the conclusion of the on-site visit, the Department {will} may discuss observations with responsible members of the laboratory management pointing out any deficiencies uncovered.

(3) In order to be accredited and as a part of each on-site laboratory inspection, each laboratory {must} may be required to demonstrate to the Department's representative its ability to successfully and proficiently conduct and report a woodstove emission and efficiency test. Each laboratory {will} may:

(a) Be required to test one woodstove provided by the Department. Costs for all stove shipping, catalytic combustors, or other necessary parts will be paid by the laboratory.

(b) Be required to test the stove in accordance with testing criteria and procedures specified in OAR 340-21-120.

(c) Conduct the actual {emission-and} efficiency testing in the presence of a Department observer.

(d) Submit all test data, observations and test results to the Department for technical evaluations.

Accreditation Application Deficiency, Notification and Resolution

340-21-180 (1) Any deficiencies noted during the on-site inspection and/or in the test data and test results submitted from the stove testing proficiency demonstration will be specifically identified in writing and mailed to the laboratory within 30 days of the on-site visit.

(2) The laboratory must respond in writing within 30 days of the date of postmark of the notification by the Department and provide documentation that the specified deficiencies have been corrected. All deficiencies must be corrected prior to accreditation being granted.

(3) Deficiencies noted for corrective action will be subject to thorough review and verification during subsequent on-site visits and technical evaluations.

(4) Any deficiencies in the test data and/or results may result in subsequent proficiency tests being required at the laboratory with a Department representative present.

Final Department Administrative Review and Certificate of Accreditation

340-21-185 (1) When all application material has been received, including the on-site inspection and the stove testing proficiency evaluation, and there has been time for all deficiencies to be resolved, the Department will grant or deny accreditation.

(2) Accreditation can be denied for failure to comply with or fulfill any of the criteria in OAR 340-21-165, -170, and -175.

(3) When accreditation is approved, a certificate of accreditation will be issued to the laboratory. Accreditation will be granted for a period of ~~{three years - (36 months)}~~ five years (60 months) subject to rule change or revocation for cause, pursuant to OAR 340, Division 11.

(4) A certificate of accreditation is not renewable. A holder may obtain a new certificate of accreditation by completing the application procedure in OAR Chapter 340-21-170, and demonstrating compliance with OAR 340-21-165 and 340-21-175.

(5) The Department may select and audit test one stove tested by the laboratory during ~~{its accredited status}~~ the accreditation period to verify certification test results. Any discrepancies noted will be communicated to the laboratory by certified or registered mail. The laboratory must respond in writing within 30 days of postmark of notification and provide documentation or certification by an authorized member of the laboratory management that the specified discrepancies have been corrected or the laboratory may be subject to civil penalties or revocation of accreditation.

(6) A laboratory may voluntarily terminate its accreditation by written request at any time. The certificate of accreditation must be returned with the request.

Civil Penalties, Revocation, and Appeals

340-21-190 (1) Violation of any of these rules shall constitute cause to revoke the manufacturer or dealer's woodstove certification or laboratory's certificate of laboratory accreditation, and also may be subject to civil penalties and other remedies pursuant to rule or statute.

(2) Certification of a woodstove may be revoked if the woodstove was tested at a laboratory that was found to be in violation of accreditation criteria and rules at the time the woodstove was tested for certification.

(3) When certification or accreditation has been revoked, the holder shall return the certification or accreditation document to the Department and cease to use mention of Department certification or accreditation of the stove model or laboratory on any of its test reports, correspondence or advertising.

(4) Stove certification and lab accreditation revocation shall be handled as contested cases pursuant to OAR Chapter 340, Division 11.

**RULE MAKING STATEMENTS FOR
PROPOSED AMENDMENTS TO THE WOODSTOVE
CERTIFICATION PROGRAM**

STATEMENT OF NEED FOR RULE MAKING

Pursuant to ORS 183.335(7), this statement provides information on the intended action to amend a rule.

(1) Legal Authority

This proposal amends Oregon Administrative Rules (OAR) 340, division 21, sections 100 through 190. It is proposed under the authority of Oregon Revised Statutes (ORS) Chapter 468, including 468.630, 468.635, 468.640, and 468.655.

(2) Need for these Rules

In 1983 the Oregon Department of Environmental Quality was directed to control, reduce, and prevent air pollution caused by woodstove emissions in the interest of public health and welfare. In response to this directive, the Department implemented a woodstove certification program in 1986 designed to bring about a significant reduction in particulate emissions from woodheating appliances.

Recognizing the success of Oregon's program and the need for a national program to regulate the emissions from woodheating appliances, the U.S. Environmental Protection Agency promulgated standards of performance limiting emissions of particulate matter from new residential woodheaters.

The new EPA program was patterned after and in some cases duplicated Oregon's program. The rules proposed here, are intended to eliminate the duplication of effort and reduce the cost of certification by adopting EPA's emission certification program.

(3) Principal Documents Relied Upon

Oregon Administrative Rules, OAR 340, Division 21, Section 100 through 190.

Oregon Revised Statutes, Chapter 468, Statutes 468.630 through 468.655

Federal Regulations, 40 CFR Part 60, Subpart AAA, Sections 60.530 through 60.539, dated February 26, 1988.

All documents referenced may be inspected at the Department of Environmental Quality, 811 SW 6th Ave., Portland, OR, during normal business hours.

LAND USE CONSISTENCY STATEMENT

The proposed rules do not affect land use.

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**FISCAL AND ECONOMIC IMPACT STATEMENT FOR
PROPOSED AMENDMENTS TO THE WOODSTOVE
CERTIFICATION PROGRAM**

FISCAL AND ECONOMIC IMPACT STATEMENT

Adopting these rules would decrease the cost of testing and certifying a woodstove in Oregon. The manufacturer would save \$1,100 in certification fees for the first model certified and \$300 for each additional model. This reduction in certification fees directly reflects the Departments cost savings do to reduced workload.

Currently, testing laboratories have to deal with two separate regulatory agencies requiring additional time and cost to resolve problems, prepare reports, and meet two independent accreditation requirements. Accepting EPA's emission certification requirements would save the manufacturer approximately \$200 per model.

Both EPA and the Department require permanent and removable labels. Eliminating the Department's permanent label and accepting the EPA's permanent label as being equivalent, manufacturers could realize a savings of approximately \$2.50 per stove.

The Department estimates that 30 woodstove models are certified and approximately 1,000 units of each model are sold in Oregon annually resulting in a total cost savings, to the regulated industry, in excess of \$100,000.

WOOD\AH832

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

NOTICE OF PUBLIC HEARING

Hearing Date: January 16, 1990 9:00 am.
Comments Due: January 16, 1990 5:00 pm.

- WHO IS AFFECTED:** Woodstove manufacturers, dealers and retailers, and woodstove testing laboratories.
- WHAT IS PROPOSED:** The Department of Environmental Quality is proposing to amend OAR 340-21-100 to 340-21-190 to accept EPA's emission certification program as being equivalent to Oregon's program. The proposed rule amendments would amend the Oregon Clean Air Act State Implementation plan (OAR) 340-20-047.
- WHAT ARE THE HIGHLIGHTS:** The Department proposes to accept EPA's particulate emissions certificate of compliance, permanent label, and laboratory emissions accreditation as equivalent to Oregon's requirements, and reduce certification fees. The Department will continue to require efficiency certification and labelling to fulfill statutory requirements.
- HOW TO COMMENT:** Copies of the complete proposed rule package may be obtained from the Air Quality Division in Portland 811 S.W. Sixth Avenue or the regional office nearest you. For further information contact Stephen Crane at (503) 229-5353.
- A public hearing will be held before a hearings officer at:
- (TIME) 9:00 am
(DATE) Tuesday, January 16, 1990.
(PLACE) Department of Justice
1515 SW 5th Ave. Portland, OR 97201: Suite 410, Room 1
- Oral and written comments will be accepted at the public hearing. Written comments may be sent to the DEQ, but must be received by no later than 5:00 pm. January 16, 1990
- WHAT IS THE NEXT STEP:** After public hearing the Environmental Quality Commission may adopt rule amendments identical to the proposed amendments, adopt modified rule amendments on the same subject matter, or decline to act. The adopted rules will be submitted to the U. S. Environmental Protection Agency as part of the State Clean Air Act Implementation Plan. The Commission's deliberation should come in February 23, 1990 as part of the agenda of a regularly scheduled Commission meeting.
- A Statement of Need, Fiscal and Economic Impact Statement, and Land Use Consistency Statement are attached to this notice.



811 S.W. 6th Avenue
Portland, OR 97204

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FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

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STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 25, 1990

TO: Environmental Quality Commission
FROM: Stephen Crane, Hearings Officer
SUBJECT: Hearing Report

Hearings Officer's report on the Department's proposal to amend OAR 340-21-100 through 340-21-190.

Schedule and procedures

The Department of Environmental Quality held a public hearing at the Oregon Department of Justice offices in Portland, Oregon on January 16, 1990. Public notices were published in the Secretary of State's Bulletin, The Oregonian, and a Notice of Public Hearing was sent to all known affected parties.

Eleven persons attended the hearing. Five persons testified, and written testimony was received from eighteen persons.

Major Issues

The majority of the verbal and written testimony presented agree that the Department's proposal to amend the Oregon Woodstove Certification Program by accepting the U.S. Environmental Protection Agency's (EPA) Woodstove Emission Certification program is a step in the right direction, but does not go far enough in totally replacing or deferring to EPA's program.

Ten people suggested that Oregon should defer its certification program entirely to EPA, by not only accepting EPA's emission certification, but also their overall thermal efficiency method when promulgated. This would benefit the industry by further reducing the administrative and financial costs and benefit the consumer by eliminating conflicting efficiency and heat output information.

The Wood Heating Alliance (WHA), representing the woodstove industry, and Earth Stove Marketing, Inc. stated that the Department's proposal (OAR 340-21-110) to require manufacturers to test pellet stoves to determine that the unit qualifies, as exempt, from Oregon certification is an unwarranted financial and administrative burden on the manufacturer. Both parties requested that this section of the rule be deleted. In addition, they were

concerned that this rule does not recognize or grant exemption from emission certification stoves produced by small manufacturers, export stoves, research and development stoves, or coal-only heaters.

The Wood Heating Alliance stated that OAR 340-21-115 does not recognize open masonry fireplaces constructed on site, boilers, furnaces, or cookstoves as non-affected facilities and not subject to EPA's certification requirements. The WHA recommends that this rule be re-worded to exclude these appliances from certification.

Several people commented that the certification fee places a financial burden on the manufacturer, increases the retail cost of a certified stove, and may preclude cleaner burning appliances from being sold in Oregon. Five people proposed that the Department should reduce its certification fees further to reflect the reduction in staff workload, and one person suggested that the fee be eliminated. They also pointed out that the adoption of Oregon's Woodstove Certification Program coupled with the promulgation of the EPA's New Source Performance Standard for Residential Wood Heaters has significantly reduced the number of woodstove manufacturers nationwide.

Four people testified that the Departments estimate of annual woodstove sales are too high, making the fiscal and economic impact of the proposed rule change inaccurate. The Wood Heating Alliance estimates that the total Oregon new woodstove sales for 1989 is less than 8,000 units and consistently ranges between 3,000 and 7,000 units.

EPA stated that the revised rules should accomplish their intended purpose and are sound.

Written testimony is available from the Department upon request.

TESTIMONY RECEIVED BY THE DEPARTMENT

<u>NAME</u>	<u>AFFILIATION</u>	<u>TESTIMONY</u>	
		<u>WRITTEN</u>	<u>VERBAL</u>
Daniel S. Henry	Aladdin Steel Products, Inc.	X	X
Jim Hermann	The Earth Stove	X	X
Ken Lehman	Regency Industries	X	X
Tim Nissen	Home Fire Stove	X	X
John Crouch	Wood Heating Alliance	X	

Grant Darrow	Oregon Chminey Sweeps Assoc.	X
William R. Day	Anchor Tool	X
Gary Satterfield	Wood Heating Alliance	X
Rick Curkeet	Warnock Hersey	X
Brian Drescher	Osburn Manufacturing	X
Robert W. Ferguson	Vermont Castings	X
John Francisty	Pacific Energy Woodstoves, Ltd.	X
Gary M. Hazard	NHC, Inc.	X
Peter W. Berg	Jotul U.S.A., Inc.	X
Alben T. Myren Jr.	EEMC	X
R. M. Griffith	Thermic, Inc.	X
David E. Gramlow	Pleasant Prairie Farms	X
Ken Wilson	Heatilator, Inc.	X
David S. Kircher	U.S. EPA, Region 10	X

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**RESPONSE TO TESTIMONY RECEIVED AT THE PUBLIC HEARING
ON PROPOSED CHANGES TO THE WOODSTOVE CERTIFICATION RULES**

The major issues identified in the public hearing testimony are summarized and discussed in this report. The issues are grouped into the following categories: (1) Eliminating the certification program, (2) Adopting EPA's efficiency program, (3) Reducing the certification fees, (4) Inaccurate fiscal and economic impact, (5) Providing a pellet stove exemption, (6) Allowing other exemptions, and (7) Exempt other non affected facilities.

Issue No. 1:

The Oregon Woodstove Certification Program should be eliminated entirely. Duplicating EPA's program serves no useful purpose other than to limit consumer access to cleaner burning stoves, increase certification costs and retail prices, and waste resources.

Response:

1. The Department proposes to retain its overall woodstove certification authority, at this time, since it is not certain that the emerging EPA certification program will affectively address Oregon's very serious woodstove air pollution problem. California, by retaining its motor vehicle certification authority, has been able to effectively address when necessary their serious automobile emissions problem where EPA's program has fallen short. Oregon should do likewise with the woodstove certification program.
2. EPA's national certification program may not provide the level of retail enforcement that is needed and warranted in Oregon. EPA has only two inspectors to cover the entire western US.
3. EPA has not yet adopted an effective and accurate woodstove efficiency labeling program (required by Oregon statute) which will continue to promote the manufacturer and sale of the highest efficiency and lowest emitting stoves.
4. EPA has not yet adequately demonstrated that it's program will address woodstove durability issues and ensure certified emission performance throughout the life of the stove.
5. The Department, by adopting much of EPA's certification program while retaining overall certification authority, is providing assurance that the cleanest burning woodstove technology will be sold within the state while minimizing the cost of certification to manufacturers and the public.

Colorado, which also has a woodstove certification program and a very serious air pollution problem, is also to this point, maintaining its state certification authority.

Issue No. 2:

The DEQ should not only amend the Oregon Woodstove Certification Program to accept the U.S. Environmental Protection Agency's (EPA) Woodstove Emission Certification program but should recognize and adopt EPA's alternate woodstove efficiency method and labeling, when promulgated, as satisfying Oregon's Statutory requirements. Amending the rules now would eliminate additional public hearings and prevent further delays in recognizing EPA's alternate efficiency test method.

Response:

1. The Department agrees and has added a provision to the proposed rules to recognize an EPA overall thermal efficiency method, when promulgated, as an alternative to Oregon's overall efficiency method if it is found to be accurate and appropriate.
2. The Department strongly believes and industry surveys indicate that efficiency testing and labeling promotes the sale of cleaner burning stoves. While differences in efficiencies of the latest certified stoves is now narrowing, new technological developments in the future could result in increased differences in efficiency. Maintaining an efficiency labelling program can provide incentives for encouraging such accurate development and attract consumers to purchase these devices.

Issue No. 3:

The Department should reduce its certification fees to "zero". The certification fee only increases the retail cost of a certified stove and may preclude cleaner burning appliances from being sold in Oregon.

Response:

1. Continued certification fees are needed to cover the cost of an effective retail enforcement program in the state. Certification fees are also needed to cover the costs of efficiency certification and labeling.
2. The proposed certification fees of \$500 (a reduction from current \$1,600 fees) should not add more than \$1 to \$4 to the cost of a stove based on an estimated 80 Oregon/EPA 1990 certified models, and annual sales ranging from approximately 5,000 to 20,000 units, amortized over a period of 2 years. These costs should not preclude the sale of cleaner burning appliances in Oregon.
3. Colorado, which desires to maintain a highly effective woodheating control program, also currently requires manufacturers to pay a certification fee ranging from \$1,585 to \$1,980 per model to fund their entire program. Oregon's woodstove control program will continue to be partially funded from federal and state funds.

Issue No. 4:

Industry figures indicate that the total number of new woodstoves sold in Oregon ranges from 3,000 to 7,000 units annually. They claim the fiscal and economic impact of the proposed rule change is much less than the Departments projections.

Response:

1. Accurate records of woodstove sales have never been, and still are not available. The Department's estimate of the number of new woodstoves sold in the state annually is based upon the industries estimate of a woodstove's life/replacement cycle of 15 years, historic replacement figures derived from surveys, and certification records.
2. The industry's estimates may reflect current conditions which are suspected to be the lowest of the last decade or two. Future sales could increase closer to historic levels. In any case, the industry will realize a reduction in costs associated with the certification rules ranging from \$36,500 if industry estimates are used, to approximately the \$100,000 estimated in the Fiscal Impact Statement if Department estimates are used. In either case, there will be a net reduction in costs to the industry.

Issue No. 5:

DEQ's proposal requires a pellet stove manufacturer to prove that the appliance qualifies for exemption from certification requirements. Under EPA's New Source Performance Standards for Residential Wood Heaters (NSPS) the manufacturer has the option of asking the EPA for a determination of the appliance's status as an affected facility or assuming it is exempt until EPA takes enforcement action. DEQ should delete this requirement entirely.

Response:

1. Historically, approximately 50% of all listed pellet stoves are subject to certification under Oregon's and EPA's rules. However, EPA's current program guidelines are allowing some pellet stoves, which should be certified, to be sold at retail without certification.
2. The Department has always required manufacturers to provide proof of exemption status since ORS 468.635 prohibits the sale of new woodstoves unless they have been tested to determine emission performance and heating efficiency.
3. The Department believes that pellet stoves should be tested for exemption because they are becoming a large share of the new stove market and could become an emission problem; certification and labeling will promote the sale of stoves which have proven to be low emitting, and exempt pellet stoves may have higher emissions and lower efficiency because of their higher air to fuel ratio (excess air).

Issue No. 6:

Exemptions from EPA's program may be granted to wood heaters which meet the following categories: 1) stoves produced by small manufacturers; 2) export stoves; and 3) research and development and coal-only stoves. Under the Departments proposed rules these stoves would have to be tested for exemption.

Response:

1. Although the EPA allows small manufacturers to sell uncertified woodstoves at retail until June 30, 1991, Oregon Revised Statute 468.635 requires all woodstoves, including those produced by small manufacturers, which are advertised for sale, offered for sale, or sold in the state after July 1, 1986 to be certified by the Department. In addition, the Department feels that allowing uncertified woodstoves to be sold within the state would lessen the progress made thus far in cleaning up Oregon's severe air pollution problem.
2. New woodstoves which are manufactured for export, and are not advertised for sale, offered for sale, or sold in Oregon are exempt from certification and Department regulation.
3. Oregon's certification program only regulates woodstoves and does not affect coal only stoves. In addition, stoves which are used for research and development purposes only, and are never offered for sale or sold, are exempt from the Department's and EPA's certification requirements.

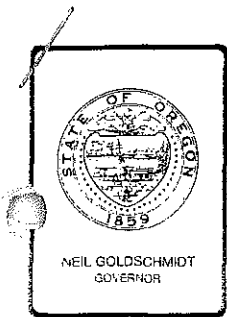
Issue No. 7:

The EPA's program recognizes four woodburning appliances as "non affected facilities" and are not subject to certification requirements. These appliances are: 1) open masonry fireplaces constructed on site; 2) boilers; 3) furnaces; and 4) cookstoves. The Departments proposed rules do not recognize these appliances as not subject to the Oregon's certification requirements.

Response:

1. The Department does not intend or require these types of appliances to be certified.
2. The Department has revised the proposed rules to recognize these appliances as being non affected facilities which do not have to be certified.

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Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 225

3/13/90

3/18/93

talk with AD, Standard
look out for testing
requirements

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990

Agenda Item: M

Division: Air Quality

Section: Planning and Development

SUBJECT:

Woodstove Certification Program: Adoption of Proposed Modifications to Conform to New Environmental Protection Agency (EPA) Requirements.

PURPOSE:

Accept EPA's woodstove emission certification program as meeting Oregon's requirements in order to eliminate duplication of effort, reduce requirements imposed on woodstove manufacturers, and reduce staff workload.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item ___ for Current Meeting
 - Other: (specify)

- Authorize Rulemaking Hearing
 - Adopt Rules
 - Proposed Rules
 - Rulemaking Statements
 - Fiscal and Economic Impact Statement
 - Public Notice

Attachment A
Attachment B
Attachment C
Attachment D

- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order

Attachment ___



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990
Agenda Item: N
Division: Air Quality
Section: Asbestos Control

SUBJECT:

Asbestos Program: Proposed Adoption of Rules on Air Clearance Sampling Requirements

PURPOSE:

To adopt an air clearance rule as an amendment to OAR 340-25-465(6), finalized after receiving public testimony in Salem, Oregon on January 18, 1990. The final air clearance rule will provide assurance for both the Department of Environmental Quality (DEQ, Department) and the public that asbestos abatement activities have been conducted properly.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item for Current Meeting
 - Other: (specify)

- Authorize Rulemaking Hearing
- Adopt Rules
 - Proposed Rules Attachment A
 - Rulemaking Statements Attachment B
 - Fiscal and Economic Impact Statement Attachment C
 - Public Notice Attachment D

- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment

- Approve Department Recommendation
 - Variance Request Attachment
 - Exception to Rule Attachment
 - Informational Report Attachment
 - Other: (specify) Attachment

Meeting Date: March 2, 1990
Agenda Item: N
Page 2

DESCRIPTION OF REQUESTED ACTION:

The proposed amendment would require final air clearance sampling for asbestos abatement projects in excess of National Emission Standards for Hazard Air Pollutants (NESHAPS) minimum size specifications (160 square feet/260 linear feet). To avoid bias and undue economic influences, sampling would be conducted by a third party financially independent from the persons conducting the asbestos abatement project. A clearance level of 0.01 fibers per cubic centimeters would have to be achieved before the pressure differential enclosure containment could be removed. This clearance would assure that asbestos abatement had been properly conducted and that abated areas are safe for reoccupancy.

AUTHORITY/NEED FOR ACTION:

<input type="checkbox"/> Required by Statute: _____	Attachment _____
<input type="checkbox"/> Enactment Date: _____	
<input checked="" type="checkbox"/> Statutory Authority: <u>OAR 468.893, 468.020</u>	Attachment _____
<input type="checkbox"/> Pursuant to Rule: _____	Attachment _____
<input type="checkbox"/> Pursuant to Federal Law/Rule: _____	Attachment _____
<input type="checkbox"/> Other:	Attachment _____
<input type="checkbox"/> Time Constraints: (explain)	

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/> Advisory Committee Report/Recommendation	Attachment _____
<input checked="" type="checkbox"/> Hearing Officer's Report/Recommendations	Attachment <u>E</u>
<input checked="" type="checkbox"/> Response to Testimony/Comments	Attachment <u>F</u>
<input type="checkbox"/> Prior EQC Agenda Items: (list)	Attachment _____
<input type="checkbox"/> Other Related Reports/Rules/Statutes:	Attachment _____
<input type="checkbox"/> Supplemental Background Information	Attachment _____

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

The written and verbal testimony received since November 16, 1989 has in summary been submitted for the Environmental Quality Commission's (EQC, Commission) review in attachments E and F. One common concern expressed by asbestos abatement contractors, facility owners and schools was the potential for increased abatement costs.

Several abatement contractors and facility representatives were interested in conducting their own air clearance sampling to avoid the cost of hiring an independent third party. The Department acknowledges that the independent third party requirement may increase abatement costs but has chosen to retain this section to assure accurate and unbiased

Meeting Date: March 2, 1990
Agenda Item: N
Page 3

clearance results. Increased abatement costs resulting from the air clearance rule will apply equally to all contractors conducting abatement projects, and are expected to be passed on to persons contracting for abatement services. The Department believes that the need to protect public health by requiring an independent third party to conduct sampling outweighs any potential negative effects of financially burdening contractors or those contracting for abatement. The proposed air clearance sampling rule will assure that asbestos abatement projects are performed correctly, and meet a commonly accepted standard for completion.

When the Department consulted Oregon abatement contractors about air clearance monitoring, it found that 80 percent favored a rule requiring air clearance, and most were already conducting some form of post abatement sampling. The Department anticipates situations in which contractors will encounter major practical difficulties in attempting to comply with the proposed air clearance rule. Under the proposed exemption provision, these situations may be resolved on a case-by-case basis when contractors can demonstrate extreme financial hardship, when clearance levels are physically unattainable, or when physical conditions necessitate alternate procedures.

PROGRAM CONSIDERATIONS:

The actual performance of air clearance sampling will generate additional paperwork for the Asbestos Program. However, these documents will complete the tracking of a regulatory process which starts with the submission of the "Notice of Intent to Remove Asbestos." Receipt of air clearance results will allow the Department to close its files on abatement projects by providing proof of completion. In itself, this added work should not significantly impact the Program's resources.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

The Asbestos Control Program has considered a variety of approaches in response to the need for air clearance sampling. They range from a high level of involvement in which program personnel would conduct on-site sampling alongside independent third party sampling to provide quality assurance, to the lowest level of involvement which, like many other states, would require no clearance sampling. The current position represents an economic middle ground.

The Department has chosen to allow standard phase contrast microscopic (PCM) analysis of air samples rather than require the more accurate but expensive transmission electron microscopic (TEM) analysis. While this approach is not consistent with the TEM requirements in schools under the

Meeting Date: March 2, 1990
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Page 4

Asbestos Hazard and Emergency Response Act (AHERA), it is supported by National Institute of Occupational Safety and Health (NIOSH) findings that PCM can reliably detect and measure fibers at the 0.01 f/cc level. The high cost of TEM analysis (\$300 to \$500/sample) would discourage compliance with air clearance rules in most commercial abatement settings. The proposed rules allow the use of TEM analytical methods, but do not require them.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

After due consideration of both written and verbal comments collected throughout the hearings process, the Department recommends that the Commission adopt the final revised amendments to OAR 340-25-465(6).

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

The final revised amendments to OAR 340-25-465(6) are consistent with the Department's program for controlling the emission of asbestos fibers into the environment and for protecting public health. The Department is unaware of conflicts between the amended rules, other state agencies or legislative policies.

ISSUES FOR COMMISSION TO RESOLVE:

None.

INTENDED FOLLOW-UP ACTIONS:

File the Rules with the Secretary of State.

Use the Program's mailing list to notify concerned parties about the new rule.

Print new rule and distribute as necessary.

Approved:

Section: Sarah V. Armistage
Division: Nick D. Jones
Director: Full House

Report Prepared By: Bruce E. Arnold
Phone: 229-5506
Date Prepared: February 14, 1990

BEA:a
ASB\AH813 (2/14/90)

FINAL AIR CLEARANCE SAMPLING RULE
OAR 340-25-465 (6)(i)

This proposed amendment would require that the air inside of a containment be documented to contain no more than 0.01 fibers per cubic centimeter of air before the barriers are removed.

340-25-465(6)(i) Final Air Clearance Sampling Requirements apply to projects involving more than 160 square feet or 260 linear feet of asbestos-containing material. Before a containment around such an area is removed, the person(s), contractor or facility owner/operator performing the abatement must document that the air inside the containment has no more than 0.01 fibers per cubic centimeter of air. The air sample(s) collected must not exceed 0.01 fibers per cubic centimeter of air. The Department may grant a waiver to this section or exceptions to the following requirements upon written request.

- A. The air clearance samples shall be performed and analyzed by a party who is NIOSH 582 certified and financially independent from the person(s) conducting the asbestos abatement project.
- B. Before final air clearance sampling is performed the following shall be completed:
- (i) All visible asbestos-containing debris shall be removed according to the requirements of this section.
 - (ii) The air and surfaces within the containment shall be sprayed with an encapsulant.
 - (iii) Air sampling may commence when the encapsulant has settled sufficiently so that the filter of the sample is not clogged by airborne encapsulant.
 - (iv) Air filtration units shall remain on during the air monitoring period.
- C. Air clearance sampling inside containment areas shall be aggressive and comply with the following procedures:
- (i) Immediately prior to starting the sampling pumps, direct exhaust from a minimum one horse power forced air blower against all walls, ceilings, floors, ledges, and other surfaces in the containment.
 - (ii) Then place stationary fans in locations which will not interfere with air monitoring equipment and directed toward the ceiling. Use one fan per 10,000 cubic feet of room space.

(iii) Start sampling pumps and sample an adequate volume of air to detect concentrations of 0.01 fibers of asbestos per cubic centimeter according to the U.S. National Institute of Occupational Safety and Health, (NIOSH) 7400 method.

(iv) When sampling is completed turn off the pump and then the fan(s).

(v) As an alternative to meeting the requirements of (i) through (iv) of this section, air clearance sample analysis may be performed according to Transmission Electron Microscopy Analytical Methods prescribed by 40 CFR 763.99, Appendix A to Subpart E.

D. The person(s) performing asbestos abatement projects requiring air clearance sampling will insure that the Department receives a copy of the clearance results within thirty (30) days after the monitoring procedures were performed.

RMW:a
ASB\AH599 (1/90)

SED 424
(1/1/87)

NOTICE OF PROPOSED RULEMAKING HEARING

AGENCY: Department of Environmental Quality

The above named agency gives notice of hearing.

HEARING(S) TO BE HELD:

Date: Jan. 18, 1990 Time: 9:30 a.m. Location: Oregon Department of Transportation Building
Room 122
300 E. Summer Street
Salem, OR 97310

Hearings Officer(s): _____

Pursuant to the statutory authority of ORS 468.893

the following action is proposed:

ADOPT: _____

AMEND: OAR 340-25-465

REPEAL: _____

SUMMARY:

The proposed amendment would require final air clearance sampling for asbestos abatement projects in excess of the National Emission Standards for Hazard Air Pollutants minimum size specification (160 square feet/260 linear feet of asbestos containing material). Sampling must be conducted by a third party financially independent of the contractor; a minimum number of samples is specified. A clearance level of 0.01 fibers per cubic centimeter of air must be achieved before the pressure differential enclosure can be removed. Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments received by January 22, 1990 will also be considered. Written comments should be sent to and copies of the proposed rulemaking may be obtained from:

AGENCY: Department of Environmental Quality

ADDRESS: Air Quality Division

811 S. W. Sixth Avenue

Portland, OR 97204-1390

ATTN: Bruce E. Arnold

PHONE: 229-5506

Signature

Date

Bruce E. Arnold

December 20, 1989

STATEMENT OF NEED FOR RULEMAKING

Pursuant to ORS 183.335(2), this statement provides information on the intended action to amend rules.

Legal Authority

1. Oregon Revised Statute 468.020 requires the Commission to adopt rules and standards as necessary to perform its vested functions.
2. Oregon Revised Statute 468.893 allows the Commission to establish standards and procedures for asbestos training providers and abatement workers, determine procedures for abatement project notification, and to establish asbestos abatement, handling and disposal work practice standards.

Need for the Rule

The proposed amendment is the response to current industrial practices, and a need to ensure that asbestos abatement projects are performed properly meeting standards for satisfactory completion.

Principal Documents Relied Upon

- 40 CFR Part 763
- ORS 468.020, 468.893
- Existing Oregon Administrative Rules:
 - OAR 340-25-465, Hazardous Air Contaminant Rules for Asbestos
 - OAR 340-33-010 et. seq., Asbestos Licensing and Certification Requirements

Land Use Compatibility Statement

The Department has concluded that the proposed rules do not appear to affect land use, and will be consistent with Statewide Planning Goals and Guidelines.

FISCAL AND ECONOMIC IMPACT STATEMENT

The proposed amendment will, in all likelihood, create additional costs for asbestos contractors, but as an offset it will help ensure that asbestos abatement work is demonstrably conducted to an acceptable level, thus assuring fair value for asbestos abatement services.

Furthermore the economic impact will vary from contractor to contractor. An informal survey conducted by the Department found almost ninety percent of Oregon based contractors already conducted some type of post-abatement air sampling for numerous reasons i.e. contract specifications, insurance requirements, industry work practices and to limit contractor liability.

Therefore individual cost increases will be a function of the difference between the contractor's pre-existing sampling programs and that specified in the amendment.

ASB\AH422

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

**Amendment to Asbestos Work Practice Rules
NOTICE OF PUBLIC HEARING**

Hearing Date: January 18, 1990
Comments Due: January 22, 1990

- WHO IS AFFECTED:** All persons performing asbestos abatement projects, and asbestos training providers.
- WHAT IS PROPOSED:** The Department of Environmental Quality is proposing to amend OAR 340-25-465(6).
- WHAT ARE THE HIGHLIGHTS:** The proposed amendment would:
- require final air clearance sampling for asbestos abatement projects above 160 square feet/260 linear feet
 - require a third party, financially independent of the contractor to conduct the sampling
 - specify a minimum number of samples to be taken
 - require air clearance monitoring upon completion of abatement projects
 - require a clearance level of 0.01 fibers per cubic centimeter before the pressure differential enclosure can be removed
- HOW TO COMMENT:** Copies of the complete proposed rule package may be obtained from the Air Quality Division in Portland 811 S.W. Sixth Avenue or the regional office nearest you. For further information contact Bruce Arnold at 229-5506.
- A public hearing will be held January 18, 1990, 9:30 a.m. at the:
- Oregon Department of Transportation Building
300 E. Summer Street, Room 122
Salem, Oregon
- Oral and written comments will be accepted at the public hearing. Written comments may be sent to the DEQ, but must be received by no later than January 22, 1990.
- WHAT IS THE NEXT STEP:** After public hearing the Environmental Quality Commission may adopt a rule amendment identical to the proposed amendment, adopt modified rule amendment on the same subject matter, or decline to act. The Commission's deliberation should come March 2, 1990 as part of the agenda of a regularly scheduled Commission meeting.

A Statement of Need, Fiscal and Economic Impact Statement, and Land Use Consistency Statement are attached to this notice.



811 S.W. 6th Avenue
Portland, OR 97204

11/1/86

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

ASB\AR1340 (1/2/90)

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 24, 1990

TO: Environmental Quality Commission

FROM: Bruce Arnold, Hearings Officer (Certification Coordinator)

SUBJECT: Hearings Officer's Report

Hearings Officer's report on the Department's proposal to amend OAR 340-25-465 (6) (i) creating a final air clearance sampling rule for full-scale asbestos abatement projects greater than 160 square feet or 260 linear feet.

The Department of Environmental Quality held a single hearing in Salem, Oregon on January 18, 1990 in the Oregon Department of Transportation Building. The place and time were previously announced in the Secretary of State's Bulletin, Daily Journal of Commerce, and Eugene Register Guard. There were 17 people in attendance, four testified. From the time the rule was initially proposed in November 1989, the Department received 19 pieces of written testimony. These are listed separately at the end of this report.

The Department received seven written comments in support of the proposed rule. The U.S. Environmental Protection Agency strongly supports the Department's efforts to adopt air clearance sampling requirements. Representatives of building owners stated that they currently have little confidence in the safety of areas in which asbestos abatement has been performed. The proposed air clearance sampling rule will assure building owners that asbestos abatement has been performed safely, and abated areas are safe for reoccupancy.

The two contractors and two facility owners testifying at the January hearing objected to OAR 340-25-465 (6) (i) (A) which specifies that a third party financially independent of the asbestos abatement must perform the air sampling. The objections were based on several common themes, namely: (1) The use of independent third parties increases the cost of air clearance sampling, (2) Facilities should be allowed to use their own certified supervisors to take samples and their properly qualified labs should be allowed to analyze the samples as facilities have a greater interest in accurate results, (3) Based upon one contractor's survey there is a limited number of persons available to support all the air sampling needs of the state. These concerns were echoed by six letters submitted to DEQ.

Another common concern expressed in the written testimony was with the clearance standard itself which is 0.01 fiber/cubic centimeter. Several persons thought that the clearance standard should be the same as the Oregon OSHA permissible exposure level of 0.1 fibers per cubic centimeter. A

consultant commented that the Department should set the clearance standard at .01 fibers/cc or pre-abatement sample levels, which ever is lower. This would result in more stringent protection of public health.

Others voiced concern that Phase Contrast Microscopy can not reliably evaluate samples in the proposed range of 0.01 f/cc. Another issue involved abatement activities in so-called "dirty" areas such as paper mills and ship yards. Testifiers claimed it was impossible to get clearance samples in such places without extraordinary efforts.

There were several issues voiced by only one or two commenters. One felt that the required use of encapsulant in hot areas (100°F and above) should be deleted as this created several problems including ruptured pipes and congealed encapsulant not acceptable for re-insulation. EPA's Idaho Operations Office offered comments regarding sampling protocol.

This completes the Hearings Officer's summary of verbal and written testimony received January 18, 1990. The full text of the written comments and the audio cassette of the hearing is available for examination.

**TESTIMONY
WRITTEN TO THE DEPARTMENT
by
JANUARY 22, 1990**

<u>ENTITY</u>	<u>SIGNATORY</u>
Archdiocese of Portland in Oregon	Don Nissly, LEA Designate
Air Quality Services	Quin Million, V.P.
Eastern Oregon State College	Dick Townsend, Supervisor EOSC
Environmental Consulting, Services Inc.	Shiela A. Monroe
David Evans and Associates Inc.	Shawn C. Williams, Project Manager
Gerry Hobson General Contracting	Jim Hobson
Lake Oswego Insulation Co.	John Mayer, John M Kerekes
Lane Regional Air Pollution Authority	Donald R. Arkell
Northwest Marine Iron Works	W.H. Woods, Safety manager
Oregon Institute of Technology	R.E. Wilttrout, Director of Physical Plant

Oregon State System of
Higher Education

Elizabeth K. Dickenson, Risk
Manager and Art Mancl, Director
of Campus and Building Planning

Professional Environmental
Associates, Inc.

Jim Chartier, General Manager

Roseburg Forest Products

Jose Phillips, Corporate Safety
Officer

Roseburg Public Schools

Steve Chaney

Stoel, Rives Boley, Jones & Gray

J. Mark Morford

TEKTONIKS

Shawn F. McCrery and Mike L. Feucht
TEKTONIKS Corporation.

USEPA, Region 10, Idaho
Operations Office

Tim T. Trumbull, Asbestos Program
Coordinator

W.L. Thomas, Inc.

Lester Pluard, Vice Present

Weyerhaeuser Paper Co.

Dick Gimby, Astestos Coordinator

BEA:a
ASB\AH811

**RESPONSE TO COMMENTS RECEIVED
ON
PROPOSED AMENDMENTS TO THE ASBESTOS REGULATIONS**

The Department has given full consideration to all comments submitted regarding the proposed Air Clearance Sampling Rule. These comments may also be considered in subsequent rule revisions.

OAR 340-25-465 (6) (i) Specifies when and who must conduct final air clearance sampling and the acceptable level of asbestos concentrations.

COMMENTS:

There was considerable discussion as to whether contractors could use their certified supervisors to take air samples, or if facilities could be solely responsible for air samples taken within their purview.

RESPONSE:

Allowing asbestos abatement contractors to perform their own air clearance sampling would defeat the purpose of the proposed rule. The air clearance rule is intended to assure building owners, the public, and those contracting for abatement services that abatement has been performed thoroughly and safely.

The Department accepts the notion that facilities have a strong interest in obtaining accurate reliable air sampling results. However, we believe that like contractors, facilities are not immune from the economic pressures that could lead to biased or inaccurate clearance results.

COMMENTS:

Most respondents agreed that the 0.01 fibers per cubic centimeters was a reasonable, attainable level of residual asbestos contamination. However, a few felt that the final air clearance level should be equal to the OR OSHA action level of 0.1 f/cc, and one commenter suggested adoption of pre-abatement fiber levels if they were lower than .01 f/cc.

RESPONSE:

As the 0.01 f/cc concentration is widely accepted by the regulatory community and the 0.1 f/cc action level is specifically designed for healthy adults of working age, who are exposed to asbestos concentrations for only

eight hours a day, the asbestos program will retain the higher level to provide protection for the environment and the whole human population.

OAR 340-25-465 (6) (i) (A) specifies that final air clearance samples be taken by a person financially independent of the asbestos abatement contractor.

COMMENTS:

Several issues are related to this section. School representatives claim that the expense of third party sampling is burdensome on already strained public education budgets. One contractor surveyed the availability of qualified air sampling technicians and concluded that there are insufficient numbers of qualified people to support the air sampling needs of all the licensed contractors.

RESPONSE:

The Department acknowledges the added financial burden of the independent third party requirement. Although the environmental consultant survey was informative, its conclusions are not sufficiently compelling to justify allowing contractors to conduct their own air clearance sampling. The Department believes that the need to protect public health by assuring unbiased, accurate clearance sampling outweighs the negative impact of financially burdening contractors, or those who contract for asbestos abatement services.

All abatement contractors will be equally affected by this new requirement, and are expected to pass associated costs on to persons contracting for their services. An increased demand for technicians capable of performing clearance sampling should result in increased availability. If contractors are unable to comply with the requirements of the air clearance rule, the Department may exercise a provision allowing exemptions, following written requests.

OAR 340-25-465 (6) (i) (B): Specifies the final air clearance sampling protocol.

COMMENTS:

There were only a few comments on this portion of the rule. The first sought exemption from the spraying of encapsulant in hot work areas where the temperature exceeded 100 F. A consulting firm argued that the delay between taking the air samples and the availability of the results caused the client a loss of the productive use of their property, and suggested that contractors should be able to remove all but the most necessary components of the enclosure. These would be removed by the property owner when the air sample reached clearance levels.

RESPONSE:

The Department expects that hot works concerns will be accompanied by dry removal requests, and will deal with both within the exemption provisions of this section and elsewhere in OAR 340-25-465. The Department is not convinced that partially dissembled air pressure differential enclosures will continue to provide the same environmental or public health protection as full containments. Therefore this suggestion has not been adopted at this time.

OAR 340-25-465 (6) (i) (C) This section specifies that air clearance samples shall be taken with "aggressive methods" which include the agitation of the air within the enclosure using leaf blowers and floor mounted fans for the duration of sample collection.

COMMENTS:

Comments on this section were technical in nature and included advice on the upward limits for air velocities for sampling (10 liters/minute), the levels of fiber concentration detection for phase contrast or transmission electron microscopy and the cost of obtaining required asbestos concentrations inside containment.

RESPONSE:

The Department recognizes that various regulatory programs specify different air velocities when sampling for asbestos concentrations, but will rely upon the standard recommendations stipulated in the NIOSH 7400 methods. The Department is convinced that EPA and NIOSH findings regarding the suitability of PCM to reliably detect and measure fibers at the 0.01 f/cc level is correct and acknowledges that the method cannot distinguish between asbestos fibers or other fibers contained within the sample. PCM is the expected level of analysis, but the use of TEM is contemplated as an alternative

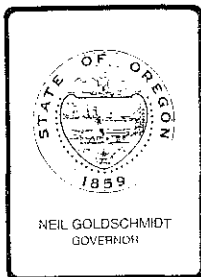
MISCELLANEOUS COMMENTS:

One commenter said that to expect industrial environments to reach the air clearance level was unrealistic as the ambient air is usually in excess of the 0.01 f/cc level and often near the action level. In light of this reality, an exemption was sought for abatement operations affected by this situation.

RESPONSE:

The Department realizes that there could be numerous situations in which contractors could not conform to this rule, and has created an exemption provision to resolve such problems on a case by case basis. If the Department discovers that the magnitude or type of exemption requests warrant a rule to expedite administration by the Asbestos Program such rules could be adopted.

BEA:a
ASB\AH812 (1/90)



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR HEARING AUTHORIZATION

Meeting Date: March 2, 1990
Agenda Item: 0
Division: Environmental Cleanup
Section: Site Assessment

SUBJECT:

Confirmed Release List and Inventory and Hazardous Waste Management Fees: Authorization for Hearing on Proposed Rule Amendments to Establish Criteria and Procedures for Adding and Removing Sites per HB 3235 and Amend Fees.

PURPOSE:

The proposed rules provide criteria and procedures for implementation and administration of a hazardous substances site discovery program, including a process for evaluation and preliminary assessment of releases of hazardous substances, and a process for developing and maintaining a statewide list of confirmed releases and an inventory of sites requiring investigation, removal, or remedial action; and amend rules pertaining to the fee for wastes entering hazardous waste disposal facilities to conform to amendments in the authorizing statute, ORS 465.375.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item ___ for Current Meeting
 - Other: (specify)
- Authorize Rulemaking Hearing
- Adopt Rules
 - Proposed Rules, including Preamble Attachment A
 - Rulemaking Statements Attachment B
 - Fiscal and Economic Impact Statement Attachment B
 - Public Notice Attachment C
- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment ___

Meeting Date: March 2, 1990

Agenda Item: 0

Page 2

<input type="checkbox"/> Approve Department Recommendation	
<input type="checkbox"/> Variance Request	Attachment <input type="checkbox"/>
<input type="checkbox"/> Exception to Rule	Attachment <input type="checkbox"/>
<input type="checkbox"/> Informational Report	Attachment <input type="checkbox"/>
<input type="checkbox"/> Other: (specify)	Attachment <input type="checkbox"/>

DESCRIPTION OF REQUESTED ACTION:

Hearing authorization is requested to receive comment on proposed site discovery rules, including related changes in the environmental cleanup rules at OAR 340-122-010 et seq., and in rules pertaining to the \$20/ton hazardous waste management fee.

The proposed rules provide the substantive detail and procedural structure necessary for the Department of Environmental Quality (Department) to implement the hazardous substances site discovery program mandated by ORS Chapter 465, as amended by the 1989 legislature under House Bill 3235. The proposed rules:

- (a) Establish a process for the initial evaluation of reported releases of hazardous substances (new rule);
- (b) Establish a process for the preliminary assessment of releases of hazardous substances (amends OAR 340-122-060);
- (c) Define "confirmed release" to limit the types of releases which will be included on a list of confirmed releases and an inventory of sites requiring investigation, removal, or remedial action (new rule);
- (d) Establish the criteria and procedures for developing and maintaining a list of facilities with confirmed releases and an inventory of facilities which require additional investigation, removal, or remedial action (new rule); and
- (e) Revise the definition and conditional exemption for "permitted releases" in the environmental cleanup rules, OAR 340-122-020(6) and 340-122-030(2), and delete the preliminary assessment section of those rules, OAR340-122-060, to conform to the proposed site discovery rules.

ORS 465.375, amended by HB3235, also extends the \$20/ton fee imposed on wastes entering hazardous waste disposal facilities to all wastes, not only hazardous wastes and polychlorinated biphenyls. The proposed rule amends the

Department's hazardous waste management fee to incorporate this change.

AUTHORITY/NEED FOR ACTION:

<input checked="" type="checkbox"/> Required by Statute: <u>ORS 465.405</u>	Attachment <u>D</u>
Enactment Date: <u>June 28, 1989</u>	
<input type="checkbox"/> Statutory Authority: <u>ORS 465.400(1);</u>	
<u>465.405; & 468.020</u>	Attachment <u> </u>
<input type="checkbox"/> Pursuant to Rule: <u> </u>	Attachment <u> </u>
<input type="checkbox"/> Pursuant to Federal Law/Rule: <u> </u>	Attachment <u> </u>
<input checked="" type="checkbox"/> Time Constraints:	Attachment <u> </u>
ORS 465.405 requires the Commission to adopt rules to implement the site discovery program by March 28, 1990	

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/> Advisory Committee Report/Recommendation	Attachment <u> </u>
<input type="checkbox"/> Hearing Officer's Report/Recommendations	Attachment <u> </u>
<input type="checkbox"/> Response to Testimony/Comments	Attachment <u> </u>
<input checked="" type="checkbox"/> Prior EQC Agenda Items:	
Delisting sites from the Inventory and modifying information in the Inventory, Agenda Item H, EQC Meeting 1/20/89	
<input type="checkbox"/> Other Related Reports/Rules/Statutes:	Attachment <u> </u>
<input checked="" type="checkbox"/> Supplemental Background Information:	
Environmental Cleanup Advisory Committee	Attachment <u>E</u>
Diagram: Evaluation, Preliminary Assessment, Listing Process	Attachment <u>F</u>
Timeline for Adoption of Ranking Procedure	Attachment <u>G</u>
Alternative Provision: Interim Ranking Procedure	Attachment <u>H</u>
Letter to Director of the Department (Director) from Rep. Ron Cease and Sen. Dick Springer with Director's response	Attachment <u>I</u>

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

1. The proposed site discovery rules do not impose any new requirements or liabilities on the regulated community.

Nevertheless, the publication of the list of confirmed releases and the inventory of sites requiring further investigation, removal, or remedial action may affect the value or trigger the investigation or cleanup of listed or neighboring property. To the extent that the listing process affects these actions, the proposed rules may have fiscal and economic impacts on owners and operators of property contaminated by hazardous substances, as well as neighboring property, and on persons liable for the investigation and cleanup of such property. These persons include public and private entities and small and large businesses. See Fiscal and Economic Impact Statement, Attachment B.

2. The Environmental Cleanup Advisory Committee (Committee), appointed by the Director, has assisted the Department in developing the proposed rules. The Committee, chaired by Senior Judge John Beatty, consists of 21 members representing citizens, local governments, environmental organizations, and industry. Attachment E identifies the members. The Committee has approved the proposed rules for hearing authorization.

A letter from Representative Cease and Senator Springer to the Director of the Department of Environmental Quality which discusses concerns regarding the threshold for listing as a "confirmed release" recommended by the Committee is included in Attachment I, along with the Director's response. The proposed rules avoid the threshold problem identified.

3. The proposed extension of the hazardous waste disposal fee to all wastes entering a hazardous waste disposal facility is not expected to impact the regulated community. The only permitted disposal facility in Oregon to which this fee applies has been collecting the fee on all wastes for some time.

PROGRAM CONSIDERATIONS:

1. The proposed rules implement a statewide site discovery program as mandated by ORS Chapter 465. The statute, as amended by the legislature in 1989, provides for a program to identify any release or threat of release of a hazardous substance from a facility that may require remedial action; a process for the evaluation and preliminary assessment of releases identified; and a process for publishing a statewide list of confirmed releases and an inventory of sites with a confirmed release which, based on a preliminary assessment, the

Department determines require investigation, removal, or remedial action.

For the most part, the proposed rules provide the substantive criteria and procedural structure necessary to implement and administer this site discovery program. With respect to the definition of "confirmed release", however, the rules also specifically limit the types of releases of hazardous substances that will be included on the confirmed release list and the inventory. The Department has proposed a definition that reflects its understanding of legislative intent.

ORS 465.405 requires the Commission by rule to define "confirmed release" for purposes of listing sites on the confirmed release list and the inventory. In defining "confirmed release", the Commission must exclude categories of releases which it finds pose no significant threat to present or future public health, safety, welfare, or the environment.

The proposed rules define "confirmed release" to include only those releases which may require removal or remedial action. Other releases are specifically excluded. OAR 340-122-427. Most of the exclusions are applied case-by-case, including a general exclusion for any release which "otherwise requires no additional investigation, removal, remedial action, or related long-term environmental controls or institutional controls." However, the rules also categorically exclude "permitted or authorized releases". The Department believes the Commission can find that permitted and authorized releases pose no significant threat in the sense contemplated in ORS 465.405 because they are currently or potentially subject to permit or other regulatory controls or abatement authorities and would not require removal or remedial action. (The rules make it clear, however, that releases that result from deposition, accumulation or migration of substances from otherwise-authorized releases are not excluded from listing since they may not be remediable through regulatory authorities or controls and may require removal or remedial action.) See Introduction to Rules, OAR 340-122-401 for further discussion of these exclusions.

In addition, the Department believes that limiting "confirmed releases" to sites potentially requiring removal or remedial action reflects the intent of the legislature in providing for a site discovery program. See, for example, the legislative findings (ORS 465.205), the authorities provided (ORS 465.210), the

purpose of the statewide site identification program (ORS 465.220), and the description of the lists (ORS 465.215, and 465.200(6)).

An alternative would be to define "confirmed release" to include all releases other than those statutorily excluded on a case-by-case basis as posing no significant threat. The list of confirmed release would include not only sites potentially requiring removal or remedial action (as in the proposed rule), but also sites subject to abatement through permitting or regulatory controls.

The major drawback of this alternative is that hundreds of sites subject to existing permits or regulatory controls would be listed as "confirmed releases". The Department would be required to complete a resource-intensive evaluation of every permitted or authorized releases to determine whether it posed a significant threat. This specific finding is not, in many instances, made for each substance in every waste stream permitted or authorized (even though authorization may be based on other criteria designed to protect public health and the environment). Unless clearly excluded as posing no significant, these releases would be listed on the confirmed release list pending further assessment and adoption of any additional controls determined necessary. As a result, the listing process would indirectly drive a new "no significant threat" permitting standards. The Department does not believe this is the intent of the legislature; permit and regulatory standards and priorities are addressed in other legislation and programs within the Department.

Moreover, most of the permitted and authorized releases listed under this alternative will already be identified for the public elsewhere pursuant to such statutes as Title III of the Superfund Amendments and Reauthorization Act or the Oregon Community Information on Hazardous Substances Act, or through the Department's permitting processes. The Department believes the significant resources required to develop and maintain a duplicative master list of releases would be more effectively used to address the problems identified.

Even with the proposed exclusions, the Department will still be required to evaluate all reported releases of hazardous substances and document its conclusions. However, it will list only those potentially requiring removal or remedial action. With respect to "permitted or authorized releases", the Department will conclude its evaluation in most cases upon determining that the

release meets the definition in the rules, but will evaluate the potential for deposition, accumulation, or migration on a case-by-case basis as warranted. For the most part, however, the Department intends to address deposition from these types of releases more comprehensively through its site identification program consistent with air and water program priorities.

2. The site discovery program described in the proposed rules will be implemented Department-wide. All programs within the Department which address releases of hazardous substances will be involved in evaluations and preliminary assessments, and in maintenance of the Department database of suspected releases, list of confirmed releases, and inventory of sites requiring further investigation, removal, or remedial action.

The proposed rules establish the substantive criteria and the procedural structure necessary to administer this program. The Department intends in addition to develop internal procedures and guidelines to help ensure that the rules are consistently applied throughout the Department. Internal guidance will include documentation forms and guidelines for evaluations and preliminary assessments; data quality guidelines for listing and delisting determinations; guidelines for "de minimis" and "no further action" determinations; and procedures for maintaining the Department database of suspected releases, the confirmed release list, and the inventory and for listing and delisting facilities.

The Department intends to involve the Environmental Cleanup Advisory Committee in developing this internal guidance. In addition, the Department will coordinate guidance development for these rules with related activities in its voluntary cleanup initiative, described in the following paragraph.

3. The Department expects these rules to significantly increase the demands on Department resources. Some programs will undertake additional evaluation and documentation of releases, and the development and maintenance of the confirmed release list and inventory will significantly add to the workload as well. However, the most substantial demand will come from additional requests for Department oversight of private party assessment, investigation, and cleanup activities as these rules are implemented. Private parties will request approval of their activities to avoid listing of their sites or to expedite removal from the lists.

The Department already receives more requests to oversee private party work than it can accommodate. To address these present and anticipated demands, the Department has initiated a process, the voluntary cleanup initiative, to better define the workload problem and identify alternatives for effectively addressing more sites. The effort focuses particularly on managing low priority, voluntary, private party lead sites. Alternatives may include providing more focused technical guidance; streamlining administrative and technical procedures; and identifying and pursuing needed resources, rule changes, and statutory changes. The Department plans to complete its initial evaluation and discuss recommendations with the Environmental Cleanup Advisory Committee by spring 1990.

4. The proposed rules also amend the definition of "permitted release" in the environmental cleanup rules, OAR 340-122-020(6), and the conditional exemption from application of those rules to permitted releases, OAR 340-122-030(2), to conform to the proposed site discovery rules. The proposed rules exclude permitted and authorized releases from application of the cleanup rules, but clarify that any release resulting from the deposition, accumulation, or migration from an otherwise-authorized release is subject to those rules. See Attachment A.

These changes reflect the findings that permitted and authorized releases can be adequately controlled through the Department's permit or other regulatory control programs and will not be subject to removal or remedial action. The changes clarify, but do not affect the operation of the environmental cleanup rules.

5. ORS 465.410 requires the Commission to adopt by March 28, 1990 a procedure for ranking facilities on the inventory based on the short and long-term risks they pose to present and future public health, safety, welfare, or the environment. Based on the experiences of other states and the Environmental Protection Agency (EPA) in adopting ranking procedures, the Department believes that additional time is needed to develop an adequate procedure for Oregon. The Department is now working with a contractor to assist in modifying an existing state or federal ranking model, if possible, for EQC adoption by December 1990. Projected time-lines for completion of a ranking procedure are included in Attachment G.

The Commission could nearly meet the statutory deadline by adopting the existing federal hazard ranking system

(HRS I, used to rank sites for the federal National Priorities List) as an interim model. However, HRS I does not adequately address environmental factors, as required by ORS 465.410, or mobility or toxicity factors. (EPA's proposed revision of HRS I, HRS II, has not yet been adopted and is much too resource intensive for the state's program.)

Rather than adopting an interim model to apply to the initial sites added to the new inventory, the Department prefers not to rank sites on the inventory until a final model is adopted. (An estimated 40 sites will be added before a final ranking procedure is expected.) In the interim, the inventory will include information regarding listed facilities and releases, other than relative risk, for the public and for the Department to use in allocating resources. Work at listed sites will not be affected by the delay in ranking; the Department will continue to prioritize activities using its current processes.

Adoption of an interim ranking procedure is discussed later in this report as an alternative considered by the Department and as an issue for the Commission to consider. An optional draft rule adopting HRS I is included as Attachment H.

6. The Department considers the costs associated with the evaluation, assessment, and listing and delisting of sites on the confirmed release list and inventory to be "remedial action" costs potentially recoverable under ORS Chapter 465, as well as similar cost recovery provisions of other statutes. The Department intends to track costs incurred in these activities in accordance with cost recovery policies, and to continue to require reimbursement of its costs as a condition for overseeing private party activities, and may seek cost recovery at sites where actual site remediation costs are incurred.

The Department will not, however, require payment of recoverable costs as a condition for removing a facility from the confirmed release list or the inventory. Facilities will be removed if they meet the criteria for removal set forth in the final rules.

7. The proposed rules include requirements for periodic public notice of additions to the inventory and for public notice and participation prior to removal of sites from the inventory. Although these notices are not required by statute, the Department recognizes the public interest in the inventory and believes the proposed procedures will help inform the public of

significant actions. The notice provisions are consistent with the public process required by the environmental cleanup rules, OAR 340-122-020 et seq. Persons with property affected by a site listing may object to the delays in delisting caused by these notice requirements.

8. The evaluation, assessment, and listing of sites on the confirmed release list and the inventory are consistent with parallel processes in the federal Superfund program. EPA and the Department, using federal dollars, conduct preliminary assessments and site investigations similar to those conducted under the State's program. Following these initial evaluations, however, the EPA pursues only those few sites which are candidates for the National Priorities List (NPL). These are sites which appear, based on EPA ranking, to pose the most serious threats to public health and the environment. The Department may continue activities at some of the NPL sites, as needed, but will focus on the sites not addressed under the federal program. The Department will continue to coordinate activities with the EPA so that the programs complement each other.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

1. Submit the draft rules for public comment as proposed (limiting "confirmed release" to releases potentially requiring removal or remedial action, and categorically excluding "permitted or authorized releases"), and postpone adoption of a ranking procedure. (Discussed in Program Consideration 1)

This alternative establishes the criteria and procedures required by ORS Chapter 465 and necessary for the Department to proceed with the site discovery program. The limitation of sites listed as "confirmed releases" avoids costly review and listing of potentially hundreds of permitted and authorized releases, avoids conflicts with permit program standards and priorities, and does not affect the availability of public information on releases of hazardous substances under other federal and state reporting statutes. The categorical exclusion for permitted and authorized releases under this construction of "confirmed release" simply excludes categorically releases which would otherwise be excluded case-by-case and streamlines the evaluation process. The exclusion does not affect the Department's authorities or any person's liability for cleanup.

The Commission can find under Chapter 465 that "permitted and authorized releases" pose no significant

threat as contemplated by the statute because they can be adequately controlled through permit and other regulatory control programs and will not require removal or remedial action. This construction appears also to achieve the intent of the legislature in developing a site discovery program to identify and address sites requiring investigation and cleanup.

Postponing the adoption of a ranking procedure is likely to delay for a few months the relative ranking of the initial sites added to the inventory (estimated 40), but will not affect Department actions at inventory sites. Other site information required in the inventory will be provided to the public in the interim. Moreover, an interim model would not fully address the ranking factors required by statute.

2. Submit for public comment revised rules which list as "confirmed releases" all releases except those statutorily excluded on a case-by-case basis as posing no significant threat. (Discussed in Program Consideration 1)

This alternative also establishes the criteria and procedures required by ORS Chapter 465 and necessary for the Department to proceed with the site discovery program. This alternative incorporates a literal interpretation of ORS 465.405 directing the Commission to exclude categories of releases which it finds pose no significant threat, and would provide broad public information. Releases subject to permit or regulatory controls would be listed unless found on a case-by-case basis to pose no actual significant threat.

However, including permitted and authorized releases as "confirmed releases" would impose a costly administrative burden on the agency to review and list potentially hundreds of additional sites which will be addressed under permit and regulatory controls and will not require removal or remedial action. The listing process would also indirectly drive a new permit review standard potentially in conflict with other laws and regulations. The additional listings would duplicate reporting under other statutes and would divert resources from addressing problems identified. These results do not appear to be the intent of the legislature in mandating a site discovery program and can be easily avoided.

3. Submit for public comment the draft rule as described in Alternative 1 or 2, but include an interim ranking procedure (HRS I) as proposed in Attachment H.

Proposing an interim ranking procedure for public comment would enable the Commission to adopt a ranking procedure near the March 1990 statutory deadline and would enable the Department to rank sites when added to the inventory (an estimated 40, beginning as early as August 1990) without the estimated six month delay pending adoption of a final procedure.

However, the only existing ranking procedure that can be readily adopted and the one proposed in Attachment H, HRS I, does not address environmental threats as required by ORS 465.410, and includes other deficiencies that would also need to be addressed in a final ranking procedure. Department actions on inventory sites will not be affected by a delay in the ranking procedures; and the information regarding facilities included on the inventory, other than ranking, will be provided to the public in the interim. The Department will need to rank then rerank an estimated 40 sites if both an interim and subsequent final ranking system are adopted.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends Alternative 1. This alternative establishes the criteria and procedures required by ORS Chapter 465 and necessary for the Department to proceed with development of the site discovery program.

Categorically excluding permitted and authorized releases from the listing process is authorized by statute and achieves the intent of the legislature more appropriately than Alternative 2 (proposed rules without such exclusions). It also avoids costly and potentially conflicting review and listing of these releases. The exclusions do not affect the availability of information regarding excluded releases under other federal and state statutes or the Department's authorities or any person's liability for cleanup.

Postponing the adoption of a ranking procedure is likely to delay for a few months the relative ranking of the initial sites added to the inventory, but will not affect Department actions at inventory sites. Other site information required in the inventory will be provided to the public in the interim. The adoption of an interim model (Alternative 3) would not fully address the ranking factors required by statute. Having an interim ranking for the initially listed sites would not provide a significant benefit to outweigh the costs of adopting an interim system and reranking sites after a final procedure is adopted.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

The proposed new rules and amendments to existing rules are required by statute, and are consistent with the Agency's strategic plan and policies to implement Chapter 465.

ISSUES FOR COMMISSION TO RESOLVE:

1. Do the proposed rules establish an appropriate threshold for listing "confirmed releases" -- i.e., a documented release that is not categorically excluded as a permitted or authorized release or excluded case-by-case based on a finding that it poses no significant threat or otherwise requires no additional removal or remedial action?

The Department believes that the threshold is appropriate and recommends that public comment be sought on this threshold.

2. Should permitted and authorized releases (and applications of federally-registered pesticides) be categorically excluded from listing as "confirmed releases?"

The Department believes the exclusions are necessary to support the intent of ORS Chapter 465 and to provide a workable listing process.

3. Should an interim ranking procedure be proposed for public comment?

The Department does not believe that an interim ranking procedure is warranted and recommends against proposing a procedure for public comment.

INTENDED FOLLOWUP ACTIONS:

1. Publish Notice of Intent to Conduct a Public Hearing and Opportunity to Comment in the March 15, 1990 Secretary of State's Bulletin. Mail notice to interested persons.
2. Conduct a public hearing in Portland on April 11; accept public comment through April 16, 1990.
3. Meet with Environmental Cleanup Advisory Committee to discuss public comments.
4. Prepare a hearing officer's report for final rule adoption by the Commission at its June 29, 1990 meeting.

5. Develop internal guidance and procedures to consistently implement the rules throughout the Department.

Approved:

Section: Loretta Pickerell

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Date Prepared: February 21, 1990

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**DIVISION 122
HAZARDOUS WASTE MANAGEMENT**

Site Discovery Rules

February 22, 1990

	Preamble
340-122-410	Purpose
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340-122-465	Inventory Delisting - Public Notice and Participation
340-122-470	Delisting - Determination by Director

Preamble

These rules implement certain provisions of ORS Chapter 465. The statute, as amended by the legislature in 1989, provides for a program to identify any release or threat of release of a hazardous substance from a facility that may require remedial action (ORS 465.220); a process for the evaluation and preliminary assessment of releases identified (ORS 465.245); and a process for publishing a statewide list of confirmed releases (ORS 465.215) and an inventory of sites requiring investigation, removal, or remedial action (ORS 465.225).

In general, these rules are designed to provide the substantive criteria and procedural structure necessary for actual implementation and administration of the site discovery program mandated by statute. With respect to the definition of "confirmed release" in OAR 340-122-427, the rules also specifically limit the types of releases which will be included on the list of confirmed releases in a manner consistent with the Commission's understanding of the legislative intent.

(1) Evaluations and preliminary assessments:

ORS 465.245 requires the Department to evaluate all reported releases of hazardous substances and document its conclusions. The rules establish the purpose and process for this evaluation (OAR 340-122-425).

The rules also establish a process for the conduct of a preliminary assessment, which, by statute, must be conducted on releases that the Department determines pose a significant threat to present or future public health, safety, welfare or the environment, and which may be conducted on other releases (ORS 465.245). The rules set out the purpose and content of a preliminary assessment and clarify when in the site discovery process a preliminary assessment may be conducted (OAR 340-122-426).

(2) Confirmed Release List and Inventory.

ORS 465.215 and 465.225 require the Department to develop and maintain two separate lists of facilities where hazardous substances have been released:

- (a) a list of all facilities with a "confirmed release" as defined in the rules; and
- (b) an inventory of facilities with a "confirmed release" which, based on a preliminary assessment, the Department determines require additional investigation, removal, remedial action, or related long-term environmental or institutional controls.

ORS 465.405 directs that the Commission adopt by rule a definition of a "confirmed release." This definition circumscribes the types of releases that will be listed as "confirmed releases" in accordance with the Commission's interpretation of legislative intent.

Several provisions of the statute delimit "confirmed release". ORS 465.405 requires that specified categories of releases be **excluded** from the list

and inventory to the extent the Commission determines the release poses no significant threat to present or future public health, safety, welfare or the environment. In addition, ORS 465.230 requires the Director to remove, or exclude at the outset, releases which have been adequately cleaned up, and releases which do not require further action to assure protection of present and future public health, safety, welfare, and the environment. Finally, only sites which the Director determines require additional investigation, removal, remedial action, or related long-term environmental or institutional controls to assure protection are listed on the inventory, or remain on the list of confirmed releases, after the preliminary assessment. ORS 465.225.

OAR 340-122-427 sets out the categories of releases the Commission has found statutorily excludable under these provisions. The exclusions are specifically designed to limit listing as a "confirmed release" to those releases which may require removal or remedial action.

Most of the exclusions in OAR 340-122-427 are applied case-by-case, including the general exclusion in subsection (2)(f) for any release which "otherwise requires no additional investigation, removal, remedial action, or related long-term environmental controls or institutional controls". By this rule, the Commission also categorically excludes from these lists those releases which are defined as "permitted or authorized releases", OAR 340-122-427(2)(c). (See related exclusion for pesticide applications, OAR 340-122-427(2)(d).)

With respect to "permitted releases", the rule is intended to exclude from the list all releases in a waste stream permitted by the Department of Environmental Quality, Environmental Protection Agency, or Lane Regional Air Pollution Control Authority (e.g., a permitted discharge of wastewater from a plant outfall or a permitted air emission regardless of whether the hazardous substances released are specifically identified or limited in the permit or in strict compliance with permit limitations). The Commission has determined that such authorized releases pose no significant threat in the sense contemplated in ORS 465.405 because they are subject to regulatory controls or abatement authorities, and would not require removal or remedial action to assure protection of public health, safety, welfare, and the environment. The rules make it clear, however, that releases that are the result of deposition, accumulation or migration of substances from an otherwise-authorized release are not excluded from listing on the confirmed release list or inventory. Such releases may, in fact, pose significant threats and may not be remediable through regulatory authorities or controls without removal or remedial action.

Similarly excluded as "authorized releases" are other types of releases of hazardous substances, which, while not specifically permitted, are legally authorized and currently or potentially subject to regulatory limits or controls (e.g., the emission of a hazardous volatile air contaminant from a dry cleaning facility.) These types of releases are also categorically excluded from listing under these rules because they are not releases which will require removal or remedial action. They are currently or potentially subject to specific regulatory controls.

These "permitted or authorized releases" might also be excluded under the rules as "de minimis", "rapidly dissipating", or "otherwise requiring no further investigation, removal, or remedial action", but these determinations could require resource intensive case-by-case evaluations. The categorical exclusion allows the Department to conclude its evaluation upon finding that a release is meets the definition of a permitted or authorized release.

By categorically excluding the permitted and authorized releases as discussed above, the rules eliminate the potential that hundreds of sites subject to existing permits or regulatory programs would be listed as confirmed releases. The Commission believes it is the intent of the legislation to develop lists of sites that may require removal or remedial action (see, for example, ORS 465.205, 465.210, 465.210, 465.215, and 465.220) and not to duplicate information regarding other releases available under such statutes as Title III of the Superfund Amendments and Reauthorization Act or the Oregon Community Information on Hazardous Substances Act, or through the Department's permit process.

(3) Listing and Delisting

These rules establish a procedure for listing facilities on the confirmed release list and the inventory, including provision for notice and opportunity to comment on the proposed listing to owners and operators, and information to be included on the lists. OAR 340-122-430 and 340-122-440.

The rules require the Department to add facilities to the list of confirmed releases if the Department documents a release and determines that none of the exclusions from a "confirmed release" apply. OAR 340-122-427 and 340-122-430. The exclusions will be applied based on the information available at the time the final decision to list a facility is made (most often at the conclusion of the initial evaluation or after the preliminary assessment). This means that when a release is documented, the Department will proceed to list the site on the confirmed release list if, based on the information then available, the Department cannot determine the release is excluded. If the release is documented during the initial evaluation, the Department will not conduct a preliminary assessment before listing the facility on the confirmed release list. Otherwise, the distinction between the confirmed release list and the inventory would, for the most part, be eliminated.

Facilities are listed on the inventory if, based on a preliminary assessment, the Director determines that a release has been confirmed and that the facility requires further investigation, removal, remedial action, or related long-term environmental or institutional controls to assure protection of public health, safety, welfare, and the environment. OAR 340-122-440.

These rules also set forth a procedure for "delisting" sites from the confirmed release list and the inventory. OAR 340-122-460 through 340-122-470. In particular, the rules provide for delisting petitions by affected persons, public notification of a delisting proceeding, opportunity for public comment, development of an administrative decision record and public availability of information relating to the delisting process.

Purpose

340-122-410 These rules establish the criteria and procedures for implementation of a hazardous substances site discovery program pursuant to ORS 465.215 through 465.245 and 465.405, including a process for evaluation and preliminary assessment of releases of hazardous substances, and a process for developing and maintaining a statewide list of confirmed releases and an inventory of sites requiring investigation, removal, remedial action, or related long-term environmental or institutional controls.

Scope and Applicability

340-122-415 (1) These rules apply to releases of hazardous substances regardless of the applicability of other statutes and administrative rules.

(2) Nothing in these rules, including listing on the Confirmed Release List or the Inventory, shall be construed to be a prerequisite to or otherwise affect the liability of any person or the authority of the Director to undertake, order, or authorize a removal, remedial, or other action under ORS Chapter 465 or other applicable law.

Definitions

340-122-420 These definitions apply to OAR 340-122-410 through 340-122-470. Terms not defined in this section have the meanings set forth in ORS 465.200 and OAR 340-122-020.

(1) "Background level" means the concentration of hazardous substance, if any, existing in the environment at a facility before the occurrence of any past or present release or releases.

(2) "Confirmed release" means a release, as defined in ORS 465.200(14), of a hazardous substance into the environment that has been confirmed by the Department in accordance with OAR 340-122-427.

(3) "Confirmed Release List" means a list of facilities for which the Director has confirmed a release of a hazardous substance.

(4) "De minimis release" means a release of a hazardous substance which because of the quantity or characteristics of the hazardous substance released and the potential for migration and exposure of human, biological, or environmental receptors can reasonably be considered to pose no significant threat to public health, safety, welfare, or the environment.

(5) "Director" means the Director of the Department of Environmental Quality or the Director's authorized representative.

(6) "Environment" includes the waters of the state, any drinking water supply, any land surface or subsurface strata, sediments, saturated soils, subsurface gas, or ambient air or atmosphere.

(7) "Facility" means any building, structure, installation, equipment, pipe or pipeline including any pipe into a sewer or publicly owned treatment works, well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, above ground tank, underground storage tank, motor vehicle, rolling stock, aircraft, or any site or area where a hazardous substance has

been deposited, stored, disposed or, or placed, or otherwise come to be located and where a release has occurred or where there is a threat of a release, but does not include any consumer product in consumer use or any vessel.

(8) "Inventory" means a list of facilities for which the Director has confirmed a release of a hazardous substance and, based on a preliminary assessment, has determined that additional investigation, removal, remedial action, or long-term environmental or institutional controls related to removal or remedial action are required to assure protection of the present and future public health, safety, welfare, and the environment.

(9) "Permitted or authorized release" means a release that is from an active facility and that is subject to and in substantial compliance with a current and legally enforceable permit issued by the Department, the United States Environmental Protection Agency, or the Lane Regional Air Pollution Authority; is in conformance with Department rules or a control regulation in a State Implementation Plan; or is otherwise in conformance with the provisions of a State Implementation Plan.

(10) "Preliminary assessment" means an investigation conducted in accordance with OAR 340-122-426 for the purpose of determining whether additional investigation, removal, remedial action, or long term environmental or institutional controls are needed to assure protection of public health, safety, welfare, and the environment.

(11) "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment including the abandonment or discarding of barrels, containers and other closed receptacles containing a hazardous substance, or threat thereof, but excludes:

(a) Any release which results in exposure to a person solely within a workplace, with respect to a claim that the person may assert against the person's employer under ORS chapter 656;

(b) Emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel or pipeline pumping station engine;

(c) Any release of source, by-product or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, as amended, if such release is subject to requirements with respect to final protection established by the Nuclear Regulatory Commission under section 170 of the Atomic Energy Act of 1954, as amended, or, for the purposes of ORS 466.570 or any other removal or remedial action, any release of source by-product or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and

(d) The normal application of fertilizer.

(12) "Remedial action" and "removal" have the meanings set forth in ORS 465.200(15) and (17), respectively, and, for purposes of these rules, may include investigations, cleanups, and related actions under any federal or state statute or regulation.

(13) "Site" has the same meaning as set forth for "facility" in OAR 340-122-420(7).

Site Evaluation

340-122-425 (1) When the Department receives information about a release or potential release of a hazardous substance, the Department shall evaluate the information and document its conclusions. The purpose of the evaluation is to decide whether a release has or may have occurred and whether the release may pose a significant threat to public health, safety, welfare, or the environment.

(2) The Department may request or gather additional information to complete the site evaluation.

(3) After an evaluation is completed, the Department will determine whether a preliminary assessment, removal, remedial action, other action, or no further action is needed at the facility.

Preliminary Assessments

340-122-426(1) The Department shall conduct a preliminary assessment or approve a preliminary assessment conducted by another person in accordance with section (4) of this rule if the Department determines that a release of a hazardous substance poses a significant threat to public health, safety, welfare, or the environment. The Department may conduct or approve a preliminary assessment without such determination. The Department may determine that existing information constitutes the equivalent of all or part of a preliminary assessment.

(2) Prior to conducting a preliminary assessment, the Director shall notify the owner and operator of the facility, if known, of the Department's intent to conduct the assessment, and allow the owner or operator to submit relevant information to the Department or to request to conduct the preliminary assessment. The Department may accept or deny such request.

(3) The purpose of a preliminary assessment is to develop sufficient information to determine whether additional investigation, removal, remedial action, or long-term environmental or institutional controls related to removal or remedial action are needed at a facility to assure protection of present and future public health, safety, welfare, and the environment.

(4) A preliminary assessment shall include sufficient on-site observations, maps, facility data, sampling, and other information to accomplish the purposes of a preliminary assessment as described in section (3) of this rule including, as appropriate:

(a) Description of historical operations at the facility, including past and present generation, management, and use of hazardous substances; compliance with relevant environmental requirements; and investigations or cleanups of releases of hazardous substances;

(b) Identity and characteristics of hazardous substances that are being or might have been released and, if available, an estimate of the quantities released, the concentrations in the environment, and extent of migration;

(c) Documentation of releases of hazardous substances to the environment;

(d) Identification of present and past owners and operators of the facility;

(e) A description of the facility, including site name, and a site map identifying property boundaries, the location of known or suspected releases of hazardous substances, and significant topographic features;

(f) A description of potential pathways for migration of known or suspected releases of hazardous substances, including surface water, groundwater, air, soils, and direct contact;

(g) A description of receptors, including human, biological, and environmental receptors potentially affected by releases of hazardous substances;

(h) A description of any other physical factors that might be relevant to assessing short and long-term exposure to releases of hazardous substances; and

(i) An evaluation of present and future threats to public health, safety, welfare, and the environment.

(5) After completion of a preliminary assessment, the Director shall make one or more of the following determinations regarding a facility:

(a) Additional investigation, removal, remedial action, or long-term environmental or institutional controls related to removal or remedial action are needed to assure protection of present and future public health, safety, welfare, and the environment;

(b) Current regulatory action under another state or federal agency program is adequate to protect public health, safety, welfare, and the environment;

(c) Other actions are necessary to assure protection of present and future public health, safety, welfare, and the environment; or

(d) No further action is needed to assure protection of present and future public health, safety, welfare, and the environment.

(6) When the preliminary assessment is completed, the Director shall provide a copy to the owner and operator, if known, and shall notify them of any determination made pursuant to section (5) of this rule.

Confirmation of a Release

340-122-427 (1) The Director shall determine that a release of a hazardous substance has been confirmed for the purposes of listing a facility on the Confirmed Release List or the Inventory if the Director determines that the release meets the criteria in subsections (a) and (b) of this section:

(a) The release has been documented by:

(A) An observation made and documented by a qualified government inspector or agent;

(B) A written statement or report from an owner, operator, or representative authorized by an owner or operator stating that the release has occurred; or

(C) Laboratory data indicating the hazardous substance has been detected at levels at or greater than background levels; and

(b) The release is not excluded under section (2) of this rule.

(2) A release shall not be defined as a "confirmed release" pursuant to section (1) of this rule if, based on the information available at the

time a final listing decision is made, the Director determines that the release meets any of the following criteria:

- (a) The release is a de minimis release;
- (b) The release by its nature rapidly dissipates to undetectable or insignificant levels and poses no significant threat;
- (c) The release is a permitted or authorized release, but not including deposition, accumulation, or migration of substances resulting from an otherwise-permitted or authorized release;
- (d) The release is a pesticide product registered under the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. 136) and applied for its intended purpose in accordance with label directions, but not including deposition, accumulation, or migration of substances resulting from an otherwise-authorized release;
- (e) The release has been cleaned up to a level that is consistent with rules adopted by the Commission under ORS 466.553 (1987) or ORS Chapter 466 or that poses no significant threat to present or future public health, safety, welfare, or the environment; or
- (f) The release otherwise requires no additional investigation, removal, remedial action, or long-term environmental or institutional controls related to removal or remedial action to assure protection of present and future public health, safety, welfare, and the environment.

(3) A release shall not be excluded pursuant to section (2) of this rule if continuing environmental or institutional controls related to removal or remedial action are required to assure protection of present and future public health, safety, welfare, and the environment.

Development of Confirmed Release List

340-122-430(1) For the purpose of providing public information, the Director shall develop and maintain a Confirmed Release List of all facilities for which the Director has confirmed a release of a hazardous substance in accordance with OAR 340-122-427.

(2) The list shall include, at a minimum, the following items, if known:

- (a) A general description of the facility;
- (b) Address or location;
- (c) Time period during which a release occurred;
- (d) Name of the current owner and operator and names of any past owners and operators during the time period of a release of a hazardous substance;
- (e) Type and quantity of a hazardous substance released at the facility;
- (f) Manner of release of the hazardous substance;
- (g) Concentration, distribution, and characteristics of a hazardous substance, if any, in groundwater, surface water, air, and soils at the facility; and
- (h) Status of removal or remedial actions at the facility.

(3) (a) At least sixty (60) days before adding a facility to the Confirmed Release List, the Director shall notify the owner and operator, if known, of all or any part of the proposed facility by certified mail or personal service, and shall provide an opportunity to comment on the

proposed listing within forty-five (45) days after receiving the notice. For good cause shown, the Department may grant an extension of up to forty-five (45) days for comment.

(b) The Director shall consider relevant and appropriate information submitted to the Department in determining whether to add a facility to the Confirmed Release List.

Development of Inventory

340-122-440(1) For the purpose of providing public information, the Director shall develop and maintain an Inventory of facilities for which the Director:

(a) Has confirmed a release of a hazardous substance in accordance with OAR 340-122-427; and

(b) Based on a preliminary assessment approved or conducted by the Department, has determined that additional investigation, removal, remedial action, or long-term environmental or institutional controls related to removal or remedial action are required to assure protection of present and future public health, safety, welfare, and the environment.

(2) The Inventory shall include, at a minimum, the items required for the Confirmed Release List, described in OAR 340-122-430(2), and the following items, if known:

(a) Hazard ranking and narrative information regarding threats to the environment and public health; and

(b) Information that indicates whether the remedial action at the facility will be funded primarily by:

(A) The Department through the use of moneys in the Hazardous Substance Remedial Action Fund;

(B) An owner or operator or other person under an agreement, order, or consent decree under ORS Chapter 465; or

(C) An owner or operator or other person under other state or federal authority.

(3)(a) At least sixty (60) days before a facility is added to the Inventory the Director shall notify the owner and operator, if known, of all or any part of the proposed facility of the proposed listing by certified mail or personal service. The notice shall include a copy of the preliminary assessment, and shall inform the owner and operator of their opportunity to comment on the information contained in the preliminary assessment within forty-five (45) days after receiving the notice. For good cause shown, the Department may grant an extension of up to forty-five (45) days for comment.

(b) The Director shall consider relevant and appropriate information submitted to the Department in determining whether to add a facility to the Inventory.

(4) At least quarterly, the Department shall publish notice of updates to the Inventory. The notice shall include a brief description of the facilities added or removed, and shall be published in the Secretary of State's Bulletin and submitted to local newspapers of general circulation in locations affected by the listings and to interested persons or community organizations.

Initiation of Process for Delisting Facilities from the Confirmed Release List and Inventory

340-122-460(1) An owner or operator of a facility listed on the Confirmed Release List or Inventory, or any other person adversely affected by the listing, may request the Director to remove a facility from the Confirmed Release List or Inventory. The Department may propose to remove a facility on its own initiative.

(2)(a) The owner, operator, or other person requesting that a facility be removed from the Confirmed Release List or the Inventory shall submit a written petition to the Director setting forth the basis for such request. The petition shall include sufficient information and documentation to support a determination that:

(A) The petitioner is an owner, operator, or person adversely affected by the listing; and

(B) The facility meets the respective criteria for delisting from the Confirmed Release List or from the Inventory set forth in OAR 340-122-470(1).

(b) A petition to remove from the Confirmed Release List or from the Inventory a facility for which a delisting petition has previously been denied shall demonstrate new information or changed circumstances to support the request.

Inventory Delisting - Public Notice and Participation

340-122-465 (1) Prior to the approval or denial of a petition to remove a facility from the Inventory submitted pursuant to OAR 340-122-460, the Department shall:

(a) Publish a notice and brief description of the proposed action in the Secretary of State's Bulletin, notify a local paper of general circulation, and make copies of the proposed action available to the public;

(b) Make a reasonable effort to identify and notify interested persons or community organizations;

(c) Provide at least thirty (30) days for submission of written comments regarding the proposed action;

(d) Upon written request received within fifteen (15) days after agency notice, postpone the date of its intended action no less than ten (10) nor more than ninety (90) days in order to allow the requesting person an opportunity to submit information or comments on the proposed action; and

(e) Upon written request by ten (10) or more persons or by a group having ten (10) or more members, conduct a public meeting at or near the facility for the purpose of receiving oral comment regarding the proposed action, except for a petition submitted by an owner pursuant to a cleanup action completed in accordance with OAR 340-122-245.

(2) Where possible, the Department shall combine public notification procedures for delisting from the Inventory with the public notification procedures for the proposed certification of completion of a removal or remedial action conducted pursuant to ORS Chapter 465.

(3) Agency records concerning the removal of a facility from the Inventory shall be made available to the public in accordance with ORS 192.410 to 192.505, subject to exemptions to public disclosure, if any, under ORS 192.501 and 192.502. The Department shall maintain and make available for public inspection and copying a record of pending and

completed delisting actions. The records shall be located at the headquarters and regional offices of the Department.

Delisting - Determination by Director

340-122-470 (1) The Director shall consider requests or proposals to remove facilities from the Confirmed Release List or the Inventory submitted in accordance with OAR 340-122-460. The Director shall delist a facility from the Confirmed Release List if the Director determines that a facility does not meet the criteria for inclusion on the Confirmed Release List set forth in OAR 340-122-430(1). The Director shall remove a facility from the Inventory if the Director determines the facility does not meet the criteria for inclusion on the Inventory set forth in OAR 340-122-440(1).

(2) In determining whether to remove a facility from the Confirmed Release List or from the Inventory, the Director shall consider:

(a) Any relevant Confirmed Release List or Inventory delisting petitions submitted pursuant to OAR 340-122-460;

(b) Any public comments submitted on the proposed action pursuant to OAR 340-122-465; and

(c) Any other relevant information available.

(3) The Director shall not remove a facility from the Confirmed Release List or from the Inventory if continuing environmental controls or institutional controls related to removal or remedial action (e.g., alternative drinking water supply, caps, security measures) are needed to assure protection of present and future public health, safety, welfare, and the environment.

(4) (a) The Director shall document the basis for approving or denying a request or proposal to remove a facility from the Confirmed Release List or the Inventory.

(b) If the Director relies on information described in section (2)(a) of this rule to make such determination, the Director shall reference such information in the record.

(5) The removal of a facility from the Confirmed Release List or from the Inventory shall be effective immediately upon the Director's determination.

AMENDMENTS TO
ENVIRONMENTAL CLEANUP RULES
OAR 340-122-001 to 340-122-110

[340-122-060 PRELIMINARY ASSESSMENT

- (1) Preliminary Assessment Requirement
- (2) Preliminary Assessment Contents
- (3) Director's Determinations
- (4) Statutory Authority Notification]

340-122-020[(6) ["Permitted release" means a release that is authorized by and in material compliance with a current and legally enforceable:

- (a) Permit, of a specifically identified hazardous substance that is subject to a specified concentration level, standard, control, procedure, or other condition; or
- (b) Sludge management plan approved pursuant to OAR 340-50-005 through 340-50-080.]

"Permitted or authorized release" means a release that is from an active facility and that is subject to and in substantial compliance with a current and legally enforceable permit issued by the Department, the United States Environmental Protection Agency, or the Lane Regional Air Pollution Authority; is in conformance with Department rules or a control regulation in a State Implementation Plan; or is otherwise in conformance with the provisions of a State Implementation Plan.

340-122-030 SCOPE AND APPLICABILITY

(1) Exempted Releases

These rules shall not apply to releases exempted pursuant to ORS 466.540(14)(a), (b), (c), and (d).

(2) Conditional Exemption of Permitted Releases

These rules shall not apply to [a] permitted or authorized releases of hazardous substances, unless the Director determines that application of these rules might be necessary in order to protect public health, safety, or welfare or the environment. These rules shall apply to the deposition, accumulation, or migration resulting from otherwise authorized releases.

[340-122-060 PRELIMINARY ASSESSMENT

- (1) (a) When the Department receives information about a release or threat of a release, the Department shall perform or require to be performed a Preliminary Assessment, including a site inspection, to confirm whether a release or a threat of release exists and whether a further investigation or removal or remedial action is needed. The Department shall ensure that the Preliminary Assessment is conducted as expeditiously as possible within the budgetary constraints of the Department.
 - (b) If the information received by the Department is not sufficiently reliable or definite to indicate whether a release or threat of release warrants a Preliminary Assessment, the Department shall request additional information from the person submitting the information or from the potential facility. If the Department determines that the information received does not warrant a Preliminary Assessment, the Department shall prepare a written explanation of such determination as a memorandum to the file and shall provide such memorandum to persons who request it.
 - (c) The Department may determine that existing information constitutes the equivalent of all or part of a Preliminary Assessment or site inspection provided the existing information was based upon a review of existing data, a good faith effort to discover additional data, and a site inspection. In such cases, the Department may elect not to perform or require to be performed an additional Preliminary Assessment or site inspection or any part of a Preliminary Assessment or site inspection.
- (2) At the discretion of the Department, a Preliminary Assessment may include but is not limited to:
 - (a) General facility information such as site name(s) and location, including a site map showing property boundaries;
 - (b) Information regarding hazardous substances present, including the name, types, and quantities of substances and storage, disposal, or handling methods;
 - (c) Preliminary identification of drainage pathways and potential pathways of exposure of human, biological, and environmental receptors from the release or threat of release;
 - (d) Review of the facility's history, including past and present uses; practices; hazardous substances used or generated; and environmental permits, approvals, violations, enforcement, or remedial actions;

- (e) Preliminary identification of past and present owners and operators and persons potentially liable pursuant to ORS 466.567;
 - (f) Evaluation of any immediate and potential threat to public health, safety, and welfare and the environment; and
 - (g) Preliminary sampling to determine whether a release has occurred, including a map of the facility showing sampling locations.
- (3) Based upon the preliminary assessment or other information, the Director shall, as appropriate, make one or more of the following determinations:
- (a) A release or threat of release has been confirmed;
 - (b) No further action is needed;
 - (c) Past or current regulatory action under a Department or another state or federal agency program is adequate to protect human health, safety, or welfare or the environment;
or
 - (d) Additional investigation is needed.
- (4) When the Preliminary Assessment is completed, the Director shall determine the statutory authority under which any investigation, cleanup, or related activities shall be conducted. The Director may revise this determination as appropriate. The potentially responsible person shall, as appropriate, be notified of such determination or subsequent revision.]

(This rule replaced by new site discovery rule, OAR 340-122-426).

Hazardous Waste Management Fee

340-105-120(1) Beginning July 1, 1987, every person who operates a facility for the purpose of disposing of hazardous waste or polychlorinated biphenyl (PCB) that is subject to interim status or a permit used under ORS Chapter 466 shall pay a monthly Hazardous Substances Remedial Action Fee by the 45th day after the last day of each month in the amount authorized by statute. Chapter 735 Oregon Laws of 1987 authorizes a fee of \$20 per ton [of hazardous] for all waste [or PCB] brought into the facility for treatment by incinerator or for disposal by landfill at the facility. For purposes of calculating the Hazardous Substances Remedial Action Fee required by this section, the facility operator does not need to include hazardous waste resulting from on-site treatment processes used to render a waste less hazardous or reduced in volume prior to land disposal.

(2) The term "hazardous waste" means any hazardous waste as defined by rules adopted by the Environmental Quality Commission and includes any hazardous waste as defined in OAR 340 - Division 100 or 101 or 40 CFR Part 261 handled under the authority of interim status or a management facility permit.

(3) The term PCB shall have the meaning given to it in OAR 340 - Division 110.

(4) The term "ton" means 2000 pounds and means the weight of [hazardous waste or PCBs] waste in tons as determined at the time of receipt at a hazardous waste or PCB management facility. The term "ton" shall include the weight of any containers treated or disposed of along with the [hazardous] wastes being held by the container.

(5) In the case of a fraction of a ton, the fee imposed by section (1) of this section shall be the same fraction multiplied by the amount of such fee imposed on a whole ton.

(6) Every person subject to the fee requirement of section (1) of this rule shall record actual weight [of any hazardous] for all waste [and PCB] received for treatment by incinerator or disposal by landfilling in tons at the time of receipt. Beginning January 1, 1986, the scale shall be licensed in accordance with ORS Chapter 618 by the Weights and Measures Division of the Department of Agriculture.

(7) Accompanying each monthly payment shall be a detailed record identifying the basis for calculating the fee that is keyed to the monthly waste receipt information report required by OAR 340-104-075(2)(c) and (2)(d).

(8) All fees shall be made payable to the Department of Environmental Quality. All fees received by the Department of Environmental Quality shall be paid into the State Treasury and credited to the Hazardous Substances Remedial Action Fund.

February 21, 1990
SA\SM2760

STATEMENT OF NEED FOR RULEMAKING

Pursuant to ORS 183.335(7), this statement provides information on the Environmental Quality Commission's intended action to adopt a rule.

(1) Legal Authority

ORS 465.405, as amended by House Bill 3235 (Section 12, Chapter 485, Oregon Laws 1989) requires the Environmental Quality Commission to adopt rules to implement a site discovery program, including a process for evaluation and preliminary assessment of releases of hazardous substances, and a process for developing and maintaining a list of facilities with confirmed releases and an inventory of facilities requiring investigation, removal, or remedial action.

Amendments to ORS 466.587 necessitate conforming revision in the rules establishing the fees for wastes entering hazardous waste disposal facilities.

ORS 465.400(1) authorizes the Environmental Quality Commission to adopt rules, in accordance with the applicable provisions of ORS 183.310 to 183.550, necessary to carry out the provisions of ORS Chapter 465. In addition, ORS 468.020 authorizes the Commission to adopt such rules and standards as it considers necessary and proper in performing the functions vested by law in the Commission.

(2) Need for the Rule

ORS Chapter 465 requires the Department to implement a site discovery program. The 1989 amendments in HB 3235 require the Environmental Quality Commission to adopt rules to define confirmed releases of hazardous substances, define preliminary assessments, and establish procedures and criteria for delisting facilities from a list of confirmed releases and an inventory of sites requiring investigation, removal, or remedial action.

(3) Principal Documents Relied Upon in this Rulemaking

ORS Chapter 465.

This document is available for review during normal business hours at the Department's office, 811 S. W. Sixth, 9th Floor, Portland, Oregon.

LAND USE CONSISTENCY

The proposed rule may affect land use; they are consistent with the Statewide Planning Goals.

The proposed rule is consistent with Goal 6. It provides current information regarding the environmental status of property on the Confirmed Release List or the Inventory. The publication of these lists may indirectly improve the quality of the air, water and land resources by providing notice to the owner and operator and the public of releases of hazardous substances and the need for further action to protect the present and future public health, safety, welfare, and the environment.

The rule does not appear to conflict with the other Goals.

Public comment on any land use issue involved is welcome and may be submitted in the same manner as indicated for testimony in this notice.

The Department of Environmental Quality requests that local, state, and federal agencies review the proposed action and comment on possible conflicts with their programs affecting land use and with Statewide Planning Goals within their expertise and jurisdiction.

The Department of Environmental Quality intends to ask the Department of Land Conservation and Development to mediate any appropriate conflicts brought to our attention by local, state or federal authorities.

FISCAL AND ECONOMIC IMPACT

Proposed Actions:

The 1989 amendment to ORS Chapter 465, HB 3235, and the proposed rules modify existing requirements for the Department to conduct preliminary assessments and develop an Inventory of facilities with confirmed releases. They eliminate the requirement for a preliminary assessment for all releases and require the Department to develop two separate lists, a Confirmed Release List and a new Inventory, instead of the old Inventory.

The Department currently conducts preliminary assessments of property where releases of hazardous substances have or are suspected to have occurred to determine whether further action is needed to assure protection of public health, safety, welfare, or the environment. The Department also reviews assessments conducted by other persons, both private and public. The proposed rule does not add new requirements for these activities. However, the Department has not previously developed and maintained the Confirmed Release List or the Inventory; the any fiscal and economic impacts from these lists, described below, will be new.

HB3235 also extends the \$20/ton fee imposed on wastes entering hazardous waste disposal facilities to all wastes, not only hazardous wastes and polychlorinated biphenyls. The proposed rule amends the Department's hazardous waste management fee to incorporate this change. No new fiscal impacts are expected since the one permitted disposal facility in Oregon where the fee is imposed has been assessing the fee on all wastes for some time.

Overall Economic Impacts:

The proposed Confirmed Release List (CRL) and Inventory rules may indirectly affect owners and operators of property contaminated by hazardous substances and persons liable for the investigation and cleanup of contaminated property, as described below. These persons may include public and private persons and entities, large and small businesses, and local, state, or federal agencies.

1. Sites are listed on the CRL and the Inventory primarily for public information purposes. Whether a site is included on or excluded from either the CRL or the Inventory does not affect either the authority of the Department to respond to a release or the liability of any person for investigation or cleanup of a release. Moreover, the existence of contamination at a site, not the listing, creates the need for investigation and cleanup -- or the "cloud" over the property that may affect property values and the ability to transfer or develop the property or use it as collateral. Nevertheless, given their public information purposes, the lists may inform otherwise-unaware persons of contamination, and may affect the value or trigger the investigation or cleanup of the listed or neighboring property.
2. Regardless of listing, persons may investigate and cleanup contaminated sites and may request Department oversight. The Department oversees these activities as resources and priorities permit, and will necessarily review reports of these activities prior to removing a site from either the CRL or the Inventory. As noted in the staff report (Program Consideration 6), the Department will seek to recover the costs associated with its oversight and review under certain circumstances.

Some persons may undertake investigation or cleanup of a site or may seek Department oversight of those activities to avoid the listing of a site or to remove a site from the CRL or the Inventory. To the extent that the listing rules affect those actions, the rules will have a fiscal or economic impact on the persons involved.

February 21, 1990
SA\SM2658A

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

Public Hearing on Site Discovery Rules and Hazardous Waste Disposal Fee Change

Hearing Dates: April 11, 1990

Comments Due: April 16, 1990

**WHAT IS
PROPOSED:**

The Department of Environmental Quality is proposing criteria and procedures to implement a site discovery program, including a process for evaluation and preliminary assessment of releases of hazardous substances, and a process for developing and maintaining a statewide list of confirmed releases and an inventory of sites requiring further investigation, removal, or remedial action. The Department also proposes to amend the schedule of fees for wastes entering hazardous waste disposal facilities.

**WHO IS
AFFECTED:**

Owners and operators of property contaminated by hazardous substances, and other persons, including public and private entities, responsible for investigation and cleanup of releases of hazardous substances; and persons living near sites contaminated by hazardous substances.

**WHAT ARE THE
HIGHLIGHTS:**

- (a) Establish a process for the initial evaluation and preliminary assessment of reported releases of hazardous substances (new rule);
- (b) Define "confirmed release" to limit the types of releases which will be included on a list of confirmed releases and an inventory of sites requiring investigation, removal, or remedial action (new rule);
- (c) Establish the criteria and procedures for developing and maintaining the confirmed release list and the inventory (new rule);
- (d) Revise the environmental cleanup rules to conform to the proposed site discovery rules; and
- (e) Extend the \$20/ton fee on wastes entering hazardous waste disposal facilities to all wastes.

**WHAT IS THE
NEXT STEP:**

The Environmental Quality Commission may adopt the proposed rules, modify those rules in response to comment, or decline to adopt rules. The Commission will consider the proposed new rule and rule revisions at its meeting on June 29, 1990.

**HOW TO
COMMENT:**

Public Hearings are scheduled for:

9:00 AM - Noon, Wednesday, April 11, 1990
DEQ's Portland Office - Executive Building
Fourth Floor Conference Room
811 S. W. Sixth Avenue
Portland, Oregon 97204

Written comments should be sent to Loretta Pickerell, Environmental Cleanup Division, Executive Building, 811 S. W. 6th Avenue, 9th Floor, Portland, Oregon 97204. Written comments should be received by April 16, 1990.

For more information, or to receive a copy of the proposed rules, call Dan Crouse at (503) 229-6170, or toll-free in Oregon, 1-800-452-4011.



811 S.W. 6th Avenue
Portland, OR 97204

SA\SM27/87

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

HAZARDOUS WASTE AND HAZARDOUS MATERIALS I

465.200

(3) For the purpose of computing the fee under subsection (1) of this section:

(a) Not more than \$100 shall be assessed for any motor carrier transporting hazardous substance; and

(b) Not more than \$25 shall be assessed for each motor carrier.

(4) The fee imposed under this section shall be paid to the Department of Revenue and deposited in accordance with section 165 of this Act.

(5) The Public Utility Commission shall provide the Department of Revenue with a list of all motor carriers registered with the Public Utility Commission. The list shall be current as of January 1 of each odd-numbered year and shall identify all motor carriers and those motor carriers who transport any hazardous substance.

(6) As used in this section:

(a) "Hazardous substance" has the meaning given that term in ORS 767.438.

(b) "Motor carrier" has the meaning given that term in ORS 767.005. (1989 c.333 §164)

Sec. 165. All moneys received by the Department of Revenue under sections 162 to 164 of this Act shall be deposited in the State Treasury and credited to a suspense account established under ORS 293.445. After payment of administration expenses incurred by the department in the administration of sections 162 to 164 of this Act and of refunds or credits arising from erroneous overpayments, the balance of the money shall be credited to the appropriate accounts as approved by the Legislative Assembly to carry out the state's hazardous material emergency response system and to provide funding for the Orphan Site Account. If the balance of the money is less than that approved by the Legislative Assembly, the department shall distribute the money to the accounts in a ratio equal to the ratio of the amounts approved by the Legislative Assembly. Moneys collected under sections 162 to 168 of this Act and credited to the Orphan Site Account shall not be used for removal or remedial action costs at solid waste disposal sites for which a fee is collected under section 137 or 138 of this Act (459.311 or 459.226). (1989 c.333 §165)

Sec. 166. The provisions of ORS chapters 305 and 314 as to liens, delinquencies, claims for refund, issuance of refunds, conferences, appeals to the Director of the Department of Revenue, appeals to the Oregon Tax Court, stay of collection pending appeal, cancellation, waiver, reduction or compromise of fees, penalties or interest, subpoenaing and examining witnesses and books and papers and the issuance of warrants and the procedures relating thereto, shall apply to the collection of fees, penalties and interest by the Department of Revenue under sections 162 to 168 of this Act, except where the context requires otherwise. (1989 c.333 §166)

Sec. 167. If any person fails to pay a fee imposed under sections 162 to 168 of this Act, within 60 days after receiving a billing, there shall be added to the fee, a penalty of five percent of the amount of the fee. Any payment made after 60 days shall bear interest at the rate prescribed under ORS 305.220. (1989 c.333 §167)

Sec. 168. Before final adoption of initial rules to carry out the provisions of sections 162 to 168 of this Act or subsequent amendment of the initial assessments established under sections 162 to 168 of this Act, the Department of Revenue shall obtain specific approval of the fees by the Joint Committee on Ways and Means during the legislative sessions or the Emergency Board during the interim period between sessions. (1989 c.333 §168)

465.140 (1989 c.346 §12; renumbered 105.570 in 1989)

465.150 (Amended by 1953 c.540 §5; repealed by 1990 c.346 §15)

465.155 (1953 c.540 §4, repealed by 1989 c.346 §15)

465.160 (Repealed by 1989 c.346 §15)

465.170 (Repealed by 1989 c.346 §15)

465.180 (Repealed by 1989 c.346 §15)

REMOVAL OR REMEDIAL ACTION

465.200 Definitions for ORS 465.200 to 465.420. As used in ORS 465.200 to 465.420 and 465.900:

(1) "Claim" means a demand in writing for a sum certain.

(2) "Commission" means the Environmental Quality Commission.

(3) "Department" means the Department of Environmental Quality.

(4) "Director" means the Director of the Department of Environmental Quality.

(5) "Environment" includes the waters of the state, any drinking water supply, any land surface and subsurface strata and ambient air.

(6) "Facility" means any building, structure, installation, equipment, pipe or pipeline including any pipe into a sewer or publicly owned treatment works, well, pit, pond, lagoon, impoundment, ditch, landfill, storage container, above ground tank, underground storage tank, motor vehicle, rolling stock, aircraft, or any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located and where a release has occurred or where there is a threat of a release, but does not include any consumer product in consumer use or any vessel.

(7) "Fund" means the Hazardous Substance Remedial Action Fund established by ORS 465.380.

(8) "Guarantor" means any person, other than the owner or operator, who provides evidence of financial responsibility for an owner or operator under ORS 465.200 to 465.420 and 465.900.

(9) "Hazardous substance" means:

(a) Hazardous waste as defined in ORS 466.005.

(b) Any substance defined as a hazardous substance pursuant to section 101(14) of the federal Comprehensive Environmental Response, Compensation and Liability Act, P.L. 96-510, as amended, and P.L. 99-499.

(c) Oil.

(d) Any substance designated by the commission under ORS 465.400.

(10) "Natural resources" includes but is not limited to land, fish, wildlife, biota, air, surface water, groundwater, drinking water supplies and any other resource owned, managed, held in trust or otherwise con-

trolled by the State of Oregon or a political subdivision of the state.

(11) "Oil" includes gasoline, crude oil, fuel oil, diesel oil, lubricating oil, oil sludge or refuse and any other petroleum-related product, or waste or fraction thereof that is liquid at a temperature of 60 degrees Fahrenheit and pressure of 14.7 pounds per square inch absolute.

(12) "Owner or operator" means any person who owned, leased, operated, controlled or exercised significant control over the operation of a facility. "Owner or operator" does not include a person, who, without participating in the management of a facility, holds indicia of ownership primarily to protect a security interest in the facility.

(13) "Person" means an individual, trust, firm, joint stock company, joint venture, consortium, commercial entity, partnership, association, corporation, commission, state and any agency thereof, political subdivision of the state, interstate body or the Federal Government including any agency thereof.

(14) "Release" means any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment including the abandonment or discarding of barrels, containers and other closed receptacles containing any hazardous substance, or threat thereof, but excludes:

(a) Any release which results in exposure to a person solely within a workplace, with respect to a claim that the person may assert against the person's employer under ORS chapter 656;

(b) Emissions from the engine exhaust of a motor vehicle, rolling stock, aircraft, vessel or pipeline pumping station engine;

(c) Any release of source, by-product or special nuclear material from a nuclear incident, as those terms are defined in the Atomic Energy Act of 1954, as amended, if such release is subject to requirements with respect to financial protection established by the Nuclear Regulatory Commission under section 170 of the Atomic Energy Act of 1954, as amended, or, for the purposes of ORS 465.260 or any other removal or remedial action, any release of source by-product or special nuclear material from any processing site designated under section 102(a)(1) or 302(a) of the Uranium Mill Tailings Radiation Control Act of 1978; and

(d) The normal application of fertilizer.

(15) "Remedial action" means those actions consistent with a permanent remedial action taken instead of or in addition to removal actions in the event of a release or threatened release of a hazardous substance

into the environment, to prevent or minimize the release of a hazardous substance so that it does not migrate to cause substantial danger to present or future public health, safety, welfare or the environment. "Remedial action" includes, but is not limited to:

(a) Such actions at the location of the release as storage, confinement, perimeter protection using dikes, trenches or ditches, clay cover, neutralization, cleanup of released hazardous substances and associated contaminated materials, recycling or reuse, diversion, destruction, segregation of reactive wastes, dredging or excavations, repair or replacement of leaking containers, collection of leachate and runoff, onsite treatment or incineration, provision of alternative drinking and household water supplies, and any monitoring reasonably required to assure that such actions protect the public health, safety, welfare and the environment.

(b) Offsite transport and offsite storage, treatment, destruction or secure disposition of hazardous substances and associated, contaminated materials.

(c) Such actions as may be necessary to monitor, assess, evaluate or investigate a release or threat of release.

(16) "Remedial action costs" means reasonable costs which are attributable to or associated with a removal or remedial action at a facility, including but not limited to the costs of administration, investigation, legal or enforcement activities, contracts and health studies.

(17) "Removal" means the cleanup or removal of a released hazardous substance from the environment, such actions as may be necessary taken in the event of the threat of release of a hazardous substance into the environment, such actions as may be necessary to monitor, assess and evaluate the release or threat of release of a hazardous substance, the disposal of removed material, or the taking of such other actions as may be necessary to prevent, minimize or mitigate damage to the public health, safety, welfare or to the environment, which may otherwise result from a release or threat of release. "Removal" also includes but is not limited to security fencing or other measures to limit access, provision of alternative drinking and household water supplies, temporary evacuation and housing of threatened individuals and action taken under ORS 465.260.

(18) "Transport" means the movement of a hazardous substance by any mode, including pipeline and in the case of a hazardous substance which has been accepted for transportation by a common or contract carrier, the term "transport" shall include any stoppage in transit which is temporary, inci-

dental to the transportation movement, and at the ordinary operating convenience of a common or contract carrier, and any such stoppage shall be considered as a continuity of movement and not as the storage of a hazardous substance.

(19) "Underground storage tank" has the meaning given that term in ORS 466.705.

(20) "Waters of the state" has the meaning given that term in ORS 468.700. [Formerly 466.340]

465.205 Legislative findings. (1) The Legislative Assembly finds that:

(a) The release of a hazardous substance into the environment may present an imminent and substantial threat to the public health, safety, welfare and the environment; and

(b) The threats posed by the release of a hazardous substance can be minimized by prompt identification of facilities and implementation of removal or remedial action.

(2) Therefore, the Legislative Assembly declares that:

(a) It is in the interest of the public health, safety, welfare and the environment to provide the means to minimize the hazards of and damages from facilities.

(b) It is the purpose of ORS 465.200 to 465.420 and 465.900 to:

(A) Protect the public health, safety, welfare and the environment; and

(B) Provide sufficient and reliable funding for the department to expediently and effectively authorize, require or undertake removal or remedial action to abate hazards to the public health, safety, welfare and the environment. [Formerly 466.347]

465.210 Authority of department for removal or remedial action. (1) In addition to any other authority granted by law, the department may:

(a) Undertake independently, in cooperation with others or by contract, investigations, studies, sampling, monitoring, assessments, surveying, testing, analyzing, planning, inspecting, training, engineering, design, construction, operation, maintenance and any other activity necessary to conduct removal or remedial action and to carry out the provisions of ORS 465.200 to 465.420 and 465.900; and

(b) Recover the state's remedial action costs.

(2) The commission and the department may participate in or conduct activities pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act, as amended, P.L. 96-510 and P.L. 99-499,

and the corrective action provisions of Subtitle I of the federal Solid Waste Disposal Act, as amended, P.L. 96-482 and P.L. 98-616. Such participation may include, but need not be limited to, entering into a cooperative agreement with the United States Environmental Protection Agency.

(3) Nothing in ORS 465.200 to 465.450 and 465.900 shall restrict the State of Oregon from participating in or conducting activities pursuant to the federal Comprehensive Environmental Response, Compensation and Liability Act, as amended, P.L. 96-510 and P.L. 99-499. [Formerly 466.350]

465.215 List of facilities with confirmed release. (1) For the purposes of providing public information, the director shall develop and maintain a list of all facilities with a confirmed release as defined by the Environmental Quality Commission under ORS 465.405.

(2) The director shall make the list available for the public at the department's offices.

(3) The list shall include but need not be limited to the following items, if known:

(a) A general description of the facility;

(b) Address or location;

(c) Time period during which a release occurred;

(d) Name of the current owner and operator and names of any past owners and operators during the time period of a release of a hazardous substance;

(e) Type and quantity of a hazardous substance released at the facility;

(f) Manner of release of the hazardous substance;

(g) Levels of a hazardous substance, if any, in ground water, surface water, air and soils at the facility;

(h) Status of removal or remedial actions at the facility; and

(i) Other items the director determines necessary.

(4) At least 60 days before a facility is added to the list the director shall notify by certified mail or personal service the owner and operator, if known, of all or any part of the facility that is to be included in the list. The notice shall inform the owner and operator that the owner and operator may comment on the decision of the director to add the facility to the list within 45 days of receiving the notice. The decision of the director to add a facility to the list is not appealable to the Environmental Quality Commission or subject to judicial review under ORS 183.310 to 183.350. [Formerly 466.357]

465.220 Comprehensive state-wide identification program; notice. (1) The department shall develop and implement a comprehensive state-wide program to identify any release or threat of release from a facility that may require remedial action.

(2) The department shall notify all daily and weekly newspapers of general circulation in the state and all broadcast media of the program developed under subsection (1) of this section. The notice shall include information about how the public may provide information on a release or threat of release from a facility.

(3) In developing the program under subsection (1) of this section, the department shall examine, at a minimum, any industrial or commercial activity that historically has been a major source in this state of releases of hazardous substances.

(4) The department shall include information about the implementation and progress of the program developed under subsection (1) of this section in the report required under ORS 465.235. [Formerly 466.360]

465.225 Inventory of facilities needing environmental controls; preliminary assessment; notice to operator; criteria for adding facilities to inventory. (1) For the purpose of providing public information, the director shall develop and maintain an inventory of all facilities for which:

(a) A confirmed release is documented by the department; and

(b) The director determines that additional investigation, removal, remedial action, long-term environmental controls or institutional controls are needed to assure protection of present and future public health, safety, welfare or the environment.

(2) The determination that additional investigation, removal, remedial action, long-term environmental controls or institutional controls are needed under subsection (1) of this section shall be based upon a preliminary assessment approved or conducted by the department.

(3) Before the department conducts a preliminary assessment, the director shall notify the owner and operator, if known, that the department is proceeding with a preliminary assessment and that the owner or operator may submit information to the department that would assist the department in conducting a complete and accurate preliminary assessment.

(4) At least 60 days before the director adds a facility to the inventory, the director shall notify by certified mail or personal service the owner and operator, if known, of all

or any part of the facility that is to be included in the inventory. The decision of the director to add a facility to the inventory is not appealable to the Environmental Quality Commission or subject to judicial review under ORS 183.310 to 183.550.

(5) The notice provided under subsection (4) of this section shall include the preliminary assessment and shall inform the owner or operator that the owner or operator may comment on the information contained in the preliminary assessment within 45 days after receiving the notice. For good cause shown, the department may grant an extension of time to comment. The extension shall not exceed 45 additional days.

(6) The director shall consider relevant and appropriate information submitted by the owner or operator in making the final decision about whether to add a facility to the inventory.

(7) The director shall review the information submitted and add the facility to inventory if the director determines that a confirmed release has occurred and that additional investigation, removal, remedial action, long-term environmental controls or institutional controls are needed to assure protection of present and future public health, safety, welfare or the environment. [1989 c.485 §3]

465.230 Removal of facilities from inventory; criteria. (1) According to rules adopted by the Environmental Quality Commission, the director shall remove a facility from the list or inventory, or both, if the director determines:

(a) Actions taken at the facility have attained a degree of clean up and control of further release that assures protection of present and future public health, safety, welfare and the environment;

(b) No further action is needed to assure protection of present and future public health, safety, welfare and the environment; or

(c) The facility satisfies other appropriate criteria for assuring protection of present and future public health, safety, welfare and the environment.

(2) The director shall not remove a facility if continuing environmental controls or institutional controls are needed to assure protection of present and future public health, safety, welfare and the environment, so long as such controls are related to removal or remedial action. [1989 c.485 §4]

465.235 Public inspection of inventory; information included in inventory; organization; report; action plan. (1) The director shall make the inventory available to

the public at the office of the Department of Environmental Quality.

(2) The inventory shall include but need not be limited to:

- (a) The following information, if known:
 - (A) A general description of the facility;
 - (B) Address or location;
 - (C) Time period during which a release occurred;
 - (D) Name of current owner and operator and names of any past owners and operators during the time period of a release of a hazardous substance;
 - (E) Type and quantity of a hazardous substance released at the facility;
 - (F) Manner of release of the hazardous substance;
 - (G) Levels of a hazardous substance, if any, in ground water, surface water, air and soils at the facility;
 - (H) Hazard ranking and narrative information regarding threats to the environment and public health;
 - (I) Status of removal or remedial actions at the facility; and
 - (J) Other items the director determines necessary; and

(b) Information that indicates whether the remedial action at the facility will be funded primarily by:

- (A) The department through the use of moneys in the Hazardous Substance Remedial Action Fund;
- (B) An owner or operator or other person under an agreement, order or consent decree under ORS 465.200 to 465.420; or
- (C) An owner or operator or other person under other state or federal authority.

(3) The department may organize the inventory into categories of facilities, including but not limited to the types of facilities listed in subsection (2) of this section.

(4) On or before January 15 of each year, the department shall submit the inventory and a report to the Governor, the Legislative Assembly and the Environmental Quality Commission. The annual report shall include a quantitative and narrative summary of the department's accomplishments during the previous fiscal year and the department's goals for the current fiscal year, including but not limited to each of the following areas:

- (a) Facilities with a suspected release added to the department's data base;
- (b) Facilities with a confirmed release added to the department's list;

(c) Facilities added to and removed from the inventory;

(d) Removals initiated and completed;

(e) Preliminary assessments initiated and completed;

(f) Remedial investigations initiated and completed;

(g) Feasibility studies initiated and completed; and

(h) Remedial actions, including long-term environmental controls and institutional controls, initiated and completed.

(5) Beginning in 1991, and every fourth year thereafter, the report required under subsection (4) of this section shall include a four-year plan of action for those items under paragraphs (e) to (h) of subsection (4) of this section. The four-year plan shall include projections of funding and staffing levels necessary to implement the four-year plan. [1989 c.485 §5]

465.240 Inventory listing not prerequisite to other remedial action. Nothing in ORS 465.225 to 465.240, 465.405 and 465.410 or placement of a facility on the list under ORS 465.215 shall be construed to be a prerequisite to or otherwise affect the authority of the director to undertake, order or authorize a removal or remedial action under ORS 465.200 to 465.420 and 465.900. [1989 c.485 §6]

465.245 Preliminary assessment of potential facility. When the department receives information about a release or a threat of release from a potential facility, the department shall evaluate the information and document its conclusions and may approve or conduct a preliminary assessment. However, if the department determines there is a significant threat to present or future public health, safety, welfare or the environment, the department shall approve or conduct a preliminary assessment according to rules of the commission. The preliminary assessment shall be conducted as expeditiously as possible within the budgetary constraints of the department. [Formerly 466.363]

465.250 Accessibility of information about hazardous substances. (1) Any person who has or may have information, documents or records relevant to the identification, nature and volume of a hazardous substance generated, treated, stored, transported to, disposed of or released at a facility and the dates thereof, or to the identity or financial resources of a potentially responsible person, shall, upon request by the department or its authorized representative, disclose or make available for inspection and copying such information, documents or records.

(2) Upon reasonable basis to believe that there may be a release of a hazardous substance at or upon any property or facility, the department or its authorized representative may enter any property or facility at any reasonable time to:

(a) Sample, inspect, examine and investigate;

(b) Examine and copy records and other information; or

(c) Carry out removal or remedial action or any other action authorized by ORS 465.200 to 465.420 and 465.900.

(3) If any person refuses to provide information, documents, records or to allow entry under subsections (1) and (2) of this section, the department may request the Attorney General to seek from a court of competent jurisdiction an order requiring the person to provide such information, documents, records or to allow entry.

(4)(a) Except as provided in paragraphs (b) and (c) of this subsection, the department or its authorized representative shall, upon request by the current owner or operator of the facility or property, provide a portion of any sample obtained from the property or facility to the owner or operator.

(b) The department may decline to give a portion of any sample to the owner or operator if, in the judgment of the department or its authorized representative, apportioning a sample:

(A) May alter the physical or chemical properties of the sample such that the portion of the sample retained by the department would not be representative of the material sampled; or

(B) Would not provide adequate volume to perform the laboratory analysis.

(c) Nothing in this subsection shall prevent or unreasonably hinder or delay the department or its authorized representative in obtaining a sample at any facility or property.

(5) Persons subject to the requirements of this section may make a claim of confidentiality regarding any information, documents or records, in accordance with ORS 466.090. [Formerly 466.363]

465.255 Strict liability for remedial action costs for injury or destruction of natural resource; limited exclusions. (1) The following persons shall be strictly liable for those remedial action costs incurred by the state or any other person that are attributable to or associated with a facility and for damages for injury to or destruction of any natural resources caused by a release:

(a) Any owner or operator at or during the time of the acts or omissions that resulted in the release.

(b) Any owner or operator who became the owner or operator after the time of the acts or omissions that resulted in the release, and who knew or reasonably should have known of the release when the person first became the owner or operator.

(c) Any owner or operator who obtained actual knowledge of the release at the facility during the time the person was the owner or operator of the facility and then subsequently transferred ownership or operation of the facility to another person without disclosing such knowledge.

(d) Any person who, by any acts or omissions, caused, contributed to or exacerbated the release, unless the acts or omissions were in material compliance with applicable laws, standards, regulations, licenses or permits.

(e) Any person who unlawfully hinders or delays entry to, investigation of or removal or remedial action at a facility.

(2) Except as provided in paragraphs (b) to (e) of subsection (1) of this section and subsection (4) of this section, the following persons shall not be liable for remedial action costs incurred by the state or any other person that are attributable to or associated with a facility, or for damages for injury to or destruction of any natural resources caused by a release:

(a) Any owner or operator who became the owner or operator after the time of the acts or omissions that resulted in a release, and who did not know and reasonably should not have known of the release when the person first became the owner or operator.

(b) Any owner or operator if the facility was contaminated by the migration of a hazardous substance from real property not owned or operated by the person.

(c) Any owner or operator at or during the time of the acts or omissions that resulted in the release, if the release at the facility was caused solely by one or a combination of the following:

(A) An act of God. "Act of God" means an unanticipated grave natural disaster or other natural phenomenon of an exceptional, inevitable and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(B) An act of war.

(C) Acts or omissions of a third party, other than an employee or agent of the person asserting this defense, or other than a person whose acts or omissions occur in

connection with a contractual relationship, existing directly or indirectly, with the person asserting this defense. As used in this subparagraph, "contractual relationship" includes but is not limited to land contracts, deeds or other instruments transferring title or possession.

(3) Except as provided in paragraphs (c) to (e) of subsection (1) of this section or subsection (4) of this section, the following persons shall not be liable for remedial action costs incurred by the state or any other person that are attributable to or associated with a facility, or for damages for injury to or destruction of any natural resources caused by a release:

(a) A unit of state or local government that acquired ownership or control of a facility in the following ways:

(A) Involuntarily by virtue of its function as sovereign, including but not limited to escheat, bankruptcy, tax delinquency or abandonment; or

(B) Through the exercise of eminent domain authority by purchase or condemnation.

(b) A person who acquired a facility by inheritance or bequest.

(4) Notwithstanding the exclusions from liability provided for specified persons in subsections (2) and (3) of this section such persons shall be liable for remedial action costs incurred by the state or any other person that are attributable to or associated with a facility, and for damages for injury to or destruction of any natural resources caused by a release, to the extent that the person's acts or omissions contribute to such costs or damages, if the person:

(a) Obtained actual knowledge of the release and then failed to promptly notify the department and exercise due care with respect to the hazardous substance concerned, taking into consideration the characteristics of the hazardous substance in light of all relevant facts and circumstances; or

(b) Failed to take reasonable precautions against the reasonably foreseeable acts or omissions of a third party and the reasonably foreseeable consequences of such acts or omissions.

(5)(a) No indemnification, hold harmless, or similar agreement or conveyance shall be effective to transfer from any person who may be liable under this section, to any other person, the liability imposed under this section. Nothing in this section shall bar any agreement to insure, hold harmless or indemnify a party to such agreement for any liability under this section.

(b) A person who is liable under this section shall not be barred from seeking

contribution from any other person for liability under ORS 465.200 to 465.420 and 465.900.

(c) Nothing in ORS 465.200 to 465.420 and 465.900 shall bar a cause of action that a person liable under this section or a guarantor has or would have by reason of subrogation or otherwise against any person.

(d) Nothing in this section shall restrict any right that the state or any person might have under federal statute, common law or other state statute to recover remedial action costs or to seek any other relief related to a release.

(6) To establish, for purposes of paragraph (b) of subsection (1) of this section or paragraph (a) of subsection (2) of this section, that the person did or did not have reason to know, the person must have undertaken, at the time of acquisition, all appropriate inquiry into the previous ownership and uses of the property consistent with good commercial or customary practice in an effort to minimize liability.

(7)(a) Except as provided in paragraph (b) of this subsection, no person shall be liable under ORS 465.200 to 465.420 and 465.900 for costs or damages as a result of actions taken or omitted in the course of rendering care, assistance or advice in accordance with rules adopted under ORS 465.400 or at the direction of the department or its authorized representative, with respect to an incident creating a danger to public health, safety, welfare or the environment as a result of any release of a hazardous substance. This paragraph shall not preclude liability for costs or damages as the result of negligence on the part of such person.

(b) No state or local government shall be liable under ORS 465.200 to 465.420 and 465.900 for costs or damages as a result of actions taken in response to an emergency created by the release of a hazardous substance generated by or from a facility owned by another person. This paragraph shall not preclude liability for costs or damages as a result of gross negligence or intentional misconduct by the state or local government. For the purpose of this paragraph, reckless, wilful or wanton misconduct shall constitute gross negligence.

(c) This subsection shall not alter the liability of any person covered by subsection (1) of this section. [Formerly 466.567]

465.260 Removal or remedial action; reimbursement of costs. (1) The director may undertake any removal or remedial action necessary to protect the public health, safety, welfare and the environment.

(2) The director may authorize any person to carry out any removal or remedial

action in accordance with any requirements of or directions from the director, if the director determines that the person will commence and complete removal or remedial action properly and in a timely manner.

(3) Nothing in ORS 465.200 to 465.420 and 465.900 shall prevent the director from taking any emergency removal or remedial action necessary to protect public health, safety, welfare or the environment.

(4) The director may require a person liable under ORS 465.255 to conduct any removal or remedial action or related actions necessary to protect the public health, safety, welfare and the environment. The director's action under this subsection may include but need not be limited to issuing an order specifying the removal or remedial action the person must take.

(5) The director may request the Attorney General to bring an action or proceeding for legal or equitable relief, in the circuit court of the county in which the facility is located or in Marion County, as may be necessary:

(a) To enforce an order issued under subsection (4) of this section; or

(b) To abate any imminent and substantial danger to the public health, safety, welfare or the environment related to a release.

(6) Notwithstanding any provision of ORS 183.310 to 183.550, and except as provided in subsection (7) of this section, any order issued by the director under subsection (4) of this section shall not be appealable to the commission or subject to judicial review.

(7)(a) Any person who receives and complies with the terms of an order issued under subsection (4) of this section may, within 60 days after completion of the required action, petition the director for reimbursement from the fund for the reasonable costs of such action.

(b) If the director refuses to grant all or part of the reimbursement, the petitioner may, within 30 days of receipt of the director's refusal, file an action against the director seeking reimbursement from the fund in the circuit court of the county in which the facility is located or in the Circuit Court of Marion County. To obtain reimbursement, the petitioner must establish by a preponderance of the evidence that the petitioner is not liable under ORS 465.255 and that costs for which the petitioner seeks reimbursement are reasonable in light of the action required by the relevant order. A petitioner who is liable under ORS 465.255 may also recover reasonable remedial action costs to the extent that the petitioner can demonstrate that the director's decision in selecting the removal or remedial action ordered was arbitrary and capricious or otherwise not in accordance with law.

trary and capricious or otherwise not in accordance with law.

(8) If any person who is liable under ORS 465.255 fails without sufficient cause to conduct a removal or remedial action as required by an order of the director, the person shall be liable to the department for the state's remedial action costs and for punitive damages not to exceed three times the amount of the state's remedial action costs.

(9) Nothing in this section is intended to interfere with, limit or abridge the authority of the State Fire Marshal or any other state agency or local unit of government relating to an emergency that presents a combustion or explosion hazard. [Formerly 466.570]

465.265 "Person" defined for ORS 465.265 to 465.310. As used in ORS 465.265 to 465.310, "person" includes but need not be limited to a person liable under ORS 465.255. Except as provided in ORS 465.275 (2), "person" does not include the state or any state agency or the Federal Government or any agency of the Federal Government. [1989 c.333 §103]

465.270 Policy. (1) The Legislative Assembly finds that:

(a) The costs of cleanup may result in economic hardship or bankruptcy for individuals and businesses that are otherwise financially viable;

(b) These persons may be willing to clean up their sites and pay the associated costs; however, financial assistance from private lenders may not be available to pay for the cleanup; and

(c) It is in the interest of the public health, safety, welfare and the environment to establish a program of financial assistance for cleanups, to help individuals and businesses maintain financial viability, increasing the share of cleanup costs paid by responsible persons and ultimately decreasing amounts paid from state funds.

(2) Therefore, the Legislative Assembly declares that it is the intent of ORS 465.265 to 465.310:

(a) To assure that moneys for financial assistance are available on a continuing basis consistent with the length and terms provided by the financial assistance agreements; and

(b) To provide authority to the Department of Environmental Quality to develop and implement innovative approaches to financial assistance for cleanups conducted under ORS 465.200 to 465.420 or, at the discretion of the department, under other applicable authorities. [1989 c.333 §102]

465.275 Remedial action and financial assistance program; contracts for imple-

(a) Shall be no greater than the amount needed to pay anticipated costs specifically identified by the Department of Environmental Quality at sites where the department determines the responsible party is unknown, unwilling or unable to undertake all required removal or remedial action; and

(b) Shall be specifically approved by the Joint Committee on Ways and Means during the legislative sessions or the Emergency Board during the interim period between sessions.

465.390 Effect of law on liability of person. Nothing in ORS 453.396 to 453.408, 453.414, 459.311, 459.236, 465.101 to 465.131 and 465.385, including the limitation on the amount a local government unit must contribute under ORS 459.311 and 459.236, shall be construed to affect or limit the liability of any person. (1989 c.833 §133)

Note: Section 172, chapter 833, Oregon Laws 1989, provides:

Sec. 172. If the Supreme Court declares that sections 139 to 148 of this Act [465.101 to 465.131] impose a tax or excise levied on, with respect to or measured by the extractions, production, storage, use, sale, distribution or receipt of oil or natural gas or levied on the ownership of oil or natural gas, that is subject to the provisions of section 2, Article VIII, or section 3a, Article IX of the Oregon Constitution, section 133 of this Act [465.390] is amended to read:

465.390. Nothing in ORS 453.396 to 453.408, 453.414, 459.311, 459.236, 465.385 and sections 162 to 168, chapter 833, Oregon Laws 1987, including the limitation on the amount a local government unit must contribute under ORS 459.311 and 459.236 shall be construed to affect or limit the liability of any person.

465.400 Rules; designation of hazardous substance. (1) In accordance with the applicable provisions of ORS 183.310 to 183.550, the commission may adopt rules necessary to carry out the provisions of ORS 465.200 to 465.420 and 465.900.

(2)(a) Within one year after July 16, 1987, the commission shall adopt rules establishing the levels, factors, criteria or other provisions for the degree of cleanup including the control of further releases of a hazardous substance, and the selection of remedial actions necessary to assure protection of the public health, safety, welfare and the environment.

(b) In developing rules pertaining to the degree of cleanup and the selection of remedial actions under paragraph (a) of this subsection, the commission may, as appropriate, take into account:

(A) The long-term uncertainties associated with land disposal;

(B) The goals, objectives and requirements of ORS 466.005 to 466.385;

(C) The persistence, toxicity, mobility and propensity to bioaccumulate of such hazardous substances and their constituents;

(D) The short-term and long-term potential for adverse health effects from human exposure to the hazardous substance;

(E) Long-term maintenance costs;

(F) The potential for future remedial action costs if the alternative remedial action in question were to fail;

(G) The potential threat to human health and the environment associated with excavation, transport and redisposal or containment; and

(H) The cost effectiveness.

(3)(a) By rule, the commission may designate as a hazardous substance any element, compound, mixture, solution or substance or any class of substances that, should a release occur, may present a substantial danger to the public health, safety, welfare or the environment.

(b) Before designating a substance or class of substances as a hazardous substance, the commission must find that the substance, because of its quantity, concentration, or physical, chemical or toxic characteristics, may pose a present or future hazard to human health, safety, welfare or the environment should a release occur. (Formerly 465.333)

465.405 Rules; "confirmed release" "preliminary assessment." (1) The Environmental Quality Commission shall adopt by rule:

(a) A definition of "confirmed release" and "preliminary assessment"; and

(b) Criteria to be applied by the director in determining whether to remove a facility from the list and inventory under ORS 465.230.

(2) In adopting rules under this section, the commission shall exclude from the list and inventory the following categories of releases to the extent the commission determines the release poses no significant threat to present or future public health, safety, welfare or the environment:

(a) De minimis releases;

(b) Releases that by their nature rapidly dissipate to undetectable or insignificant levels;

(c) Releases specifically authorized by and in compliance with a current and legally enforceable permit issued by the department or the United States Environmental Protection Agency; or

(d) Other releases that the commission finds pose no significant threat to present and future public health, safety, welfare or the environment.

(3) The director shall exclude from the list and inventory releases the director determines have been cleaned up to a level that:

(a) Is consistent with rules adopted by the commission under ORS 465.400; or

(b) Poses no significant threat to present or future public health, safety, welfare or the environment. [1989 c.485 §7]

465.410 Ranking of inventory according to risk; rules. In addition to the rules adopted under ORS 465.405, the Environmental Quality Commission shall adopt by rule a procedure for ranking facilities on the inventory based on the short-term and long-term risks they pose to present and future public health, safety, welfare or the environment. [1989 c.485 §8]

Note: Sections 12 and 13, chapter 485, Oregon Laws 1989 provide:

Sec. 12. The Environmental Quality Commission shall adopt the rules under sections 7 and 8 of this Act [465.405 and 465.410] within nine months after the effective date of this Act [June 29, 1989]. [1989 c.485 §12]

Sec. 13. The Department of Environmental Quality shall submit the first report and the inventory, as completed to date, to the Governor, the Legislative Assembly and the Environmental Quality Commission on or before January 15, 1990. [1989 c.485 §13]

465.420 Remedial Action Advisory Committee. The director shall appoint a Remedial Action Advisory Committee in order to advise the department in the development of rules for the implementation of ORS 465.200 to 465.420 and 465.900. The committee shall be comprised of members representing at least the following interests:

- (1) Citizens;
- (2) Local governments;
- (3) Environmental organizations; and
- (4) Industry. [Formerly 465.555]

CIVIL PENALTIES

465.900 Civil penalties for violation of removal or remedial actions. (1) In addition to any other penalty provided by law, any person who violates a provision of ORS 465.200 to 465.420, or any rule or order entered or adopted under ORS 465.200 to 465.420, shall incur a civil penalty not to exceed \$10,000 a day for each day that such violation occurs or that failure to comply continues.

(2) The civil penalty authorized by subsection (1) of this section shall be established, imposed, collected and appealed in the same manner as civil penalties are established, imposed, collected and appealed under ORS 468.090 to 468.125, except that a penalty collected under this section shall be deposited in the Hazardous Substance Remedial Action Fund established under ORS 465.380, if the penalty pertains to a release at any facility. [Formerly 465.900]

465.990 [Amended by 1953 c.540 §5; repealed by 1989 c.346 §15]

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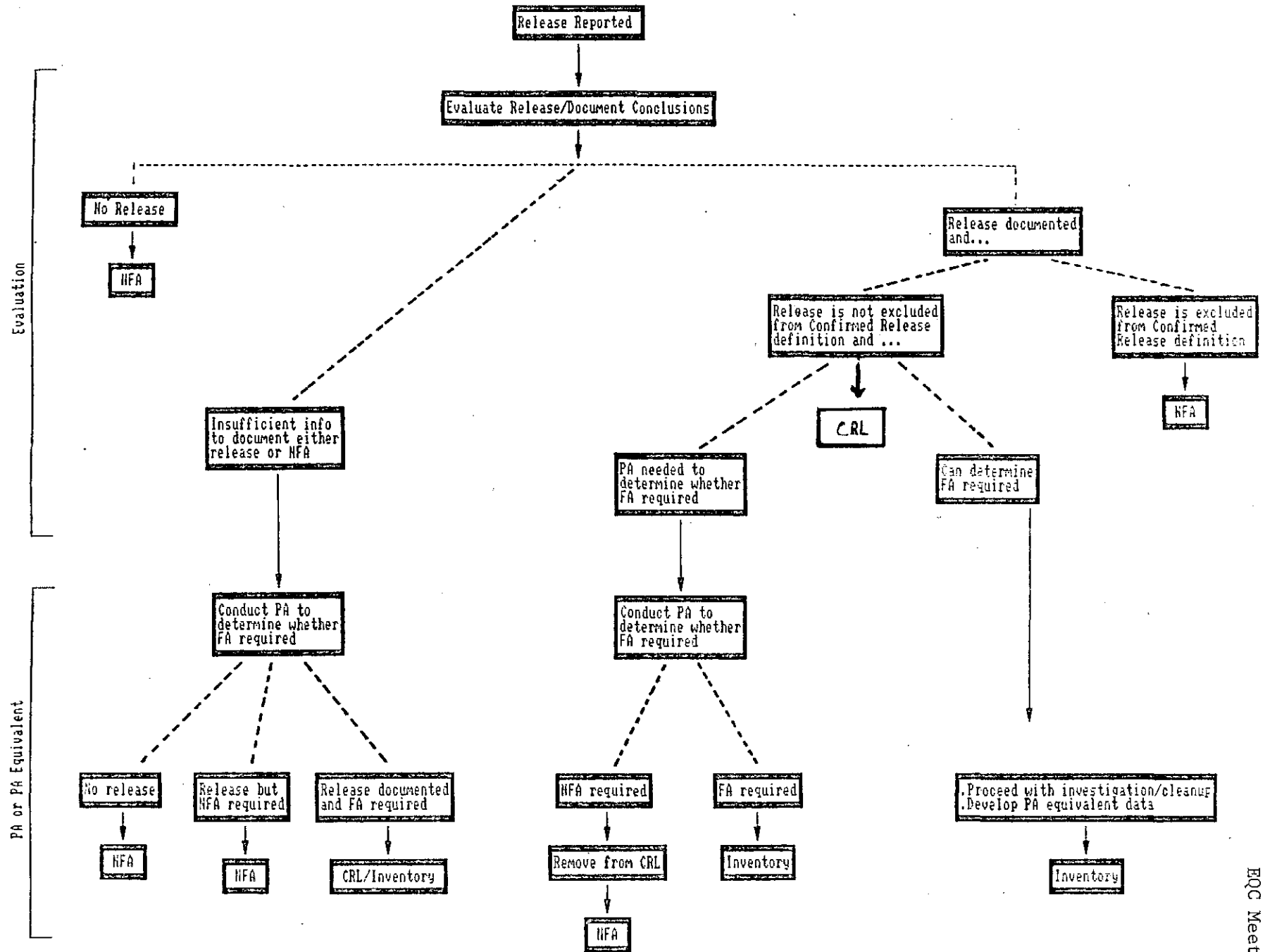
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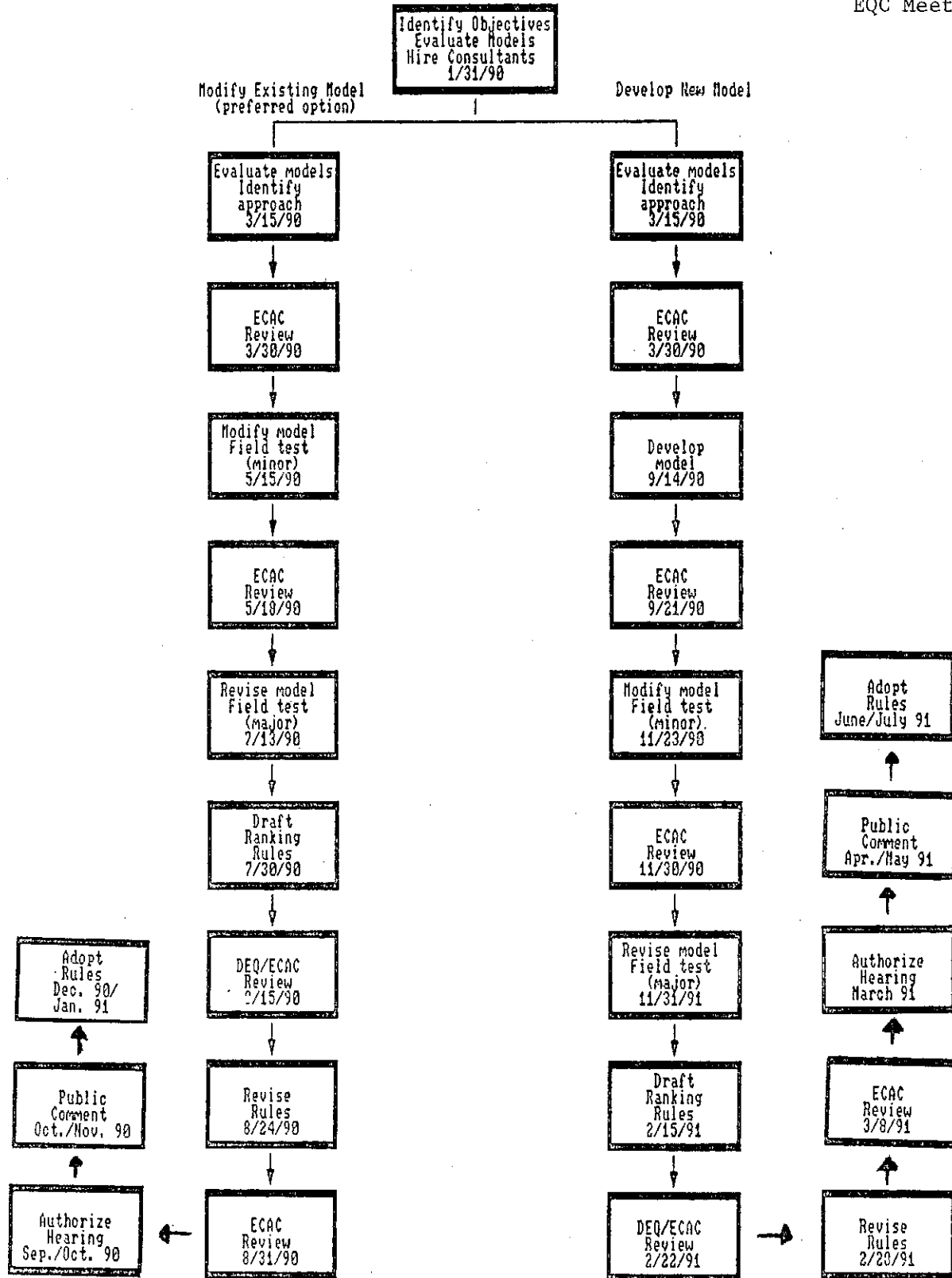
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Process for Evaluating and Assessing and Listing Sites





Ranking on Inventory

340-122-420 The hazard ranking model promulgated in the National Contingency Plan at 40 CFR, Part 300, Appendix A (HRSI) is incorporated by reference in these rules for ranking facilities on the Inventory.

Committee Memberships:
Sen. Dick Springer, Co-Chair
Sen. John Brennehan
Sen. James Bunn
Sen. Joyce Cohen
Sen. Joan Dukas
Sen. Grattan Kerans
Sen. Bob Kintigh



Attachment I
Agenda Item 0
March 2, 1990
EQC Meeting

Rep. Ron Cease, Co-Chair
Rep. Bernie Agrons
Rep. Bill Dwyer
Rep. Carl Hosticka
Rep. Delna Jones
Rep. Phil Keisling
Rep. Fred Parkinson
Rep. Bob Pickard
Rep. Rodger Wehage

Committee Staff:
Peter Green, Administrator
Lisa Zavala, Assistant

Department of Environmental Quality

JOINT COMMITTEE ON
ENVIRONMENT, ENERGY AND HAZARDOUS MATERIALS
453 State Capitol
Salem, Oregon 97310
(503) 378-5781

DEC 13 1989

Environmental Cleanup Director

December 14, 1989

Fred Hansen
DEQ
811 SW 6th
Portland, OR 97205

Dear Fred:

We are writing to express our concern about a recent decision taken by your Environmental Cleanup Advisory Committee as it makes rule recommendations regarding the implementation of HB 3235.

At its December 13 meeting the group, in a split vote, chose to severely narrow the potential sites on the Confirmed Release List by requiring that a site actually "pose a significant threat" before it could be listed. Prior to that the proposed rules had read "may pose a significant threat" (340-122-427 (1)(b)).

HB 3235 directs the Environmental Quality Commission to define "confirmed release." In doing so the Legislature specifically directed the EQC to exclude from the list categories of releases that the Commission determines pose "no significant threat." The proposed rules go much further and exclude the broadest category of sites: those that may pose a threat.

The proposed rules would require that the Director determine that a significant threat exists before listing. You are well aware of how difficult this can be. The Environmental Protection Agency has listed acceptable exposure levels for very few compounds. In the same way the Surgeon General cannot prove that smoking causes cancer, the Director will be unable to show that an actual threat exists if the substances in question are poorly understood. If, however, the word "may" is left in place, the Director can easily point to studies that indicate the toxicity of the compounds in question and argue that there is reasonable cause to believe there may be a threat.

We continue to be concerned that the state superfund process not be delayed by litigation. Requiring the existence of a

demonstrated threat is an open invitation for industry to argue the agency has acted capriciously because it cannot prove the threat. On the other hand, reasonable individuals on both sides can agree that a site may pose a threat, and agree that the site assessment will tell the tale.

In considering a similar bill dealing with preventing mining sites from becoming remedial action sites (SB 354) the same issue was debated. Instead of the word "may", the Legislature chose "reasonably likely to present a threat to public health, safety or the environment."


We urge you to revise the proposed rules before they go to public hearing.

Thank you for your consideration.

Sincerely yours,



Rep. Ron Cease
Co-Chair



Sen. Dick Springer
Co-Chair

cc: Sen. Bill Bradbury
Mike Downs



Department of Environmental Quality

811 SW SIXTH AVENUE, PORTLAND, OREGON 97204-1390 PHONE (503) 229-5696

January 19, 1990

The Honorable Dick Springer, Co-Chair
Joint Committee on Environment, Energy
and Hazardous Materials
453 State Capitol
Salem, Oregon 97310

Dick
Dear Senator Springer:

I appreciate your recent comments regarding the "listing" rules the Department of Environmental Quality (Department) is developing to implement House Bill 3235. I share your interest in ensuring that the rules establish a threshold for including sites on the Confirmed Release List which furthers the intent of the legislature.

Department staff have revised the working draft of the listing rules since the last Advisory Committee meeting, but have not incorporated the "does pose a significant threat" language in the draft rules as recommended by the Committee. We agree that, at least without clear definition, such language might unnecessarily complicate the listing process.

The Department is delaying its request to the Environmental Quality Commission (Commission) for authorization to conduct hearings on the listing rules to allow more time to consider the implementation of the proposed rules both within the Department and with the Advisory Committee. Department staff plan to discuss the fundamental issues regarding implementation of HB 3235 along with a revised draft of the listing rules with the Advisory Committee again in February. The Department will continue to include Peter Green of your staff in those meetings; we appreciate the perspective he adds to the discussions.

The Department optimistically may be able to present proposed listing rules to the Environmental Quality Commission for hearing authorization at its March 2nd meeting. However, these are complicated and complex rules and if additional time is needed by both the Department and the Advisory Committee, we will take that time to make certain the rules are as good as possible. In this event, hearing authorization would be requested at the April meeting with final adoption expected at the July meeting.

These schedules would allow the Commission to have proposed listing rules prior to or just at the April 1990 deadline for adoption in HB 3235, but not to have adopted those rules before that date.

The Honorable Dick Springer
January 19, 1990
Page 2

When the Department submits the proposed listing rules to the EQC, it will recommend that the Commission delay proposing rules establishing a procedure for ranking facilities on the Inventory until next fall. As you know, HB 3235 requires the Department to adopt a ranking procedure, as well as the listing rules, by April of 1990. However, the only ranking system which the Department has found that could be readily adopted is the current Hazard Ranking System (called HRS I) which EPA uses to rank facilities for the National Priority List of federal Superfund sites. That system is deficient in the assessment of environmental threats in addition to public health threats and is being revised by EPA. The Department is presently securing a contractor to assist in reviewing existing ranking models from other states that may be adapted to meet Oregon's requirements. Rather than adopting an interim model to apply to the initial sites added to the new Inventory, the Department prefers not to rank sites on the Inventory until the final model is developed.

While I dislike missing statutory deadlines, I believe that the Department needs to ensure that the implementation of the HB 3235 rules is thoroughly considered Department-wide and any problems addressed before the rules are proposed for public comment.

Again, I appreciate your interest.

Sincerely,



Fred Hansen
Director

LP:m
SA\SM2719
cc: Judge John Beatty
Chairman Bill Hutchison, Jr.

Errata Sheet
Agenda Item 0
March 2, 1990
EQC Meeting

Page 5 of the staff report:

The last sentence of the third full paragraph should read:

See the Preamble to the rules, Attachment A, for further discussion of these exclusions.

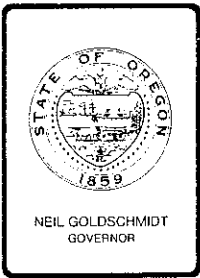
Page A-13 of Attachment A of the staff report:

The third line of section (2) of Rule 340-122-030 should include the following phrase as a proposed deletion:

might be necessary [to perform a preliminary assessment or] in order to

The last sentence of section (2) of Rule 340-122-030 should read:

These rules may be applied to the deposition



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990
Agenda Item: Q
Division: Water Quality
Section: Municipal Waste

SUBJECT:

Water Quality Rules: Authorization for Hearing on Proposed Rules Establishing Requirements for Sewage Treatment Facilities that Provide Reclaimed Water (Treated Effluent) for Beneficial Purposes.

PURPOSE:

The rules, if adopted, will establish effluent quality limitations, effluent monitoring and other requirements for sewage treatment plant owners that use reclaimed water from sewage treatment plants for beneficial purposes such as agricultural and landscape irrigation and other uses.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item for Current Meeting
 - Other: (specify)
- Authorize Rulemaking Hearing
 - Adopt Rules
 - Proposed Rules Attachment A
 - Rulemaking Statements Attachment B
 - Fiscal and Economic Impact Statement Attachment C
 - Public Notice Attachment D
- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment

Meeting Date: March 2, 1990
Agenda Item: Q
Page 2

<input type="checkbox"/> Approve Department Recommendation	
<input type="checkbox"/> Variance Request	Attachment <input type="checkbox"/>
<input type="checkbox"/> Exception to Rule	Attachment <input type="checkbox"/>
<input type="checkbox"/> Informational Report	Attachment <input type="checkbox"/>
<input type="checkbox"/> Other: (specify)	Attachment <input type="checkbox"/>

DESCRIPTION OF REQUESTED ACTION:

Currently, there are no rules in Oregon concerning limitations or requirements for reclaimed water (treated effluent) from sewage treatment plants when used for beneficial purposes. Past permit applications proposing to use reclaimed water have been evaluated on the basis of guidance that was developed in the 1970's and was revised in 1986. The proposed rules would specify limitations and requirements for reclaimed water.

The proposed rules were developed with the assistance of a technical advisory group made up of treatment plant officials, consultants, agricultural experts, and health, environmental, and consumer advocates. Much of the proposed rules are derived from regulations in effect in other states, most notably California where the successful use of reclaimed water has a long history.

AUTHORITY/NEED FOR ACTION:

<input type="checkbox"/> Required by Statute: _____	Attachment <input type="checkbox"/>
Enactment Date: _____	
<input checked="" type="checkbox"/> Statutory Authority: <u>ORS 468.705,710,740</u>	Attachment <input type="checkbox"/>
<input type="checkbox"/> Pursuant to Rule: _____	Attachment <input type="checkbox"/>
<input type="checkbox"/> Pursuant to Federal Law/Rule: _____	Attachment <input type="checkbox"/>
<input type="checkbox"/> Other: _____	Attachment <input type="checkbox"/>

Time Constraints: Currently, many sewage treatment plants are evaluating means to reduce effluent discharges to meet waste load allocations for receiving streams with established total maximum daily loads (TMDLs). When adopted, the rules will provide sewage treatment plant owners firmer knowledge of the requirements for the use of reclaimed water.

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/>	Advisory Committee Report/Recommendation	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Hearing Officer's Report/Recommendations	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Response to Testimony/Comments	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Prior EQC Agenda Items: (list)	Attachment	<input type="checkbox"/>
<input type="checkbox"/>	Other Related Reports/Rules/Statutes:	Attachment	<input type="checkbox"/>
<input checked="" type="checkbox"/>	Supplemental Background Information	Attachment	<u>E</u>

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

Some waste discharge permits issued by the Department specify limitations and requirements for reclaimed water that is being used for beneficial uses. The most current inventory shows 54 sewage treatment facilities are applying treated effluent to land. In most cases, the land is used as pasture or for the growing of forage crops. There are probably six golf courses being irrigated with reclaimed effluent. The permit limitations for these facilities were based upon criteria contained in Department guidance. The Department estimates that for four golf courses, the proposed rules would require more stringent effluent quality criteria than was required by the guidance. More stringent requirements for golf courses was recommended by the technical advisory committee at the suggestion of the Oregon Health Division. The concern of the Health Division is based on providing a higher safety factor and not based on any documented health problems associated with existing practices. More stringent requirements, in some cases, will require upgrading of sewage treatment and control in order to continue using the reclaimed water. Because the Health Division had no documented evidence of a problem with current reclaimed water practices on golf courses, the Department considered grandfathering existing golf courses to current standards, but decided that this would create inequities and may not be as protective as necessary.

On the other hand, the proposed rules may offer effluent disposal alternatives that are more cost-effective and environmentally beneficial than that offered by treating to a higher level for discharge to public waters.

PROGRAM CONSIDERATIONS:

The proposed rules attempt to be strict to assure a high level of public health protection. At the same time, the proposed rules also attempt to encourage and foster the use of reclaimed water. Much of the water used in Oregon for

Meeting Date: March 2, 1990

Agenda Item: Q

Page 4

agriculture or industry does not require the same high quality as that necessary to protect in-stream uses or for domestic purposes. Diverting reclaimed water away from discharge into surface waters not only reduces the amount of pollutants discharged into public waters, but, in addition, replaces water that might have been otherwise withdrawn from surface or groundwaters. Less withdrawal from surface and groundwater sources should maintain more dilution for other point and nonpoint pollution sources and, in addition, maintain a bigger supply of higher quality water for those uses requiring high quality water.

The proposed rules, if adopted, will increase the need of the Department to conduct thorough oversight of sources that are permitted to use reclaimed water. Although the proposed rules are particularly strict for those uses where human contact with the reclaimed water is allowed, this must be followed up with an effective compliance assurance effort. The current compliance assurance effort for water quality permits may not be sufficient to provide necessary public confidence.

The Department is confident that use of reclaimed water can be done safely based upon scientific research and the experience in California. The proposed rules are based on those in California. Because lower turbidity can increase the effectiveness of disinfecting agents, such as chlorine, the Oregon Health Division believes turbidity standards higher than California's should be required to provide added assurance for public health. Members of the advisory committee believed this was unnecessary and added too much cost that would discourage use of reclaimed water. The Department's research found that plants producing effluent that meet the California turbidity limits contain virtually no pathogenic organisms including viruses. The Department would propose that California's turbidity limit remain in the proposed rules.

The Department has some concern about trace organic compounds that may be in treated sewage. The concentrations in almost all cases should be very low and, when applied to land, volatilization, adsorption, and biodegradation should attenuate the compounds. Nevertheless, there is some question about the fate of these compounds and a concern that build-up of hazardous compounds may occur. The Department thinks there is a low risk for this to occur, and believes the hearing on the the proposed rules should proceed. The Department would intend to monitor some sites where reclaimed water is applied to begin to develop a data base about the fate of trace organic compounds.

Several members of the technical advisory committee believe that the groundwater protection rules will impose excessive regulatory burden on irrigation uses of reclaimed water. These burdens, they believe, will effectively impede irrigation of reclaimed water. The Department believes that irrigation of most reclaimed water, if applied at rates consistent with crop needs, can be approved without significant burden.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

1. Do not propose rules, but either use or expand existing guidance.
2. Propose rules that establish requirements for reclaimed water.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends that the proposed rules be authorized for public hearing. The Department believes that the rules will adequately protect public health and the environment. Some sewerage agencies, most notably the Unified Sewerage Agency of Washington County, will be making large investments of public dollars to meet reduced waste discharge limitations. Rules provide a firmer, long term knowledge of the requirements for reclaimed water and, therefore, are preferable to guidance when making decisions on control strategies. In addition, rules will provide a better vehicle for encouraging the beneficial use of reclaimed water. The Department believes that use of reclaimed water should be encouraged because it conserves waters of the state.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

Oregon Law states that it is state policy to conserve the waters of the state and to protect, maintain, and improve the quality of the waters of the state.

ISSUES FOR COMMISSION TO RESOLVE:

1. Should the Department require more stringent turbidity limit for reclaimed water used for food crops and parks?

Meeting Date: March 2, 1990
Agenda Item: Q
Page 6

2. Should the Department develop better information about the fate of trace organic compounds before proposing rules?
3. If necessary resources for adequately implementing these proposed rules are not assured, should the use of reclaimed water on food crops and other health sensitive uses not be considered at this time?
4. Should the proposed rules grandfather existing golf courses under current permit requirements?

INTENDED FOLLOWUP ACTIONS:

The Department intends to schedule and hold public hearings and return to the Commission with final, proposed rules at the June 29, 1990 Commission meeting. Before proceeding to hearing, the Department will complete drafting of guidance for the proposed rules and present it along with the proposed rules for hearing.

Approved:

Section: _____
Division: _____
Director: _____

Report Prepared By: Richard J. Nichols

Phone: 229-5323

Date Prepared: January 31, 1990

(RJN:kjc)
(MW\WJ2539)
(2/16/90)

OREGON ADMINISTRATIVE RULES

DEPARTMENT OF ENVIRONMENTAL QUALITY

CHAPTER 340

DIVISION 55

REGULATIONS PERTAINING TO THE USE OF RECLAIMED WATER (TREATED
EFFLUENT) FROM SEWAGE TREATMENT PLANTS

Purpose

340-55-005

The purpose of these rules is to protect the environment and public health in Oregon by prescribing the methods, procedures and restrictions required for the use for beneficial purposes of reclaimed waters.

Policy

340-55-007

It is the policy of the Environmental Quality Commission to encourage the use of reclaimed waters for beneficial purposes using methods that assure that the health of Oregonians and the environment of the state are protected. Proper use of reclaimed waters for beneficial purposes enhances water quality by reducing discharges of treated effluents to surface waters and by conserving stream flows through reduced demand for withdrawals for out-of-stream use.

Definitions

340-55-010

- (1) "Sewage" means water-carried human wastes, including kitchen, bath and laundry waste from residences, buildings, industrial and commercial establishments, or other places, together with such groundwater infiltration, surface waters, or industrial wastewater as may be present.
- (2) "Industrial wastewater" means any liquid, gaseous, radioactive, or solid waste substance or a combination thereof resulting from any process of industry, manufacturing, trade, or business, or from the development or recovery of any natural resources.
- (3) "Sewage treatment system" means any facility or equipment used to alter the quality of sewage by physical, chemical or biological means or a combination thereof such that the tendency of said

wastewater to cause any degradation in water quality or other environmental conditions is reduced.

- (5) **"Sewage treatment system owner"** is any person who owns a sewage treatment system that provides reclaimed water for use.
- (6) **"Person"** means the United States and agencies thereof, any state, any individual, public or private corporation, political subdivision, governmental agency, municipality, copartnership, association, firm, trust estate, or any other legal entity whatever.
- (7) **"NPDES permit"** means a waste discharge permit as defined in Oregon Administrative Rules Chapter 340, Division 45.
- (8) **"WPCF permit"** means a Water Pollution Control Facilities permit as defined in Oregon Administrative Rules Chapter 340, Division 45.
- (9) **"Reclaimed water"** means treated effluent from a sewage treatment system which, as a result of treatment, is suitable for a direct beneficial purpose or a controlled use that could not otherwise occur.
- (10) **"User"** means any person who uses reclaimed water.
- (11) **"Oxidized wastewater"** means treated sewage in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen.
- (12) **"Biological treatment"** means methods of sewage treatment in which bacterial or biochemical action is promoted as a means of producing an oxidized wastewater.
- (13) **"Clarification"** means the removal by gravity of settleable solids remaining in the effluent after the biological treatment or after flocculation as part of the coagulation process.
- (14) **"Coagulation"** means a treatment process applied to oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated by the addition of suitable floc-forming chemicals or by an equally effective method.
- (15) **"Filtration"** means a treatment process applied to oxidized, coagulated, clarified wastewater which has been passed through natural undisturbed soils or filter media, such as sand or diatomaceous earth, so that the turbidity as determined by an approved laboratory method does not exceed an average operating turbidity of 2 turbidity units and does not exceed 5 turbidity units more than five percent of the time during any 24-hour period.
- (16) **"Disinfection"** means a treatment process in which the pathogenic organisms have been destroyed or reduced to very low levels by

chemical, physical or biological means. Disinfection is deemed to have occurred when total coliform and (where appropriate) turbidity limitations have been continuously met for the specific uses cited in Table 1 and Table 2.

- (17) **"Beneficial purposes"** means a purpose where the resource values of the reclaimed waters, such as but not limited to its nutrient or moisture value, are utilized for enhanced productivity or water conservation by the user.
- (18) **"Restricted impoundment"** means a body of reclaimed water in which recreation is limited to fishing, boating, and other non-body-contact water recreation activities.
- (19) **"Nonrestricted impoundment"** means a body of reclaimed water in which no limitations are imposed on body-contact water recreation activities.
- (20) **"Landscape impoundment"** is a body of reclaimed water which is used for aesthetic enjoyment or which otherwise serves a function not intended to include public contact through such activities as boating, fishing, or body-contact recreation.
- (21) **"Potable water supply system"** means a water supply system used to provide water for human consumption.

General Requirements for Use of Reclaimed Water

340-55-015

- (1) No sewage treatment system owner shall release any reclaimed water for use unless so authorized by a WPCF or NPDES permit issued by the Department. Any application for a WPCF or NPDES permit that proposes to use reclaimed water shall provide sufficient information as necessary to evaluate and determine compliance with this Division.
- (2) Except for use of reclaimed water already authorized by permit by the Department, no sewage treatment system owner shall release any reclaimed water for use until a reclaimed water use plan meeting the requirements of OAR 340-55-025 has been approved in writing by the Department. Before approving any plan, the Department shall submit the proposed plan to the Health Division for comment. For uses of reclaimed water already permitted, but for which no reclaimed water use plan has been approved, the sewage treatment system owner shall submit a reclaimed water use plan to the Department when the permittee applies to renew the permit. No permit shall be renewed until the reclaimed water use plan has been approved.
- (3) Where the rules of this Division require limitations and conditions that are more stringent than conditions in existing permits, the permittee shall be a given reasonable compliance

schedule for achieving the more stringent requirements. The compliance schedule shall be inserted in the permit at the time the permit is renewed.

- (4) Reclaimed water from sewage treatment system for agricultural uses shall comply with the criteria established in Table 1 of this Division. Reclaimed water from sewage treatment systems for nonagricultural uses shall comply with Table 2 of this Division.
- (a) Where Table 1 and Table 2, for specified uses, require that reclaimed water receive biological, coagulation, clarification, filtration treatment plus disinfection, the Department will consider treatment processes that do not utilize coagulation provided that equivalent effluent quality to that achieved with coagulation can be demonstrated. The Department shall consult with the Oregon Health Division when considering alternative treatment processes allowed for under this section.
- (b) The Department may include additional permit effluent limitations and/or other permit conditions other than those required by Tables 1 and 2 if it determines or has reason to believe that the reclaimed water may contain physical or chemical contaminants that would impose potential hazards to public health or the environment or detrimental effects on an allowed use.
- (c) In cases where chlorine or chlorine compounds are used as the disinfecting agent, the Department may specify in the permit a minimum chlorine residual concentration to be met after a minimum contact time. In cases where other disinfecting agents are used, the Department may require other additional monitoring requirements that will assure adequate disinfection. The Department shall consult with the Health Division before allowing disinfection agents other than chlorine or chlorine compounds.
- (d) (i) The Department may reduce the buffer distances required in Tables 1 and 2 if it determines that alternative controls as specified in the permit will adequately protect public health and the environment. Alternative controls may be, but are not limited to, valves that are activated by wind speed or direction, low trajectory sprinklers or remoteness of the site to incompatible uses.
- (ii) Buffers for uses in Table 1 of Level I effluent shall be specified in the permit and shall be based on a determination that aerosols will be adequately controlled so as to protect public health.
- (iii) The Department shall consult with the Health Division

before establishing buffer distances other than those specifically cited in Tables 1 and 2.

- (5) Reclaimed water from sewage treatment systems shall be considered adequately treated and disinfected if, at the end of the treatment process, the bacterial and turbidity limitations for the use of reclaimed water as specified in Table 1 or Table 2 are met. The sampling point for monitoring compliance with water quality limitations shall be specified in the permit.
- (6) By permit, the Department may authorize reclaimed water for a use not specified in Table 1 or Table 2. In considering such authorization, the Department may request information and shall impose such effluent limitations as deemed necessary to assure protection of public health and the environment. Before the Department shall authorize uses of reclaimed water under this section of the rule, written concurrence from the Oregon Health Division shall be obtained.
- (7) A person using reclaimed water from a sewage treatment system may provide additional treatment for a more restrictive reuse as allowed under Table 1 and Table 2 of this Division. Under such conditions, the sewage treatment system owner providing the additional treatment is subject to the same requirements as other sewage treatment system owners releasing wastewater for reuse and its owner shall have a WPCF or NPDES permit issued by the Department.
- (8) When authorizing the use of reclaimed water, the Department may consider the effects of blending reclaimed water with other waters if proposed by the owner of a sewage treatment system. In cases where blending of reclaimed water is provided, the sewage treatment system owner shall submit to the Department, at a minimum, a plan of operation, a description of any additional treatment process, blending volumes, and a range of final quality at the point of use. Reclaimed water receiving less than secondary treatment and disinfection shall not be blended for uses requiring a higher level of treatment and disinfection.
- (9) The sewage treatment system owner shall be solely responsible and liable to the Department for meeting the requirements of these rules for any and all water that passes through the owner's treatment plant. Any reclaimed water released for use on property not under the direct control of the sewage treatment system owner shall be allowed only if there is a legally enforceable contract between the treatment plant owner and the user. The contract shall set forth as a minimum:
 - (a) The quality and maximum quantity of wastewater to be released for use by the sewage treatment system.
 - (b) The specific use(s) for which the reclaimed water will be used by the user.

- (c) The maximum quantity of reclaimed water that shall be used on an annual basis.
 - (d) A condition that the direct release of any reclaimed water to surface waters of the State of Oregon shall be prohibited.
 - (e) A statement specifying the parties in the contract responsible for compliance with these rules and the sewage treatment system permit.
 - (f) A provision allowing the sewage treatment system owner to cease providing reclaimed water if the Department or the owner determine that the requirements of this Division are not being met.
- (10) In cases where reclaimed water is transferred from one user to another, each succession of ownership of the reclaimed water shall be governed by a legally enforceable contract on file with the owner of the sewage treatment system and which notifies the succeeding reclaimed water user of the requirements of this Division and the permit for the sewage treatment system. The contract shall also require the succeeding user to so contract with any additional succeeding reclaimed water users.
- (11) The use of reclaimed water from a sewage treatment system for direct human consumption, regardless of the level of treatment, is prohibited unless, after public hearing and with the written concurrence of the Oregon Health Division, it is so authorized by the Environmental Quality Commission.
- (12) The monitoring requirements specified in any permit that authorizes use of reclaimed water shall, at a minimum, meet the requirements listed in Table 1 or Table 2 of this Division. Effluent and other data required by a permit authorizing use of reclaimed water from sewage treatment plants shall be submitted to the Department each month.
- (13) A permit authorizing use of reclaimed water from sewage treatment plants shall require reporting of noncompliance with this Division within two hours of when the permittee becomes aware of an incident of noncompliance. If the permittee becomes aware of the incident of noncompliance when the Department is not open, the incident shall be reported to Oregon Emergency Response System (Telephone Number 1-800-452-3011).

Groundwater Protection Requirements

340-55-020

No reclaimed water shall be authorized for use unless all requirements for groundwater protection established in Oregon Administrative Rule 340-40 are satisfied. Oregon Administrative Rule 340-40 shall be

considered satisfied by the Department if the sewage treatment system owner demonstrates that reclaimed water will not be used in a manner or applied at rates that cause contaminants to be leached into the groundwater in quantities that will adversely affect groundwater quality.

Reclaimed Water Use Plan

340-55-025

Reclaimed water use plans shall demonstrate how the sewage treatment system owner will comply with these rules and shall meet the following minimum requirements:

- (1) The plan shall be prepared under the direction of a properly qualified professional experienced in the field of wastewater treatment and water utilization.
- (2) The plan shall contain a description of the design of the proposed reclamation system and shall clearly indicate the means for compliance with these regulations.
- (3) No reclaimed water use plan submittal shall be deemed complete for review by the Department unless the submittal includes three complete copies of the proposed plan.

Other Requirements for Use of Reclaimed Water

340-55-030

- (1) No bypassing shall be allowed of untreated or inadequately treated water from the sewage treatment system or from any intermediate unit processes to the point of use.
- (2) Alarm devices shall be provided as necessary to provide warning of loss of power and/or failure of process equipment essential to the proper operation of the sewage treatment system and to compliance with this Division.
- (3) Unless otherwise approved in writing by the Department, sewage treatment systems providing reclaimed water for use shall have standby power facilities of sufficient capacity to fully operate all essential treatment processes. The Department may grant an exception to this section only if the sewage treatment system owner demonstrates that power failure will not result in inadequately treated water being released for use and will not result in any violation of an NPDES or WPCF permit limit or condition or Oregon Administrative Rule.
- (4) Sewage treatment systems that provide reclaimed water for use shall contain sufficient level of redundant treatment facilities and monitoring equipment to effectively prevent inadequately treated water from being used or discharged to public waters.

- (5) Unless otherwise approved in writing by the Department, all piping, valves, and other portions of the reclaimed water use system shall be constructed and marked in a manner to prevent cross-connection with potable water systems. Unless otherwise approved in writing by the Department, construction and marking shall be consistent with sections 2, 3, 4, and 5 of the Final Draft of the "Guidelines for Distribution of Nonpotable Water" of the California-Nevada Section of the American Water Works Association, as revised September 14, 1983. The Department may allow exceptions for existing systems in rural areas where it can be demonstrated that both private and public domestic water systems are more than 100 feet from any component of the system using reclaimed water.
- (6) There shall be no connection between any potable water supply system and the distribution system carrying reclaimed water unless the connection is through either an unrestricted air gap at least twice as wide as the diameter of the potable water discharge, or a reduced pressure principle back flow preventor (RPP) which is tested and serviced professionally at least once per year.
- (7) Every NPDES or WPCF permit that authorizes use of reclaimed water shall include a requirement that the sewage treatment system operator submit at least an annual report to the Department describing the effectiveness of the system to comply with the approved reclaimed water use plan, the rules of this Division, and permit limits and conditions.

TABLE 1
(OAR 340-55-035)

TREATMENT AND MONITORING REQUIREMENTS
FOR
AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF CROP AND METHOD OF APPLICATION

	LEVEL I	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment without <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

RECLAIMED WATER QUALITY
(Not to be Exceeded)

BACTERIOLOGICAL LIMITS
(NO. ORGANISMS PER
100 MLS.)

Total Coliform

Two Consecutive Samples	No Limit	240	Not Applicable	Not Applicable
7 Day Median	No Limit	23	2.2	2.2
Maximum	No Limit	No Limit	23	23

Turbidity (NTU)

24-Hour Mean	No Limit	No Limit	No Limit	2
5% of the Time during any 24-Hour Period	No Limit	No Limit	No Limit	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF CROP AND METHOD OF APPLICATION
(Continued)

	LEVEL I	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment without <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	Not Required	One Sample/ Week	Three Samples/ Week	Daily
<u>Turbidity</u>	Not Required	Not Required	Not Required	Hourly or Continuous

GENERAL AGRICULTURAL USES

Food Crops	No*	No*	No*	Surface ^(a) or Spray ^(b)
Processed Food Crops ⁽¹⁾	No*	Surface or Spray ⁽⁴⁾	Surface or Spray ⁽⁴⁾	Surface or Spray
Orchards and Vineyards	No*	Surface ⁽²⁾	Surface ⁽²⁾	Surface or Spray
Fodder, Fiber, and Seed ⁽³⁾ Crops	Surface ⁽⁵⁾	Surface or Spray ⁽⁴⁾	Surface or Spray ⁽⁴⁾	Surface or Spray
Pasture for Animals	No*	Surface or Spray ⁽⁶⁾	Surface or Spray ⁽⁶⁾	Surface or Spray

MINIMUM DEGREE OF TREATMENT FOR TYPE OF CROP AND METHOD OF APPLICATION
(Continued)

	LEVEL I	LEVEL II	LEVEL III	LEVEL IV
	<u>Biological Treatment without Disinfection</u>	<u>Biological Treatment Plus Disinfection</u>	<u>Biological Treatment Plus Disinfection</u>	<u>Biological, Clarification, Coagulation, and Filtration Treatment Plus Disinfection</u>
Sod	No*	Surface or Spray ⁽⁴⁾	Surface or Spray ⁽⁴⁾	Surface or Spray
Ornamental Nursery Stock	No*	Surface or Spray ⁽⁴⁾	Surface or Spray ⁽⁴⁾	Surface or Spray
Christmas Trees	No*	Surface or Spray ⁽⁴⁾	Surface or Spray ⁽⁴⁾	Surface or Spray
Firewood	No*	Surface or Spray ⁽⁴⁾	Surface or Spray ⁽⁴⁾	Surface or Spray
Commercial Timber	Surface ⁽⁵⁾	Surface or Spray ⁽⁴⁾	Surface or Spray ⁽⁴⁾	Surface or Spray

OTHER REQUIREMENTS

Public Access	"Prevented" (fences, gates, locks)	"Controlled" (signs, rural or nonpublic lands)	"Controlled" (signs, rural or nonpublic lands)	No Direct Public Contact during Irrigation Cycle
Buffers (minimum distance from property lines and waterways)	10 ft (Surface Only) To be Determined on a Site Specific Basis if Sprayed	70 ft (Spray) 10 ft (Surface)	10 ft	None Required

MINIMUM DEGREE OF TREATMENT FOR TYPE OF CROP AND METHOD OF APPLICATION
(Continued)

LEVEL I	LEVEL II	LEVEL III	LEVEL IV
Biological Treatment without <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.

* - "No" means 'not allowed'.

- (a) "Surface" means surface irrigation where application of reclaimed water is by means other than spraying such that contact between the edible portion of any food crop and reclaimed water is prevented.
- (b) "Spray" means spray irrigation where application of reclaimed water to crops is by spraying it from orifices in piping.
- (1) Processed food crops are those which undergo thermoprocessing sufficient to kill spores of Clostridium botulinum. Washing, pickling, fermenting, milling, or chemical treatments are not sufficient.
- (2) Edible portion of plant does not contact the ground and fruit or nuts shall not be harvested off the ground.
- (3) Not for human ingestion.
- (4) There shall be no irrigation of this level of effluent for 3 days prior to harvesting.
- (5) There shall be no irrigation of this level of effluent for 30 days prior to harvesting. The Department may permit spraying if it can be demonstrated that public health and the environment will be adequately protected from aerosols.
- (6) No animals shall be on the pasture during irrigation.

TABLE 2
(OAR 340-55-040)

TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 1: Parks, play-grounds, schoolyards, other areas (e.g., golf courses with contiguous residential development) where the public has similar access or exposure.

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER 100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	USE	USE	Not Applicable
7 Day Median	NOT	NOT	2.2
Maximum	ALLOWED	ALLOWED	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	USE NOT	USE NOT	2
5% of the Time during any any 24-Hour Period	ALLOWED	ALLOWED	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

	LEVEL II	LEVEL III	LEVEL IV
	<u>Biological Treatment Plus Disinfection</u>	<u>Biological Treatment Plus Disinfection</u>	<u>Biological, Clarification, Coagulation, and Filtration Treatment Plus Disinfection</u>
MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY			
<u>Total Coliform</u>	Not Applicable	Not Applicable	Daily
<u>Turbidity</u>	Not Applicable	Not Applicable	Continuous or Hourly
<u>Other Requirements for Category 1:</u>			
a. Public Access	Not Applicable	Not Applicable	No Direct Public Contact During Irrigation Cycle
b. Buffers	Not Applicable	Not Applicable	No Buffer Required
c. Signs shall be posted around the perimeter and other locations indicating that reclaimed water is used and is not safe for drinking (e.g., ATTENTION: RECLAIMED WATER -- DO NOT DRINK ♦ ATENCION: RECLAMADO DESPERDICIO DE AGUA -- NO BEBA EL AGUA).			
d. Reclaimed water shall be applied in a manner so that it is not sprayed onto areas where food is prepared or served or onto drinking fountains.			
e. Irrigation shall occur when people are not intended to be present.			
f. All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.			

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 2: Golf courses not included in Category 1.

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
	RECLAIMED WATER QUALITY (Not to be Exceeded)		
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER</u>			
<u>100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	USE	Not Applicable	Not Applicable
7 Day Median	NOT	2.2	2.2
Maximum	ALLOWED	23	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	USE NOT	Not Applicable	2
5% of the Time during any any 24-Hour Period	ALLOWED	Not Applicable	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

	LEVEL II	LEVEL III	LEVEL IV
	<u>Biological Treatment Plus Disinfection</u>	<u>Biological Treatment Plus Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	Not Applicable	Three Samples Per Week	Daily
<u>Turbidity</u>	Not Applicable	Not Applicable	Continuous or Hourly
<u>Other Requirements for Category 2:</u>			
a. Public Access	Not Applicable	No Direct Public Contact During Irrigation Cycle	No Direct Public Contact During Irrigation Cycle
b. Buffers	Not Applicable	10 feet	No Buffer Required
c.	Signs shall be posted around the perimeter and other locations indicating that reclaimed water is used and is not safe for drinking (e.g., ATTENTION: RECLAIMED WATER -- DO NOT DRINK ♦ ATENCION: RECLAMADO DESPERDICIO DE AGUA -- NO BEBA EL AGUA).		
d.	Reclaimed water shall be applied in a manner so that it is not sprayed onto areas where food is prepared or served or onto drinking fountains.		
e.	Irrigation shall occur when people are not intended to be present.		
f.	All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.		

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 3: Cemeteries, highway, landscapes, and other landscape areas not included in the category 1.

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u> (NO. ORGANISMS PER 100 MLS.)			
<u>Total Coliform</u>			
Two Consecutive Samples	240	Not Applicable	Not Applicable
7 Day Median	23	2.2	2.2
Maximum	No Limit	23	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	No Limit	No Limit	2
5% of the Time during any any 24-Hour Period	No Limit	No Limit	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	One Sample/ Week	Three Sample/ Week	Daily
<u>Turbidity</u>	Not Applicable	Not Applicable	Continuous or Hourly

Other Requirements for Category 3:

- | | | | |
|------------------|---|--|--|
| a. Public Access | No Direct
Public Contact
During
Irrigation
Cycle | No Direct
Public Contact
During
Irrigation
Cycle | No Direct
Public Contact
During
Irrigation
Cycle |
| b. Buffers | 70 Feet (Spray)
10 Feet (Surface) | 10 Feet | No Buffer
Required |
| c. | Signs shall be posted around the perimeter and other locations indicating that reclaimed water is used and is not safe for drinking, and in the case of effluent quality Levels II and II, for body contact (e.g., for Level IV, ATTENTION: RECLAIMED WATER -- DO NOT DRINK ♦ ATENCIÓN: RECLAMADO DESPERDICIO DE AGUA -- NO BEBA EL AGUA; for Levels II and III, ATTENTION: RECLAIMED WATER - AVOID CONTACT -- DO NOT DRINK ♦ ATENCIÓN: RECLAMADO DESPERDICIO DE AGUA -- EVITE EL CONTACTO -- NO BEBA EL AGUA). | | |
| d. | Reclaimed water shall be applied in a manner so that it is not sprayed onto areas where food is prepared or served or onto drinking fountains. | | |

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

LEVEL II

LEVEL III

LEVEL IV

Biological
Treatment Plus
Disinfection

Biological
Treatment Plus
Disinfection

Biological,
Clarification,
Coagulation,
and Filtration
Treatment Plus
Disinfection

-
- e. Irrigation shall occur when people are not intended to be present.
 - f. For effluent Levels II and III, ponding of reclaimed water shall be prevented.
 - g. All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 4: Unrestricted Impoundments.

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER 100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	USE	USE	Not Applicable
7 Day Median	NOT	NOT	2.2
Maximum	ALLOWED	ALLOWED	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	USE NOT	USE NOT	2
5% of the Time during any any 24-Hour Period	ALLOWED	ALLOWED	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	Not Applicable	Not Applicable	Daily
<u>Turbidity</u>	Not Applicable	Not Applicable	Continuous or Hourly

Other Requirements for Category 4:

- | | | | |
|--|-------------------|-------------------|--------------------|
| a. Public Access | Not
Applicable | Not
Applicable | No
Restrictions |
| b. No overflow or direct discharge shall be allowed to surface waters of the state unless authorized by an NPDES waste discharge permit. | | | |
| c. Signs shall be posted indicating that reclaimed water is used and is not safe for drinking (e.g., ATTENTION: RECLAIMED WATER -- DO NOT DRINK ♦ ATENCIÓN: RECLAMADO DESPERDICIO DE AGUA -- NO BEBA EL AGUA). | | | |
| d. All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures. | | | |

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 5: Restricted Impoundments.

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER</u>			
<u>100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	USE	Not Applicable	Not Applicable
7 Day Median	NOT	2.2	2.2
Maximum	ALLOWED	2.3	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	USE NOT	Not Applicable	2
5% of the Time during any any 24-Hour Period	ALLOWED	Not Applicable	5

**MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)**

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	Not Applicable	Three Samples per Week	Daily
<u>Turbidity</u>	Not Applicable	Not Applicable	Continuous or Hourly

Other Requirements for Category 5:

- | | | | |
|------------------|-------------------|---------------------------------------|-----------------|
| a. Public Access | Not
Applicable | No Body-Contact
Recreation Allowed | No Restrictions |
|------------------|-------------------|---------------------------------------|-----------------|
- b. No overflow or direct discharge shall be allowed to surface waters of the state unless authorized by an NPDES waste discharge permit.
- c. For Level III effluents, the perimeter of the impoundment shall have signs indicating that the water in the impoundment is not safe for drinking or body contact (e.g., ATTENTION: RECLAIMED WATER -- AVOID CONTACT -- DO NOT DRINK ♦ ATENCIÓN: RECLAMADO DESPERDICIO DE AGUA -- EVITE EL CONTACTO -- NO BEBA EL AGUA). For Level IV effluents, the perimeter of the impoundment shall have signs indicating that the water in the impoundment is not safe for drinking (e.g., ATTENTION: RECLAIMED WATER -- DO NOT DRINK ♦ ATENCIÓN: RECLAMADO DESPERDICIO DE AGUA -- NO BEBA EL AGUA).
- d. Aerators or decorative fixtures which may generate aerosols shall not be used unless approved in writing by the Department. Approval will be considered if it can be demonstrated that aerosols will be confined to the area of the impoundment or a restricted area around the impoundment.
- e. All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 6: Landscape Impoundments.

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER 100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	240	Not Applicable	Not Applicable
7 Day Median	23	2.2	2.2
Maximum	No Limit	23	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	Not	Not	2
5% of the Time during any any 24-Hour Period	Applicable	Applicable	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

	LEVEL II	LEVEL III	LEVEL IV -
	<u>Biological Treatment Plus Disinfection</u>	<u>Biological Treatment Plus Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	One Sample/ Week	Three Samples/ Week	Daily
<u>Turbidity</u>	Not Applicable	Not Applicable	Continuous or Hourly
<u>Other Requirements for Category 6:</u>			
a.	No Access Allowed on or in the Impoundment	No Body Contact Activities Allowed	No Restrictions
b. No overflow or direct discharge shall be allowed to surface waters of the state unless authorized by an NPDES waste discharge permit.			
c. For Level II and III effluents, the perimeter of the impoundment shall have signs indicating that the water in the impoundment is not safe for drinking or body contact (e.g., ATTENTION: RECLAIMED WATER -- AVOID CONTACT -- DO NOT DRINK ♦ ATENCIÓN: RECLAMADO DESPERDICIO DE AGUA -- EVITE EL CONTACTO -- NO BEBA EL AGUA). For Level IV effluents, the perimeter of the impoundment shall have signs indicating that the water in the impoundment is not safe for drinking (e.g., ATTENTION: RECLAIMED WATER -- DO NOT DRINK ♦ ATENCIÓN: RECLAMADO DESPERDICIO DE AGUA -- NO BEBA EL AGUA).			
d. Aerators or decorative fixtures which may generate aerosols shall not be used unless approved in writing by the Department. Approval will be considered if it can be demonstrated that aerosols will be confined to the area of the impoundment or a restricted area around the impoundment.			
f. All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.			

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 7: Industrial or Commercial Use. (Examples include, but are not limited to: cooling system, sand and gravel operations, and nonpotable process water additions.)

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER 100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	240	Not Applicable	Not Applicable
7 Day Median	23	2.2	2.2
Maximum	No Limit	23	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	No Limit	No Limit	2
5% of the Time during any any 24-Hour Period	No Limit	No Limit	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	One Sample/ Week	Three Samples/ Week	Daily
<u>Turbidity</u>	Not Required	Not Required	Continuous or Hourly

Other Requirements for Category 7:

- a. All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.
- b. The Department may impose more stringent limits on the use of reclaimed water if it believes it is necessary to protect public health and the environment.
- c. There shall be no disposal of reclaimed waters into surface or ground waters without authorization by an NPDES or WPCF permit.
- d. Use of reclaimed water for use in evaporative cooling systems shall only be approved if the user can demonstrate that aerosols will not present a hazard to public health.

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 8: Construction Use. (Examples include, but are not limited to: dust control and compaction.)

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER 100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	240	Not Applicable	Not Applicable
7 Day Median	23	2.2	2.2
Maximum	No Limit	23	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	No Limit	No Limit	2
5% of the Time during any any 24-Hour Period	No Limit	No Limit	5

TABLE 2
TREATMENT AND MONITORING REQUIREMENTS
FOR
NON-AGRICULTURAL USE OF RECLAIMED WATER

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION

CATEGORY 8: Construction Use. (Examples include, but are not limited to: dust control and compaction.)

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>
RECLAIMED WATER QUALITY (Not to be Exceeded)			
<u>BACTERIOLOGICAL LIMITS</u>			
<u>(NO. ORGANISMS PER</u>			
<u>100 MLS.)</u>			
<u>Total Coliform</u>			
Two Consecutive Samples	240	Not Applicable	Not Applicable
7 Day Median	23	2.2	2.2
Maximum	No Limit	23	23
<u>Turbidity (NTU)</u>			
24-Hour Mean	No Limit	No Limit	2
5% of the Time during any any 24-Hour Period	No Limit	No Limit	5

MINIMUM DEGREE OF TREATMENT FOR TYPE OF USE AND METHOD OF APPLICATION
(Continued)

	LEVEL II	LEVEL III	LEVEL IV
	Biological Treatment Plus <u>Disinfection</u>	Biological Treatment Plus <u>Disinfection</u>	Biological, Clarification, Coagulation, and Filtration Treatment Plus <u>Disinfection</u>

MINIMUM MONITORING REQUIREMENTS FOR TOTAL COLIFORM AND TURBIDITY

<u>Total Coliform</u>	One Sample/ Week	Three Samples/ Week	Daily
<u>Turbidity</u>	Not Applicable	Not Required	Continuous or Hourly

Other Requirements for Category 8:

- a. Members of the public and employed personnel at the site of the use of reclaimed water shall be notified that the water is reclaimed water. Provisions for how this notification will be provided shall be specified in the reclaimed water use plan.
- b. The Department may impose more stringent limits on the use of reclaimed water if it believes it is necessary to protect public health and the environment.
- c. There shall be no disposal of reclaimed waters into surface or ground waters without authorization by an NPDES or WPCF permit.
- d. All persons who must handle irrigation or other equipment used for reused wastewater or who are exposed to reused wastewater shall be fully advised of any hazards associated with such exposure and shall be provided with necessary protective clothing to avoid hazardous exposures.

Agenda Item __, March 2, 1990, EQC Meeting

STATEMENT OF NEED FOR RULEMAKING

Pursuant to ORS 183.335(7), this statement provides information on the Environmental Quality Commission's intended action to adopt a rule.

1. Legal Authority

Oregon Revised Statute (ORS) 468.020 grants the Environmental Quality Commission the authority to "adopt such rules and standards as it considers necessary and proper in performing the functions vested by law in the Commission." ORS 468.710 states that it is the public policy of the state to conserve the water of the state and to provide for the prevention, abatement and control of new or existing water pollution. Further, ORS 468.705 provides the Environmental Quality Commission authority over water pollution.

2. Need for the Rule

ORS 468.740 requires a person to obtain a permit from the Director of the Department of Environmental Quality before constructing, installing, modifying or operating any disposal system or part thereof. The proposed rules will establish the requirements to be included in permits that allow disposal of treated effluent by using it for a beneficial purpose. By establishing the requirements in rules, the regulated community will have know what is expected of them if they desire to use treated effluent for a beneficial purpose.

3. Principal Documents Relied Upon in this Rulemaking

- a. ORS 468
- b. Pettygrove, G. Stuart, David C. Davenport, and Takashi Asano, Irrigation with Reclaimed Municipal WasteWater - A Guidance Manual, Lewis Publishers, Inc.
- c. WPCF Disinfection Committee, "Assessing the Need for Wastewater Disinfection," Journal of the Water Pollution Control Federation, Volume 59, Number 10, October 1987.
- d. Oregon State Department of Environmental Quality Guidelines for Land Application of Wastewater, 1986.
- e. Evaluation of Agricultural Irrigation Projects Using Reclaimed Water, Office of Water Recycling, California State Water Resources Control Board, March, 1981.
- f. Wastewater Reclamation Criteria, An Excerpt from the California Administrative Code, Title 22, Division 4, Environmental Health, State of California, Department of Health Services, 1978.

- g. Monterey Wastewater Reclamation Study for Agriculture, Final Report, April 1987.
- h. Process Design Manual - Land Treatment of Municipal Wastewater, United States Environmental Protection Agency, Center for Environmental Research Information, Cincinnati, Ohio, 45268, October 1981.
- i. Oregon Administrative Rule 340-50, Land Application and Disposal of Sewage Treatment Plant Sludge and Sludge Derived Products including Septage, Oregon Department of Environmental Quality.
- j. Nevada Division of Environmental Protection, Guidelines for Wastewater Treatment Plant Effluent Reuse, Third Draft, June 7, 1989.
- k. Wastewater Aerosols and Disease, U. S. Environmental Protection Agency, Health Effects Research Laboratory, Cincinnati, Ohio, December, 1980.

LAND USE COMPATIBILITY STATEMENT

Land Use Consistency

The Department has concluded that the proposal conforms with the Statewide Planning Goals and Guidelines.

Goal 6 (Air, Water and Land Resources Quality): The Department believes that the proposed rules will protect water quality resources by specifying the requirements for reclaimed water. The proposed rules should enhance water quality by reducing discharges to surface and groundwaters and by reducing the demand on in-stream water thereby allowing more water for pollutant dilution.

Goal 11 (Public Facilities and Services): The proposed rules will specify requirements for sewage treatment plants that propose to use treated effluent for beneficial purposes. The proposed rules should assist officials responsible for sewerage facilities by informing them of the treatment and other requirements necessary for the use of reclaimed water. In some cases, use of reclaimed water may provide a more cost-effective means of sewage treatment effluent disposal. It may also reduce demands on irrigation withdrawals and water supply systems by allowing irrigation with treated effluent rather than from the existing water supplies. In short, these proposed rules may ease some of the burdens upon public facilities for meeting both water needs and environmental limits.

Public comment on any land use issue involved is welcome and may be submitted in the same manner as indicated for testimony in this notice.

RJN:kjc

FISCAL AND ECONOMIC IMPACT STATEMENT

These proposed rules would establish effluent limitations and other requirements for treated sewage effluent (reclaimed water) when it is used for beneficial purposes. Beneficial purposes might be irrigation of agricultural crops, golf courses, parks, or other landscaping, make-up water for recreation or other types of impoundments, and as nonpotable process water for limited industrial, commercial or construction uses. Currently, there are no specific rules relating to use of reclaimed water from sewage treatment plants.

In Oregon, there are about 54 sewage treatment facilities that are permitted to provide reclaimed water for beneficial uses. The Department believes there are six golf courses that are irrigated with reclaimed water. The remaining sewage treatment plants apply reclaimed water to pasture land and agricultural crops that are not intended for human consumption. There are also a few facilities that irrigate landscaping.

The proposed rules have a primary focus of assuring that human health is protected when reclaimed water is used for beneficial purposes. The proposed rules were also drafted as much as practicable to encourage use of reclaimed water, although not at the cost of reduced public health protection.

Currently, there are a number of sewage treatment plants around Oregon that must find ways to reduce the amount of pollutants that they discharge into public waters. This is necessary to achieve water quality standards. The Department believes that these proposed rules will provide another potential alternative to achieving reduced discharges at, perhaps, less cost. Use of reclaimed water for beneficial purposes may not, in all cases, provide a lower cost alternative, however. This will depend on the availability of a beneficial purpose and the cost of treating and transporting the reclaimed water to the point of use. The level of treatment will depend upon the type of use intended. Uses that provide direct human contact with the reclaimed water require very well-treated water which, in turn, requires expensive sewage treatment facilities.

There may be some additional costs imposed on sewage treatment plant owners if they are currently using reclaimed water for beneficial purposes for which the proposed rules would require a higher level of effluent quality than currently provided. The most extreme case would be where effluent is being applied to a golf course with residences abutting the golf course. The proposed rules would probably require chemical coagulation and filtration in addition to biological treatment and disinfection. If the treatment plant only provides biological treatment and disinfection, additional treatment facilities would be needed. The literature states that this would increase costs by up to \$125 per acre foot of water produced.

For a sewage treatment plant with a capacity of 0.5 million gallons per day, this would mean a capital cost of about \$320,000 and \$13,000 per year of additional operation and maintenance costs.¹

The proposed rules will also require alarms, redundant equipment, and back-up facilities to assure that inadequately treated reclaimed water is not used inappropriately. The Department believes that such assurances are necessary particularly for use of reclaimed water where human contact with the effluent is expected. The extent of these requirements will depend upon the use of the reclaimed water and what alternatives are available to divert reclaimed water into storage or another permitted disposal system. If no other alternatives are available, it would be reasonable that the capital costs associated with reuse could double.

Other additional costs for sewage treatment plant owners would be the proposed requirement in the rules for a "reclaimed water use plan." The plan would be required of all owners using or providing reclaimed water for beneficial purposes. The purpose of the plan is to assure that reclaimed water is being treated and used in a manner consistent with the proposed rules. Depending upon the size of the treatment plant and the extent and nature of the use of reclaimed water, the cost of preparing the plan would vary. Presuming it would take a professional approximately 30 hours to prepare the plan at \$75 per hour, the cost of the plan would be about \$2250. The plan would be the obligation of the treatment plant owner and would not be expected of each and every user of reclaimed water derived water from the same sewage treatment plant. For small plants using reclaimed water for a single beneficial use, the Department would expect the time and resulting costs necessary to do the plan to be substantially less.

The proposed rules would also require an annual report to be submitted to the Department. The report is believed necessary to evaluate problems or potential problems associated with the use of reclaimed water so they can be addressed before a threat to public health is created. The Department believes that this report can be prepared by the owner in less than 5 hours. At \$30 dollars an hour, this is a projected cost of \$150 dollars per year.

The proposed rules would require additional monitoring of total coliform over that normally required of sewage treatment plants. This is intended to assure that effective disinfection is occurring and, particularly where there is opportunity for public contact with the reclaimed water, that public health is protected. For the highest level of reclaimed water, total coliform monitoring would be daily. A check with a commercial laboratory shows a cost of \$14 per sample for total coliform. Assuming a 31 day month, this would translate into a cost of \$434 dollars per month. If the facility conducted their own tests, this cost could be less. It should be noted that monitoring of other wastewater parameters would probably be reduced creating a savings that would offset the costs of the increased total coliform monitoring.

¹ Information for these estimates come from page 106 of the Monterey Wastewater Reclamation Study for Agriculture - Final Report - 1987. The figures were adjusted on the basis of 4% inflation per year.

In many cases, the proposed rules will provide an opportunity for small business to use reclaimed water which may reduce their costs of doing business. This may be particularly true for golf courses that could use reclaimed water for irrigation. In some cases, where residential properties abut the golf course, the highest quality of reclaimed water would be required. The proposed rules, however, would allow the golf course operator to propose other means to meet buffer requirements thereby reducing the need for the highest quality of reclaimed water. Based upon this, the Department does not believe the small business impact will be significant.

RJN:kjc

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

Hearing Date: _____

Comments Due: _____

**WHO IS
AFFECTED:**

Sewage treatment facilities that provide treated effluent (reclaimed water) for use for beneficial purposes or may, in the future, consider using treated effluent for beneficial purposes. Large and small business, such as golf courses, that use or may wish to use treated effluent from sewage treatment plants for beneficial purposes.

**WHAT IS
PROPOSED:**

The Department proposes to adopt rules establishing requirements for treated effluent (reclaimed water) that will be used for beneficial purposes. The rules would establish treatment and monitoring requirements for various types of uses of reclaimed water. The rules would also establish other requirements such as buffer limits to assure that reclaimed water is used in a manner that protects public health.

**WHAT ARE THE
HIGHLIGHTS:**

Under the proposed rules, highly treated reclaimed water could be used for irrigation of parks, school yards, and food crops, and as feed water for unrestricted impoundments in which swimming would be permitted. For such high contact uses, stringent treatment and other requirements would be specified to assure protection of public health.

**PUBLIC
HEARINGS:**

Public Hearings will be held before a hearings officer at:

TIME: _____

DATE: _____

PLACE: _____

(Note: At the time this commission report was being drafted, precise times and locations for the public hearings had not been determined. The Department expects to hold hearings in La Grande or Baker, Portland, Bend, Medford, and Eugene sometime in middle to late April, 1990).

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811 S.W. 6th Avenue
Portland, OR 97204

11/1/86

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

HOW TO
COMMENT:

Written or oral comments may be presented at the hearings. Written comments may also be sent to the Department of Environmental Quality, Water Quality Division, 811 S.W. Sixth Avenue, Portland, OR 97204, and must be received no later than 5:00 P.M., _____.

Copies of the complete proposed rule package may be obtained from the DEQ, Water Quality Division. The documents, as listed in the "Statement of Need for Rulemaking," are also available for review during normal business hours at the Department's office, 811 SW Sixth, Portland, Oregon, fifth floor.

WHAT IS THE
NEXT STEP:

Testimony, both oral and written, will be summarized and addressed by the Hearings Officer in a report made to the Environmental Quality Commission. Proposed rules may be modified as necessary to address the concerns of those who testify. The final proposed rules will then be presented to the Environmental Quality Commission at its June 29, 1990, meeting.

RJN:kjc
MW\WJ2510

BACKGROUND REPORT**USE OF RECLAIMED WATER FROM SEWAGE TREATMENT PLANTS**GENERAL BACKGROUND

In order to reduce wastewater discharges to meet water quality standards, owners of sewage treatment plants are faced with the increasing costly task of providing better treatment and control of their effluent. This is particularly true for sewage treatment plants that have traditionally discharged their effluent into smaller streams such as the Tualatin River, Yamhill River, and Bear Creek, to name a few. In these streams, pollutant parameters such as ammonia nitrogen and phosphorus must be controlled as well as the traditional parameters of BOD-5, total suspended solids, and fecal coliform. While there are treatment processes available for removing these pollutants, the technology is expensive in terms of energy requirements as well as public dollars. There are also secondary environmental consequences such as increased sludge disposal which must also be considered.

In developing alternatives for meeting higher treatment and control needs, the option of using treated effluent (termed reclaimed water) from sewage treatment plants for irrigation and other uses has some very notable advantages. First, the quality of water for certain uses in some cases will be less than that required for discharge to public waters. In fact, in some cases, the pollutants of concern, such as phosphorus and ammonia nitrogen, may be beneficial when the effluent is irrigated either on agricultural crops or turf facilities such as golf courses and parks. Obviously, if reclaimed water must undergo less treatment, the costs for providing the treatment should be reduced.

There are other benefits to the use of reclaimed water. The use of reclaimed water will reduce demands from other water supply sources such as surface and/or groundwaters. Almost all of Oregon's agricultural irrigation supply comes from either surface or groundwater sources. Through the use of reclaimed water, the surface and groundwater can be conserved for other uses including instream uses. Further, many parks, cemeteries, and golf courses are irrigated from municipal water supplies. If these facilities are, instead, irrigated with reclaimed water, the municipal water systems will be able to devote more of their capacity to providing for domestic and industrial uses which require the high quality water necessary for drinking water.

In Oregon, use of reclaimed water from sewage treatment plants has occurred in some limited ways. There are a few golf courses that utilize reclaimed water. In addition, a number of sewage treatment plants irrigate pasture land and hay crops, but no effluent is or has been applied to crops destined for human consumption.

The Department does not have any specific regulations governing the use of reclaimed water. A guidance document was developed in the 1970's and was later revised in July 1986, to assist staff and permit applicants in

preparing and reviewing applications proposing the use of reclaimed water. The guidance does provide a basis for reviewing proposals for the use of reclaimed water and for setting permit limits and conditions. The guidance, however, does not cover the use of reclaimed water for irrigation of food crops, as feed water for impoundments, or industrial, commercial and construction uses.

Not surprisingly, use of reclaimed water is more common in arid states where water supplies are scarce. Although Oregon is far from having unlimited water supplies, historic use of reclaimed water is minimal. Part of the reason for not utilizing reclaimed water is that other water sources have historically been reasonably available, but another reason may be the lack of knowledge and assurance that the use of reclaimed waters will be safe.

Use of reclaimed "municipal wastewater is a well-established practice in California. According to a California State Department of Health Services (DOHS) survey, in 1977, wastewater was reclaimed at over 200 treatment plants and was applied to more than 360 locations. Much of the reclaimed municipal wastewater (57%) was used for irrigation of fodder, fiber, and seed crops (a use not requiring a high degree of treatment in California), and only 7% was used for irrigation of orchard, vine, and other food crops. An important use (about 14%) was irrigation on golf courses, other turfgrass, and landscaped areas. Apart from irrigation use, the survey showed that 14% of reclaimed municipal wastewater was applied for groundwater recharge, 5% for industrial use, and smaller amounts were used for other purposes."¹

California adopted rules in 1978 establishing requirements for use of reclaimed municipal wastewater. The standards allow specific uses of treated effluent depending upon the quality of effluent and the type of treatment process employed to produce the effluent. Allowable uses include irrigation on fresh agricultural crops, irrigation of parks, and use in unrestricted impoundments where swimming is permitted. The rules also require redundancies and backup facilities to assure effective, consistent effluent quality. "Irrigation with reclaimed municipal wastewater has not resulted in any confirmed disease outbreaks in California, even though wastewater has been applied to land for many decades."²

Other states have or are adopting rules for the use of reclaimed water from sewage treatment plants. Arizona is revising their rules and Nevada is preparing its first set of rules. Florida also has adopted rules. In general, California's rules appear to be the most stringent although it is

¹ Pettygrove, G. Stuart, David C. Davenport, and Takashi Asano, INTRODUCTION: CALIFORNIA'S RECLAIMED MUNICIPAL WASTEWATER RESOURCE, Irrigation with Reclaimed Municipal WasteWater - A Guidance Manual, Lewis Publishers, Inc.

² Pettygrove, G. Stuart, David C. Davenport, and Takashi Asano, INTRODUCTION: CALIFORNIA'S RECLAIMED MUNICIPAL WASTEWATER RESOURCE, Irrigation with Reclaimed Municipal WasteWater - A Guidance Manual, Lewis Publishers, Inc.

difficult to compare the Florida rules with the California rules because Florida chose to base its rules primarily on total suspended solids instead of coliform and turbidity.

In September 1989, the Department convened a technical advisory committee to assist in the drafting of proposed rules to regulate the use for beneficial purposes of reclaimed water from sewage treatment plants. A listing of the members of the advisory committee is attached to this background report as Attachment E-1.

SUMMARY OF PROPOSED RULES

The proposed rules were developed and reviewed by the committee with the following general agreement and understanding. First, the proposed rules would assure that reclaimed water would be used in a manner that would protect public health and the environment. Second, the proposed rules would contain only those requirements viewed as necessary to protect public health and the environment and would avoid requirements that would add unnecessary costs and restrictions and otherwise discourage the use of reclaimed water.

The proposed rules are based primarily upon regulations that were adopted by California in 1978. This was necessary because the Department and the technical advisory committee wanted to allow uses of reclaimed water that have not been permitted in Oregon in the past. These unpermitted uses are irrigation of crops intended for human consumption, feedwater for recreational (body-contact) impoundments, and nonpotable industrial, commercial and construction uses. The Department could have opted to generate its own data through pilot studies and other research efforts. This would have been accomplished by first allowing greater effluent reuse for study purposes on the basis of proposed criteria and then evaluating whether the criteria was appropriate and protective. This was believed unnecessary because substantial information and experience has already been developed in California.

A summary of the proposed rules are as follows:

1. Use of reclaimed water (treated effluent) from sewage treatment plants for beneficial purposes is prohibited unless authorized by a permit from the Department of Environmental Quality.
2. For new proposals, no reclaimed water may be released for use until a reclaimed water use plan has been approved by the Department. The plan must show how the requirements of the rules will be met. All plans will be submitted by the Department to the Oregon Health Division for comment before Department approval. For owners of sewage treatment plants already authorized by permit to release reclaimed water for use, the rules would require that a reclaimed water use plan be submitted when an application for permit renewal is submitted. No permit could be renewed until a reclaimed water use plan was approved.
3. The quality of reclaimed water required for a particular use is specified in two tables. The tables are actually matrices which

list allowable uses and the reclaimed water quality limitations, monitoring requirements and other limitations necessary for applying the reclaimed water to a particular use. The requirements are at least as restrictive as those contained in regulations of the State of California. Reclaimed water that meets the highest treatment requirements specified in the tables may be authorized for irrigation of agricultural crops intended for human consumption, parks, golf courses, and other landscaping with unrestricted public access, for use as feed water for unrestricted ponds where swimming would be allowed, and for nonpotable commercial, industrial, and construction uses. Unfiltered, both otherwise, well treated reclaimed water could be used for uses where public contact is controlled or limited.

4. The sewage treatment plant owner shall be solely responsible and liable to the Department for complying with the requirements of these rules. The Department will not require permits of the users of reclaimed water, only the owner of the treatment facility that provides the reclaimed water. The rules require a contract between the owner and the user to assure that the requirements of these rules are followed. The contract must contain a clause allowing the owner to cease providing reclaimed water if the owner or the Department finds a violation of these rules or any permit condition.
5. Any incident of noncompliance with these rules will require notification to the Department within two hours of the time that a incident of noncompliance is determined by the owner of the sewerage treatment facility.
6. No reclaimed water shall be authorized for use unless all of the Department's requirements for groundwater protection are met. The groundwater requirements will be deemed met if the owner demonstrates that reclaimed water will not leach into the groundwater in quantities that will adversely affect groundwater quality.
- 7. Bypassing of inadequately treated reclaimed water to a point of use is prohibited.
8. The rules require alarms, standby power systems and redundant components as necessary to assure compliance with these rules. The Department may exempt an owner from certain requirements if it can be demonstrated that a failure of equipment will not result in inadequately treated reclaimed water being released for use.
9. Piping, valves, and other components of the reclaimed water use system shall be marked in a manner as to prevent cross connections with potable water systems. The rule allows the Department to grant an exemption to this requirement for existing systems in a rural area where the reclaimed water system is shown to be at least 100 feet from any public or private domestic water system.

10. The rules require that the permit authorizing the use of reclaimed water also require an annual report to be submitted to the Department. This report is intended to describe any difficulties or problems that have occurred during the preceding year and steps that are being taken to correct the problems.
11. The rules require the Department to obtain written concurrence from the Oregon Health Division before authorizing uses of reclaimed water not specifically allowed by the rules. The rules also require the Department to consult with the Oregon Health Division before buffers may be reduced or disinfection agents other than chlorine may be used.

ISSUES FOR CONSIDERATION:

In developing the proposed rules, the Department identified and evaluated several issues:

- a. Will pathogens in reclaimed water be sufficiently reduced so as to not pose a health hazard? How should reclaimed water be monitored to assure effective disinfection of pathogens?

The concern about pathogens in reclaimed water is obvious. "Clearly, most wastewater reclamation and reuse operations impose a greater risk of public or worker exposure to pathogens or toxic substances than would the use of unpolluted waters of non-sewage origin. The objective, therefore, is to minimize the exposure and reduce the potential health hazards to acceptable levels. In general, the health concern is in proportion to the degree of human contact with the water, the quality of the effluent, and the reliability of the treatment processes."³

"Properly operated state-of-the-art wastewater treatment plants can reduce pathogen concentrations by many orders of magnitude. However, it is difficult to assure complete, continuous elimination of pathogens, and the potential for disease transmission through the use of reclaimed water has not been eliminated. In general, the disease organisms responsible for epidemics in the past are still present in today's sewage. Good sanitary engineering practices results in control rather than total eradication of the disease agent.

"The numbers of pathogens in sewage have markedly declined over the decades as a result of disease control with antibiotics and improved sanitary conditions and practices. During an outbreak, pathogen numbers in local sewage go up, however, and it would be

³ Crook, James, HEALTH AND REGULATORY CONSIDERATIONS, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing Co., page 10-1.

inappropriate to be careless simply because present pathogen densities may be relatively low."⁴

Sewage treatment can be accomplished by one or more treatment process depending upon the degree of treatment and effluent quality desired or needed. Primary treatment is the most basic process "which is merely a sedimentation process and has only limited effect on the removal of most biological species present in the wastewater. Some of the large and heavier organisms, such as the eggs of helminths and cysts of protozoa, will settle out during primary treatment, and particulate-associated microorganisms may be removed with settleable matter. Between 50% and 90% of the parasitic eggs and cysts can be removed by primary settling, whereas as little as 25% of the bacteria may be removed during the sedimentation process. Primary treatment does not effectively reduce the level of bacteria or viruses in sewage.

"Conventional biological treatment process (trickling filters, activated sludge, and oxidation ponds) reduce the quantities of biological organisms found in raw or settled sewage but do not eliminate them. The mechanism of removal is either adsorption or predation. In general, activated sludge processes are more effective in reducing bacteria and virus populations than are trickling filters. Activated sludge typically removes over 90% of the bacteria and 80-90% of the viruses, while trickling filters typically remove 50-90% of the bacteria and the viruses. Trickling filters have been shown to remove 30% of the beef tapeworm eggs and over 99% of Entamoeba histolytic cysts, whereas activated sludge processes by themselves appear to be ineffective in removing either cysts or eggs. All types of secondary treatment can remove more than 90% of coliform indicator organisms, and, in theory, pathogen removals are in proportion to the reduction of coliform."⁵

Tertiary treatment consisting of chemical coagulation, sedimentation, and filtration has been shown to remove 99.5% of seeded virus. In addition to effectively removing viruses, this treatment chain reduces the turbidity of the wastewater to very low levels, thereby enhancing the efficiency of the disinfection process that follows filtration. Filtration is also effective in removing the many larger parasites that are resistant to the disinfection levels normally used in wastewater treatment.

⁴ Crook, James, HEALTH AND REGULATORY CONSIDERATIONS, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 10-2.

⁵ Crook, James, HEALTH AND REGULATORY CONSIDERATIONS, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 10-9.

The most important treatment process from the standpoint of pathogen destruction is disinfection. In the United States, the most common disinfectant for both water and wastewater is chlorine. The efficiency of disinfection with chlorine is dependent upon the water temperature, pH, time of contact, degree of mixing, presence of interfering substances, concentration and form of the chlorinated species, and nature and concentration of the organisms to be destroyed.

In practice, the amount of chlorine added is determined empirically, based on desired residual and effluent quality, which is usually measure by total or fecal coliform concentration. Unless the wastewater has a very low turbidity, there is a high probability that the disinfected wastewater will not be completely free of bacterial or viral pathogens. In general, bacteria are less resistant to chlorine than are viruses, which in turn are less resistant than parasites.⁶

"Selection of the treatment chain specified in California's Wastewater Reclamation Criteria was predicated on studies conducted several years ago to determine the virus removal capability of advanced wastewater treatment processes. More recent studies have verified the effectiveness of the treatment chain, which includes oxidation, chemical coagulation, clarification, filtration, and disinfection. Data indicate that wastewater receiving such treatment and meeting specific constituent levels will be essentially free of all measurable pathogens. The quality requirements include the total coliform limit of 2.2/100 mL and turbidity limits."⁷ These turbidity limits are specified as the 24-hour mean shall not exceed 2 nephelometric turbidity units (NTU) and the turbidity shall not exceed 5 NTU more than 5% of the time during any 24-hour period.

Based upon the above discussion, it is clear that reclaimed water has the potential to contain pathogenic organisms. Further, wastewater treatment systems do have the capability to effectively reduce pathogens. The proposed rules recognize that, where the general public is expected to come into contact with the reclaimed water, reclaimed water must be virtually pathogen-free. Not only are the effluent limitations strict, but chemical coagulation and filtration is a required process which has been verified to produce a virtually pathogen-free effluent. These are the same standards that have been applied in California.

⁶ Crook, James, HEALTH AND REGULATORY CONSIDERATIONS, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 10-10.

⁷ Crook, James, HEALTH AND REGULATORY CONSIDERATIONS, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 10-25.

It must be pointed out that the Oregon Health Division would prefer a more stringent turbidity limit for Level IV effluent than that required by these proposed rules and California's rules. (Level IV effluent would be allowed for irrigation on food crops for human consumption and parks, and other uses with a high level of public contact with the effluent.) If a treated wastewater contains suspended solids, the effectiveness of the disinfecting agent to kill pathogenic organisms will be reduced. The turbidity limit and the filtration requirement in the proposed rules is intended to assure good removal of suspended solids before the disinfection step. The Health Division believes that the turbidity limit in the proposed rules may not reduce suspended solids levels sufficiently to assure effective disinfection. The Division points out that, for drinking water treatment systems, turbidity levels of 1 or less are achievable.

The desire is not based on any specific information that the proposed turbidity limit would be inadequate. It is based on the belief that a lower turbidity would provide a higher level of comfort. Some members of the advisory committee felt that more stringent turbidity limits were unnecessary based on the experience in California and would result in higher costs for treatment. Further, some committee members felt that turbidity limits of 1 or less were probably appropriate for drinking water, but that the uses proposed in the rules for reclaimed water did not include water for direct human consumption.

Not all uses of reclaimed water should require the same high level of effluent as that where direct public contact with the reclaimed water is anticipated. These proposed rules allow lower quality of reclaimed water for uses where public access is limited or restricted. The proposed rules are similar, though, in some cases, more restrictive to those in California.

The Department believes that the proposed rules will control public contact with human pathogens and protect public health. This is based upon a review of the scientific literature and upon the experience and success of California's requirements upon which these proposed rules are derived.

One of the principal difficulties in assuring that disinfection has produced a pathogen-free effluent, is the difficulty and complexity of sampling for the various types of pathogens. Traditionally, the total coliform or fecal coliform group has been used as an indicator organism for measuring the effectiveness of disinfection and as disease risk indicators. The total coliform and fecal coliform groups contain "bacteria that are always in the intestinal tract of humans and other mammals. Coliform occur naturally in the feces of warm-blooded animals in higher concentrations than pathogens and are easily and unambiguously detectable, exhibit a positive correlation with fecal contamination, and generally respond similarly to environmental

conditions and treatment processes as many pathogens."⁸ "However, there is a lack of solid quantitative epidemiological justification - coliform exposure correlation with disease outbreaks - for a numerical coliform water quality criterion."⁹ "Evidences for fecal coliform usage as an indicator with respect to viral water quality is much less definite. Minimal correlations between coliform levels and virus isolation frequencies have been found. Moreover, viruses can be recovered from natural waters and disinfected effluent when coliform or other fecal indicator bacteria are absent. Therefore, the absence of fecal coliform indicators in a sample may not imply that the water from which the sample was taken was virus free."¹⁰

Chlorine disinfection inactivates microorganisms in ways that include alteration of cell permeability, interference with bioactivity, and alteration of cell cytoplasmic membranes. Chlorine is effective in destroying organisms responsible for typhoid fever, paratyphoid, dysentery, and related bacterial diseases. Species, such as streptococcus, staphylococcus, and pseudomonas, frequently associated with skin, eye, and other contact diseases are also damaged by chlorine disinfection. The relative sensitivity of these organisms to chlorine vis a vis coliform is not well characterized. In addition coliform have been found to be less resistant than viruses to disinfection by chlorine."¹¹ However, "success in minimizing waterborne disease when the coliform standard has been used provides an argument for the retention of these organisms until substantial contradictory evidence is compiled."¹²

The State of California has chosen to use total coliform as the basis for its limitations for reclaimed water. While it is recognized that there are limitations to the use of total

⁸ Crook, James, HEALTH AND REGULATORY CONSIDERATIONS, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 10-23.

⁹ WPCF Disinfection Committee, "Assessing the need for wastewater disinfection," Journal of the Water Pollution Control Federation, Volume 59, Number 10, October 1987, p856.

¹⁰ WPCF Disinfection Committee, "Assessing the need for wastewater disinfection," Journal of the Water Pollution Control Federation, Volume 59, Number 10, October 1987, p857.

¹¹ WPCF Disinfection Committee, "Assessing the need for wastewater disinfection," Journal of the Water Pollution Control Federation, Volume 59, Number 10, October 1987, p857.

¹² WPCF Disinfection Committee, "Assessing the need for wastewater disinfection," Journal of the Water Pollution Control Federation, Volume 59, Number 10, October 1987, p857.

coliform, the California Department of Health Services also "recognizes that identification and enumeration of viruses in water and wastewater is hampered by the limitations of sampling techniques, problems of concentration of samples, the complexity and high cost of laboratory procedures, and the limited number of facilities having the personnel and equipment necessary to perform the analysis. Furthermore, the laboratory culturing procedure to determine the presence or absence of viruses in a water sample takes about 14 days. Therefore, in lieu of a virus standard, the treatment (oxidation, chemical coagulation, clarification, filtration and disinfection) and quality (for total coliform and turbidity) requirements stated above are specified, in part, to assure that the wastewater (intended for direct public contact) will not contain any pathogens, including viruses."

In general, these proposed rules have followed California's lead in establishing total coliform as the organism standard for reclaimed water.

- b. Are there chemical contaminants in reclaimed water that may potentially pose a health risk? Is there a risk that long term application of reclaimed water to land will accumulate significant levels of chemical contaminants sufficient to pose an environmental threat? Is there a potential that application of reclaimed water will reduce agricultural production of the land to which it is applied?

Pathogenic organisms are not the only concern relative to public health and the environment. There is also the concerns about chemical constituents that may be included in reclaimed water. These concerns can be broken down into several groups:

- (1) Trace Elements: Will trace elements in reclaimed water pose a public health problem? Will trace elements accumulate on irrigation sites and evolve into an environmental hazard over time?
- (2) Salts: Will salt concentrations in reclaimed water interfere with agricultural production?
- (3) Trace Organic Compounds: Will trace organics pose a public health problem? Will these compound accumulate on irrigation sites and evolve into an environmental hazard over time?

"The term trace element is used to denote a group of otherwise unrelated chemical elements present in the natural environment in low concentrations. In small quantities,, many elements (e.g., F, Si, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Se, Mo, Sn, I, Cl, B) are essential to biological growth. At a slightly higher concentration, many elements may become toxic to plants, and/or animals. There are also elements (e.g., As, Cd, Pb, Hg) that have no known physiological function and are always considered biologically harmful.

"In the soil, uncontrolled trace element inputs are undesirable, because once accumulated in the soil, these substances are in most cases practically impossible to remove and subsequently may lead to (1) toxicity to plants grown on the affected soils, (2) absorption by crops, resulting in trace element levels in the plant tissue considered harmful to the health of humans or animals who consume the crops, and (3) transport from soils to underground or surface water, thereby rendering the water unfit for its intended use."¹³

"Although a conventional wastewater treatment system is not designed to remove the trace elements because they are adsorbed on or precipitated by suspended solids, they are effectively removed from the wastewater by removal of suspended solids."¹⁴ Consequently, concentrations of trace elements in treated effluent, in most cases, is quite low. Nevertheless, the Department plans to review trace element loadings as a part of the reclaimed water use plan that is required by the proposed rules. Although EPA has not established annual or accumulated loading limits for reclaimed water, loading limits for sludge application have been established. Based upon these criteria, the Department believes that it can assure that trace element loadings will be kept below levels that will pose health hazards to the public or create environmental hazards.

Excessive salt levels in reclaimed water can affect crop production when used for irrigation. "Three salt effects on plant growth are (1) osmotic, which results from the total dissolved salt concentration in the soil water, (2) specific ion toxicity, which results from the concentration of an individual ion, and (3) poor soil physical conditions, resulting from high sodium and low salinity."¹⁵

"When municipal wastewaters are used for irrigation, water management for salinity and sodicity (sodium) control will be similar to that used for fresh water sources. All irrigation waters contain salts; however, wastewaters contain more salts (200-500 mg/L) than are present in the municipal water supply.

¹³ Page, A.L. and A.C. Chang, Fate of Wastewater Constituents in Soil and Groundwater: Trace Elements, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 13-1.

¹⁴ Page, A.L. and A.C. Chang, Fate of Wastewater Constituents in Soil and Groundwater: Trace Elements, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 13-2.

¹⁵ Oster, J. D. and J. D. Rhoades, Water Management for Salinity and Sodicity Control, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 7-1.

The proportion of sodium in relation to other dissolved cations is also increased.

"The primary concerns in water management for salinity and sodicity control are:

1. Proper selection of crops: adequate salt and specific ion tolerance of the crops grown.
2. Proper seed-bed management: satisfactory levels of salinity, sodicity, and specific ion concentrations in the soil seed bed during germination.
3. Adequate irrigation for both crop growth and leaching.
4. Sufficient drainage to dispose of the leaching water."¹⁶

While salts are always a consideration for irrigation of reclaimed water, it has also been an item to be considered in any irrigation water. Consequently, the agricultural expertise for dealing with salinity and sodicity can be readily applied to proposals to use reclaimed water. The Department would deal with this issue when reviewing the reclaimed water use plan that is required by the rules. This should assure that detrimental affects caused by salt or sodium problems due to the use of reclaimed water are avoided.

"Trace organic substances are a group of newly discovered contaminants of water supplies. Since their discovery, several hundred potentially hazardous organic chemicals have been found in natural water, wastewater, and drinking water. Because of the inherent toxic effects associated with many trace organic substances, their presence in the water (even at low concentrations) has caused great concern. Although conventional wastewater treatment processes are not designed for trace-organic removal, such processes can greatly reduce the number and concentrations of trace organics."¹⁷

When trace organics are introduced into the soil through wastewater irrigation, their effect would be attenuated by soil adsorption, volatilization, and biodegradation. Unfortunately, there are few data from actual situations to verify the effectiveness of these mechanisms. One author believes that a review of the soil adsorption coefficient, water-air partition coefficient and octanol-water partition coefficient of selected trace organics found in treated wastewater effluent will provide useful indexes of the behavior of trace organics. Based upon this

¹⁶ Oster, J. D. and J. D. Rhoades, Water Management for Salinity and Sodicity Control, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 7-1.

¹⁷ Chang, A.C., and A.L. Page, Fate of Wastewater Constituents in Soil and Groundwater: Trace Organics, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 15-16.

review of the coefficients, this same author believes that attenuation in the soil of trace organics will be in a manner similar to the attenuation of pesticide residues. It is then concluded by this author, because the inputs of trace organic matter through irrigation are usually smaller than the application of pesticides, that the environmental impact associated with their presence in wastewater effluent is not expected to be very significant.¹⁸

While the Department believes there is validity to the attenuation of trace organics in the soil, the Department is unwilling to conclude, at this point, that trace organic compounds in reclaimed water can be discarded or ignored as an issue. On the other hand, even though there is a need for much more information concerning the fate of trace organics in reclaimed water, the Department does not believe that the use of reclaimed water should be prohibited until the information is available. The Department intends to review reclaimed water use plans relative to trace organics. (The plans are required by the proposed rules.) In those cases where effluent data or other information would indicate a potential for significant trace organics, the Department would require soil and product monitoring as necessary to assure that health or environmental problems are not being created. In addition, EPA, as part of its sewage sludge regulations, is proposing annual loading limits for certain organic constituents. The Department intends to consider these criteria, if appropriate, as further control on trace organics.

c. How will groundwater issues be addressed when evaluating proposals to use reclaimed water? Can groundwater be adequately addressed without imposing burdens that will discourage the use of reclaimed water?

The recently adopted groundwater protection rules (Oregon Administrative Rule (OAR) 340-40) require the Department to review and evaluate appropriate technical information and reports submitted by permitted sources to determine the potential for adverse impacts to groundwater quality. Where the above technical information and reports indicate that there is a likely adverse groundwater quality impact, the Department shall require through the permits and rules a specific groundwater protection program for that source. The program will include groundwater monitoring and a specific maximum groundwater contaminant concentrations allowed at a compliance point down gradient from the source or facility. These rules would require that any new facility could not increase the concentration of contaminants in the groundwater above background levels unless a variance were granted. Existing permitted facilities could not exceed numerical groundwater

¹⁸ Chang, A.C., and A.L. Page, Fate of Wastewater Constituents in Soil and Groundwater: Trace Organics, Irrigation with Reclaimed Municipal Wastewater - A Guidance Manual, Lewis Publishing, Inc., page 15-16.

quality reference levels or guidance levels which are specified in the groundwater rules unless a variance were granted.

The Department believes that the principal groundwater concerns relative to reclaimed water will be irrigation systems. In general, reclaimed water from sewerage facilities can be irrigated and managed in a manner that will not adversely affect groundwater. While there may be some small, but insignificant, impact due to increased salt concentrations, the parameters of most concern can be controlled with a properly managed irrigation system. Groundwater monitoring or down gradient compliance point limits will not be required for those proposals which can demonstrate that the water can be used in a manner or applied at rates that will not cause contaminants to be leached into the groundwater in quantities that will adversely affect groundwater quality.

The proposed rules are not specific relative to the criteria that would be used to evaluate potential groundwater impacts for reclaimed water proposals. The Department would propose that the criteria be established in guidance that would accompany the rules when adopted. The Department has not completely developed this guidance as yet, but intends to have proposed guidance prepared before the proposed rules are taken to hearing. The Department is also preparing guidance for the groundwater protection rules themselves. The Department envisions that the two guidance documents could be developed jointly thereby assuring consistency.

d. Should the proposed rules contain minimum buffer distances from property boundaries where reclaimed water is being irrigated on land?

As previously stated, the proposed rules are essentially identical in substance to those in effect in Oregon. One place that Oregon has differed from California's approach is that these rules specify minimum buffer distances when effluent is applied to land. California does not specify buffer distances, but, instead, states that "direct or windblown spray should be confined to the area designated and approved for reclamation."¹⁹ The difficulty with California's approach is that, particularly in agricultural areas, it is virtually impossible to guarantee that aerosols will not drift beyond the property boundaries. With such limitations, the farmer representatives on the technical advisory committee, felt that the extra effort on their part to monitor their irrigation systems would cause them not to consider reclaimed water.

The Department's approach in the rules is to establish minimum buffer distances. For Level IV reclaimed water, which is

¹⁹ State of California, Department of Health Services, GUIDELINES FOR USE OF RECLAIMED WATER.

essentially free of pathogens, no buffers are required. For Level III reclaimed water a buffer of 10 feet is proposed. A distance of 10 feet was established because Level III effluent has the same microbiological limits as Level IV water, but does not necessarily undergo chemical coagulation and filtration and therefore cannot be assumed to be essentially free of pathogens. For Level II effluent, a buffer of 70 feet is proposed. The minimum buffer distance for Level II reclaimed water was determined using an air dispersion model and calculating how far downwind one would have to be to achieve the same total coliform levels as would be found in the air at a distance of 10 feet from a sprinkler spraying Level IV water. The calculations include several very conservative assumptions:

1. The sprinkler was assumed to be a point source when in fact it would be a ring. A ring source would have a much greater dispersion than a point source.
2. The air dispersion model assumed that no settling of plume particles (settling velocity = 0) would occur which is highly unlikely.
3. The air dispersion model also assumed that the plume would be 100% reflected back up when it came into contact with the ground. Plume reflection is important because the sprinkler head was assumed to be 2 meters high and the plume will contact the ground as it moves downwind. Because water in the aerosol should adhere to vegetation and other things that it contacts, the reflection would probably be closer to zero.
4. There was no assumed kill of pathogens caused by the impact of sprinkling. Data would suggest that impact kill is substantial.
5. The model assumed no decay of organisms as the aerosol drifts downwind. This is unlikely although a substantial amount of decay may be due to sunlight which would not be a factor if reclaimed water was irrigated at night.

On the basis of the above discussion, the Department believes that the buffer distances proposed in the rules for Level II water is protective.

The proposed rules require that a buffer for Level I effluent be determined on a case-by-case basis if the water is to be applied by spraying. If one applies the same model to Level I water as was applied to Level II water, the buffer would have to be almost two miles. If a decay factor is added to the model, the buffer could be reduced to about 400 meters or a quarter of a mile. If spray irrigation occurred during the day and, depending on the manner in which the effluent was applied, this buffer distance might be protective. The Department, however, believes that for

undisinfected effluent, each situation should be reviewed individually rather than relying on a single number specified in the rules. For surface application of Level I water, a 10 foot buffer is proposed which is consistent with the Department's sludge application guidelines.

e. Will the Department need to increase its surveillance of those sources that release reclaimed water to assure compliance with these rules?

In order to have a complete, effective program for regulating the use of reclaimed water, the Department must do more than adopt rules. The rules must be implemented through permit review and issuance, reclaimed water use plan review, and compliance assurance. Without effective implementation, the ability of the proposed rules to protect the environment and public health cannot be assured.

There are two general aspects relative to implementation: (1) permit issuance and reclaimed water use plan review, and (2) compliance assurance. Relative to permit issuance and reclaimed water use plans, the Department has estimated the potential workload from anticipated reclaimed water projects between now and the end of the 1989-91 biennium. If all of the projects proceed as anticipated, about 1 full time equivalent (FTE) will be needed to thoroughly review permits and plans. Perhaps half of this effort would be work required as a result of the proposed rules.

Because the use of reclaimed water will place treated sewage effluent where it is highly likely to come in contact with people, the Department believes that it should provide a more active regulatory presence for those sources using reclaimed water than those that do not. For Level IV effluent, which is the highest quality water and may be applied to food crops and parks, the Department believes that several inspections per year are warranted. For Level IV effluent, for example, the Department believes that the facility should be inspected at least quarterly. Fortunately, the Department believes that there will be relatively few facilities that will produce Level IV effluent. The Department, however, believes that there will be many more facilities that provide Level II or III quality effluent. These facilities should be inspected at least twice during the time that reclaimed water is being used.

In addition to periodic inspections, the proposed rules also call for annual reports and monthly reclaimed water monitoring reports that should be reviewed. Monitoring reports are already required of permittees, but the annual plans will be additional work.

Based upon the above discussion, the Department believes that at least 0.40 additional FTE would be necessary to expand compliance assurance to the levels discussed in this document.

The Department believes that additional resources should be obtained to implement the proposed rules for reclaimed water. If resources cannot be obtained, the Department should still implement the rules; however, it should be done with the understanding that resources will be diverted from other important activities. In such a situation, high priorities for inspections and other compliance assurance activities must be given to facilities that provide reclaimed water. If high priority cannot be given, then the Environmental Quality Commission should consider not adopting rules that would allow reclaimed water to be applied to food crops, parks, or other uses where there may be direct public contact with the reclaimed water.

f. Does the Department have authority to regulate the quality of reclaimed water when used for beneficial purposes?

Initially, when the Department began the process of developing these rules, there was a question about whether the Department had the authority to adopt rules containing requirements that are intended to protect public health. If public health was the main concern, perhaps the authority better rests with the Oregon Health Division. The Department asked the Attorney General's Office to look into the question. An informal reply indicates that, since the Commission has authority over the treatment and disposal of wastewater, requirements that protect public health are accessory and necessary to that authority.

g. Some sewerage facilities currently discharge into streams that have been over-appropriated such that stream flows are insufficient to satisfy all water rights. Will owners of the facilities be obligated to continue discharging in order to satisfy downstream water rights and not be able to reduce discharges by diverting reclaimed water for reuse?

Although there seems to be general agreement that use of reclaimed water is potentially a sound means to reduce discharge levels and improve water quality, water law may restrict the ability of sewage treatment plant owners to use reclaimed water. A past opinion of the Attorney General seems to indicate that, if downstream water right holders rely on the discharge of wastewater to meet their water rights, the owner may be obligated to either discharge the water or compensate the water right holders if the effluent is diverted from discharge and applied to a beneficial purpose. Several months ago this Department and the Department of Water Resources asked the Attorney General to review this issue. The results of this review has not been positive and, at this time, it appears that legislation will probably be necessary to change the law. Without the legislation, the ability of sewerage facility owners to reduce wastewater discharges by offering their treated effluent for use for beneficial purposes will be seriously impeded.

h. Will people be able to readily use the proposed rules?

In drafting the proposed rules, the Department and the advisory committee attempted to provide as much flexibility as possible while still providing positive protection for public health. The advisory committee felt that the flexibility has reduced some specificity that would be helpful. The advisory committee has asked the Department to include guidance with the proposed rules to assist people in applying the rules to their particular situation. The Department agrees and has partially drafted guidance. The Department intends to finish the guidance before placing the rules on public notice and before going to hearing.

i. If the proposed rules adequately address issues related to reclaimed water, will there be people willing to make use of available reclaimed water?

In general, use of reclaimed water has been accepted by the public. Polls taken to determine public views and perceptions have not found a aversion to the concept of using treated effluent from sewage treatment plants. Public acceptance of the use of reclaimed water can be further enhanced through effective implementation of the proposed rules and public education about the benefits of using reclaimed water.

There is some reluctance, particularly on the part of food processors and farmers, that comes from fears that the federal Food and Drug Administration (FDA) will intervene and declare crops grown with reclaimed water as unfit for human consumption. Although there have not been any problems with FDA in California, processors and, consequently, growers believe that abstention from the use of reclaimed water may be prudent. The Department may have to join with sewerage facilities and growers in resolving any potential issues with the federal Food and Drug Administration.

Another aspect that may discourage use of reclaimed water involves water rights. A farmer could irrigate with reclaimed water instead of withdrawing the water from a stream as allowed by a water right that he or she holds. If the farmer fails to exercise the water right for five years, by state law the right is forfeited. Water rights are important property rights to the farmer and a loss of a water right would greatly reduce the value of his or her farm holdings. A revision of state law that could prevent a farmer from forfeiting his water right when using reclaimed water might alleviate this problem.

The Department believes that it should assist local jurisdictions with educational programs, coordination with Federal agencies and with legislation, if necessary, to encourage the use of reclaimed water and to eliminate road blocks that might otherwise discourage it.

j. What is an acceptable quality for reclaimed water that is used to irrigate golf courses?

In Oregon's existing guidance for land application of wastewater, reclaimed water that is used to irrigate golf courses must have better than secondary treatment and achieve a total coliform concentration of less than 100 organisms per 100 mls or a fecal coliform concentration of less than 10 organisms per 100 mls. California's requirements would limit total coliform levels to a weekly median not to exceed 23 total coliform organisms per 100 mls. Arizona requirements are that the fecal coliform concentration shall not exceed a median value of 25 organisms per 100 mls.

Under the treatment levels specified in each of the states noted above, there have been no documented outbreaks of disease that can be traced to the application of reclaimed water on golf courses nor are any of the states proposing to tighten up the requirements for reclaimed water used on golf courses as a result of evidence of disease outbreaks. The absence of documented outbreaks does not necessarily mean that golfers are not being exposed to unhealthful levels of pathogenic organisms or that occasional, isolated outbreaks are not occurring. Health problems associated with the use of reclaimed water would probably only be detected if a large, widespread epidemic occurred.

Even though there have been no documented problems resulting from the use of reclaimed water on golf courses, the technical advisory committee felt that reclaimed water quality restrictions tighter than currently required in California and in Oregon's guidance were appropriate. This was based primarily upon the Oregon Health Division's determination that there should be a waiting period after irrigation of reclaimed water is stopped and before harvesting of crops irrigated with either Level II or Level III effluent. (Level II and Level III effluent receives secondary treatment and disinfection, but is not chemically coagulated or filtered before use.) This was deemed advisable to further assure die off of pathogenic organisms before the general public may come in contact with the crop. (Note that Level II and Level III reclaimed water cannot be used on unprocessed food crops.) The committee reasoned that, if a waiting period is desirable for agricultural crops not intended for human consumption, then would it not also be appropriate to require a waiting period for access to golf courses.

The committee believed that a waiting period for golf courses would not be feasible, but was concerned that health protection on golf courses may not be adequate under either the current Department guidance or that proposed by other states. Therefore, instead of requiring waiting periods following irrigation, the committee recommended that the proposed rules not allow irrigation with Level II effluent on golf courses. Because Level III

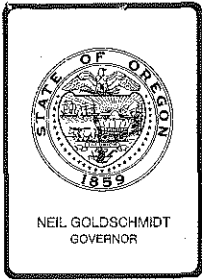
effluent has more stringent total coliform standards, this quality of reclaimed water was believed to be acceptable for golf courses.

The Department believes there are four golf courses potentially using reclaimed water that may not meet the Level III requirements. The sewage treatment plants providing the reclaimed water provide very good secondary treatment. Unfortunately, current data does not include total coliform which is the primary effluent quality criteria for Level III effluent. Current permit requirements only require that fecal coliform data be collected. Consequently, the Department is unable to determine if these treatment plants could readily achieve the more stringent total coliform limits required for Level III. The sewage treatment plants that provide reclaimed water for golf courses do provide very good treatment and the Department believes that meeting the total coliform limits for Level III effluent could probably be achieved a higher level of disinfection. This could be achieved with increasing chlorine levels in the disinfection step or may require expansion of the chlorine contact chamber to increase the period of disinfection. At worst, filtration of the effluent might be required to further reduce solids that could be interfering with effective disinfection. For a sewage treatment plant treating one half million gallons per day, the cost for providing filters could be \$320,000. The cost of modifying the disinfection system should be substantially less depending on the type and extent of modifications necessary.

The Department recognizes that it will take time for a facility owner to upgrade facilities to meet the more stringent total coliform requirements in these proposed rules. The proposed rules include a section that states that, where the rules of this Division require limitations and conditions that are more stringent than conditions in existing permits, the permittee shall be a given reasonable compliance schedule for achieving the more stringent requirements. The compliance schedule shall be inserted in the permit at the time the permit is renewed. This condition will allow the permittee some period of time to prepare for meeting the more stringent requirements.

REUSE TECHNICAL ADVISORY COMMITTEE MEMBERS

1. Jim Black - Oregon Department of Agriculture
2. Ken Buelt - Tualatin Valley farmer
3. John R. Churchill - Northwest Environmental Defense Center
4. Patrick D. Curran - Curran-McLeod, Inc.
5. Kelly Hickman - Flavorland Foods, Forest Grove
6. Ken Kauffman - Oregon State Health Division
7. Marv Kennedy - City of Medford
8. Cal Krahmer - Tualatin Valley Irrigation District
9. John Leffel - Washington County Extension Service
10. Stanton Lesieur - Unified Sewerage Agency of Washington Co.
11. Mark Madison/Gary Nuss - CH2M-Hill
12. Tom Paul - Water Resources Department
13. Dennis Spink - Agripac, Inc.
14. Carolyn Studer - consumer representative
15. James Vomocil - Department of Soil Science - OSU
16. Steve A. Wilson - Cascade Earth Sciences, Ltd.



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990
Agenda Item: R
Division: Water Quality
Section: Construction Grants

SUBJECT:

Sewerage Works Construction Grants: Proposed Rule Modifications.

PURPOSE:

Request authorization by Environmental Quality Commission (EQC) to hold a public hearing on rule modifications for the construction grants program (OAR 340-53).

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item for Current Meeting
 - Other: (specify)
- Authorize Rulemaking Hearing
- Adopt Rules
 - Proposed Rules Attachment A
 - Rulemaking Statements Attachment C
 - Fiscal and Economic Impact Statement Attachment C
 - Public Notice Attachment B
- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment
- Approve Department Recommendation
 - Variance Request Attachment
 - Exception to Rule Attachment
 - Informational Report Attachment
 - Other: (specify) Attachment

Meeting Date: March 2, 1990
Agenda Item: R
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DESCRIPTION OF REQUESTED ACTION:

Within the Water Quality Division, the Construction Grants Program provides funds to communities for major capital construction of sewerage facilities necessary to ensure that effluent discharges meet permit requirements and, more importantly, meet water quality standards to protect beneficial uses of surface water and groundwater. Since 1972 over \$500 million in federal grants have been awarded in Oregon. The local match for these grants was about \$177 million, raising the total to \$677 million. An additional \$32 million in state grants increases the total for major capital construction to \$709 million. These monies cover only the Environmental Protection Agency (EPA) eligible costs with total project costs generally about 30 percent higher. When EPA ineligible costs are added in, the total investment associated with EPA construction grants for sewerage facilities since 1972 is at least \$918 million.

The Department of Environmental Quality (DEQ) requests Commission authorization to proceed to a public hearing on proposed modifications to the Construction Grant Rules (OAR 340-53-025). The proposed modifications:

- Make the construction grant rules consistent with the Water Quality Act of 1987.
- Establish a funding range (4 to 7-1/2%) in the reserve for alternative sewage treatment systems for small communities.
- Establish a funding range (4 to 7-1/2%) in the reserve for innovative and alternative sewage treatment technologies.
- Add the above two reserves to the categories already established which may utilize monies recovered from prior year construction grant funds.

AUTHORITY/NEED FOR ACTION:

___ Required by Statute: _____	Attachment ___
Enactment Date: _____	
<u>X</u> Statutory Authority: <u>ORS 468.020, ORS 183</u>	Attachment ___
___ Pursuant to Rule: _____	Attachment ___
<u>X</u> Pursuant to Federal Law/Rule: <u>P.L. 100-4</u>	Attachment ___
___ Other: _____	Attachment ___

Meeting Date: March 2, 1990
Agenda Item: R
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X Time Constraints: (explain)

A public hearing on the proposed rule modifications has been scheduled for April 5, 1990. The final rule modifications must be adopted at the May 25, 1990, EQC meeting to allow small communities to receive full grant funding from the reserves and reallocated construction grant funds during the final two federal fiscal year award cycles. In other words, Congress has killed the Construction Grants Program as of September 30, 1991. These requested changes are needed to allow full funding in the grants awarded during 1990 and 1991.

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/> Advisory Committee Report/Recommendation	Attachment <input type="checkbox"/>
<input type="checkbox"/> Hearing Officer's Report/Recommendations	Attachment <input type="checkbox"/>
<input type="checkbox"/> Response to Testimony/Comments	Attachment <input type="checkbox"/>
<input type="checkbox"/> Prior EQC Agenda Items: (list)	Attachment <input type="checkbox"/>
<input type="checkbox"/> Other Related Reports/Rules/Statutes:	Attachment <input type="checkbox"/>
<input type="checkbox"/> Supplemental Background Information	Attachment <input type="checkbox"/>

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

More communities request grants than available funds will serve. Funding decisions are based upon a priority list that ranks projects in terms of the seriousness of the water quality problem addressed, receiving waterbody sensitivity and population. A final priority list has been established for the duration of the program.

Communities on that Final Construction Grants Priority List will be minimally affected. These rule changes are not expected to be controversial and should receive support from these communities.

PROGRAM CONSIDERATIONS:

The EPA Sewerage Construction Grants Program classifies sewage treatment processes as conventional, alternative or innovative. Grants to build conventional treatment and alternative systems for small communities start with a base grant of 55% of eligible costs. Alternative and innovative processes are encouraged by allowing an additional 20% of eligible costs to be grant financed.

Alternative means, "proven treatment processes which provide for the reclaiming and reuse of water, productively recycle wastewater constituents, or otherwise eliminate the discharge of pollution, or recover energy." Innovative projects involve, "developed technology that is not yet proven, but which represents a significant advantage over state of the art."

States are mandated by federal law to set aside reserves for certain specific purposes. DEQ's reserves are as indicated in Attachment A. One of these is a 4% set aside for small communities with alternative systems. At the federal level this reserve was changed by the Water Quality Act of 1987 to coincide with the innovative/alternative reserve (at least 4%, but no more than 7.5%). DEQ did not immediately reflect this change in its own rules because the estimated reserves (at that time) seemed adequate to meet grant funding requirements.

However, actual grant awards last year were higher than anticipated and resulted in shortages in these reserves. In addition, the updated costs on the Final Construction Grants Priority List are higher than anticipated.

The proposed rule modifications are intended to enable the Department to meet the small community needs by taking full advantage of the flexibility built into the federal enabling legislation.

The proposed rule modifications are not expected to be controversial and do not affect agency allocation of resources.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

1. Maintain the current rule.

Maintaining the current rule would result in some small communities on the priority list not receiving full grant funding for all components of their projects.

2. Change the small community and innovative/alternative limit in the rule to a different fixed percentage of construction grant funds and limit the categories that may utilize funds recovered from prior year allotments.

This alternative would limit the Department's flexibility to adjust funding to changing community needs. As such, the Department could either have too much or not enough small

community and innovative/alternative funds available to grant community requests.

3. Authorize the Department to hold a public hearing on April 5, 1990, on the rule as proposed in Attachment A.

This alternative gives the Department the flexibility to maximize funding for innovative and alternative processes in the construction grants program until it is phased out on September 30, 1991.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends approval of Alternative 3.

Small communities on the Final Construction Grants Priority List anticipate receiving the maximum funding possible under the construction grants program and have budgeted (and many have sold bonds) accordingly. This action by the Commission would allow the Department to meet the needs of these communities.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

Alternative 3 is consistent with the strategic plan, Commission action, agency policy and legislative policy on the phase-out of the construction grants program and transition into the State Revolving Fund. That is, in approving prior Construction Grant rules and the priority list, a conscious decision was made to meet the sewerage treatment facility construction grant needs of as many small communities as possible. Without the requested change, many of these communities will receive smaller grants than they were planning on. Further, the successor sewerage treatment facility financing program (the State Revolving Fund) will increase costs to the point where many small communities may not be able to afford to make improvements needed to protect water quality.

This alternative is also consistent with the Water Quality Act of 1987.

ISSUES FOR COMMISSION TO RESOLVE:

None.

Meeting Date: March 2, 1990
Agenda Item: R
Page 6

INTENDED FOLLOWUP ACTIONS:

Hold public hearing on April 5, 1990, evaluate public testimony, and propose final action on the proposed rule modification.

Approved:

Section:

Martha V. Jones

Division:

Lynette Taylor

Director:

Jell Hawn

Report Prepared By: Ruby L. Lane

Phone: 229-5789

Date Prepared: January 26, 1990

Ruby L. Lane:hs
CG/WH3911
January 26, 1990

OREGON ADMINISTRATIVE RULES
340-53-025

NOTE:

The underlined portions of text represent proposed additions made to the rule.

ESTABLISHMENT OF SPECIAL RESERVES

340-53-025

From the total funds allocated to the state the following reserves will be established for each funding year:

- (1) Reserve for grant increases of five (5) percent.
- (2) Reserve for Step 1 and Step 2 grant advances of up to ten (10) percent. This reserve shall not exceed the amount estimated to provide advances for eligible small communities projected to apply for a Step 3 or Step 2 plus 3 grant.
- (3) Reserve for alternative components of projects for small communities utilizing alternative systems of not less than four (4) percent nor more than seven and one-half (7-1/2) percent.
- (4) Reserve for additional funding of projects involving innovative or alternative technology of not less than four (4) percent nor more than seven and one-half (7-1/2) percent.
- (5) Reserve for water quality management planning of not more than one percent of the state's allotment nor less than \$100,000.
- (6) Reserve for state management assistance of up to four percent of the total funds authorized for the state's allotment.
- (7) Reserve for capitalization of state revolving fund in accordance with the following:
 - (a) FY87 - up to fifty (50) percent.
 - (b) FY88 - up to seventy-five (75) percent.
 - (c) FY89-90 - not less than fifty (50) percent and up to one hundred (100) percent.
 - (d) FY91-94 - one hundred (100) percent.

- (8) Reserve for nonpoint source management planning of not more than 1 percent of the state's allotment nor less than \$100,000.
- (9) The balance of the state's allocation will be the general allotment.
- (10) The Director may at his discretion utilize funds recovered from prior year allotments for the purpose of:
 - (a) Grant increases; or
 - (b) Conventional and alternative components of small community projects utilizing alternative systems; or
 - (c) Additional innovative or alternative technology; or
 - (d) The general allotment.

Stat. Auth.: ORS Ch. 468

Hist.: DEQ 24-1980, f. 9-29-80, ef. 10-1-80; DEQ 15-1982, f. & ef. 7-27-82; DEQ 14-1983, f. & ef. 8-26-83; DEQ 3-1987, f. & ef. 2-20-87; DEQ 16-1987, f. & ef. 8-12-87; DEQ 10-1989, f. & cert. ef. 6-9-89

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

**RULE MODIFICATIONS TO THE CONSTRUCTION GRANTS PROGRAM
NOTICE OF PUBLIC HEARING**

Hearing Date: March 5, 1990
Comments Due: April 5, 1990

- WHO IS AFFECTED:** Cities, counties and special districts seeking U.S. Environmental Protection Agency grants for sewerage projects are directly affected.
- WHAT IS PROPOSED:** The Department of Environmental Quality proposes to modify the Construction Grants Program Rules (OAR 340-53-025). The proposed modifications:
- Make the construction grant rules consistent with the Water Quality Act of 1987;
 - Establish a funding range (4 to 7-1/2%) in the reserve for alternative systems for small communities;
 - Establish a funding range (4 to 7-1/2%) in the reserve for innovative and alternative technologies; and
 - Add categories to those already established which may utilize funds recovered from prior year allotments.
- WHAT ARE THE HIGHLIGHTS:** The rule modification would establish a lower and upper limit in the reserve for alternative systems for small communities and in the reserve for innovative and alternative technologies. It also expands the categories which can be funded from reallocated funds to include these two reserves. This would allow the Department the flexibility it needs to fund the projects on the Final Construction Grants Priority List.
- HOW TO COMMENT:** Copies of the complete proposed rule can be obtained from:

Suzanne Fulton, Construction Grants Section
Department of Environmental Quality
Water Quality Division
811 S.W. Sixth Avenue
Portland, OR 97204
Telephone: (503) 229-5705



811 S.W. 6th Avenue
Portland, OR 97204

11/1/86

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

OVER

B - 1

TIME: 2:00 p.m.
DATE: April 5, 1990
PLACE: DEQ Offices, 10th Floor, Room 10A
811 S.W. Sixth Avenue, Portland, Oregon

**WHAT IS THE
NEXT STEP:**

After public hearing, the Environmental Quality Commission may adopt rules identical to those proposed, modify the rules, or decline to act. The Commission's deliberations should come on May 25, 1990, as part of the agenda of a regularly scheduled Commission meeting. A Statement of Need for Rules (including Fiscal Impact), and Statement of Land Use Consistency are attached to this notice.

SED 424
(Rev. 10/1/87)

NOTICE OF PROPOSED RULEMAKING HEARING

(Statement of Need and Fiscal Impact must accompany this form.)

AGENCY: Department of Environmental Quality Water Quality
(Department) (Division)

The above named agency gives notice of hearing.

HEARINGS TO BE HELD:

Date: April 5, 1990 Time: 2:00 p.m. Location: 811 S. W. Sixth Avenue
Room 10A
Portland, OR 97204

Hearings Officer(s): Ruby L. Lane

Pursuant to the statutory authority of ORS 468.020 Chapter 183 or
Chapter(s) _____, Oregon Laws 19____ or
House Bill(s) _____ or Senate Bill(s) _____, 19____ Legislature

the following action is proposed:

ADOPT: _____

AMEND: 0AR 340-53-025

REPEAL: _____

Prior Notice Given; Hearing Requested by Interested Persons No Prior Notice Given

SUMMARY: Rule modifications are proposed to OAR 340-53-025. The modifications:

- make the rules consistent with the Water Quality Act of 1987
- establish a funding range (4 to 7½%) in the reserve for alternative systems for small communities.
- establish a funding range (4 to 7½%) in the reserve for innovative and alternative technologies
- add categories to those already established which may utilize funds recovered from prior year allotments.

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments received by April 5, 1990 will also be considered. Written comments should be sent to and copies of the

proposed rulemaking may be obtained from:

AGENCY: Department of Environmental Quality

ADDRESS: 811 S. W. Sixth Avenue
Portland, OR 97204

ATTN: Ruby L. Lane

PHONE: 229-5789

Signature

Date

RULE MAKING STATEMENTS

STATEMENT OF NEED FOR RULEMAKING

Pursuant to ORS 183.335(7), this statement provides information on the Environmental Quality Commission's intended actions to consider revisions to OAR 340, Division 53, rules.

LEGAL AUTHORITY

ORS 468.020 authorizes the Environmental Quality Commission to adopt rules and standards in accordance with ORS Chapter 183.

NEED FOR THE RULE

Rule modifications are necessary to allow the Department the flexibility to continue the construction grants program until it is phased out on September 30, 1991.

The modifications would allow small communities to receive full grant funding from the appropriate grant reserves as provided by the Final Construction Grants Priority List.

PRINCIPAL DOCUMENTS RELIED UPON IN THIS RULEMAKING

Water Quality Act of 1987, Public Law 100-4
OAR 340 Division 53

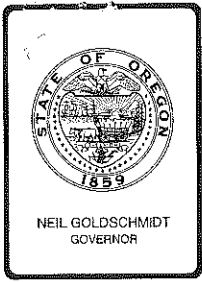
FISCAL AND ECONOMIC IMPACT OF RULEMAKING

The proposed rule modification for amending OAR 340-53-025 would benefit small communities utilizing alternative systems. If the existing rules are not modified, these communities would not receive the additional funds to which they are entitled.

LAND USE COMPATIBILITY STATEMENT

The proposed rule modifications appear to be consistent with all statewide planning goals. Specifically, the rule modifications comply with Goal 6 because they provide funds for water pollution control facilities, thereby contributing to the protection of water quality. The rule changes comply with Goal 11 because they assist communities in financing needed sewage collection and treatment facilities.

Public comment on the proposed rule modifications is invited and may be submitted in the same manner described in the accompanying Public Notice of rule modification.



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 1, 1990

Agenda Item: S

Division: Water Quality

Section: Industrial Waste

SUBJECT:

Water Quality Rules: Proposed Minor Rule Changes Affecting Industrial and Agricultural Sources.

PURPOSE:

There are several minor modifications to water quality rules proposed. A brief description of each follows:

- (1) Make OAR Chapter 340 Division 45 consistent with Division 14 by adding language to clarify that a National Pollutant Discharge Elimination System (NPDES) permit will not expire until final action is taken on the renewal application, if the renewal application has been submitted in a timely manner.
- (2) Make permitting rules and confined animal feeding or holding rules consistent with HB 3445, adopted by the 1989 legislature.
- (3) Identify the circumstances under which the Director can issue a Stipulated Consent Order in lieu of, or in addition to, a permit.
- (4) Clarify certain fee requirements pertaining to General Permits and Special Permits. Clarify the category of "major mining operation".
- (5) Exempt small impoundments and oil/water separators from the requirement to have engineering plans approved by the Department.

Meeting Date: March 1, 1990
Agenda Item: S
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ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Program Strategy
 - Proposed Policy
 - Potential Rules
 - Other: (specify)

- Authorize Rulemaking Hearing
 - Proposed Rules (Draft) Attachment A
 - Rulemaking Statements Attachment B
 - Fiscal and Economic Impact Statement Attachment C
 - Draft Public Notice Attachment D

- Adopt Rules
 - Proposed Rules (Final Recommendation) Attachment _____
 - Rulemaking Statements Attachment _____
 - Fiscal and Economic Impact Statement Attachment _____
 - Public Notice Attachment _____

- Issue Contested Case Decision/Order
 - Proposed Order Attachment _____

- Other: (specify)

DESCRIPTION OF REQUESTED ACTION:

The Department is requesting the Environmental Quality Commission (Commission) to grant authorization to proceed to a hearing on the rules package proposed. Since there are several proposed rule changes which are independent of each other, the Commission may authorize the Department to proceed with all or only a portion of the entire proposed rule package.

AUTHORITY/NEED FOR ACTION:

- Required by Statute: _____ Attachment _____
 - Enactment Date: _____
- Statutory Authority: ORS 468.020, 730, 740 Attachment E
- Amendment of Existing Rule: Div. 14,45,51,52 Attachment F
- Implement Delegated Federal Program: _____ Attachment _____

- Other: Attachment _____

- Time Constraints: (explain)

Meeting Date: March 1, 1990
Agenda Item: S
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DEVELOPMENTAL BACKGROUND:

___ Advisory Committee Report/Recommendation	Attachment ___
___ Hearing Officer's Report/Recommendations	Attachment ___
___ Response to Testimony/Comments	Attachment ___
___ Prior EQC Agenda Items: (list)	Attachment ___
___ Other Related Reports/Rules/Statutes:	Attachment ___
___ Supplemental Background Information	Attachment ___

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

For the most part, these rule changes are not controversial and should receive support from the regulated community and the environmental advocates.

PROGRAM CONSIDERATIONS:

Attached to this report as Attachment A is a discussion of each of the proposed rules. It explains the existing problem which caused the Department to propose rule changes, the various alternatives considered, and the proposed rules changes.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

It is recommended that the Commission authorize the Department to hold a public hearing on the proposed rule changes. Most of the rule changes are necessary in order to provide consistency and clarity.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

All of these proposed rule modifications are consistent with current policies.

ISSUES FOR COMMISSION TO RESOLVE:

1. Even though ORS 183.430 provides for expiring permits to remain in effect until the Department takes final action on the renewal application, should this issue be made more clear to the regulated community by including it in OAR Chapter 340 Division 45?

Meeting Date: March 1, 1990
Agenda Item: S
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2. Periodically the Department uses stipulated consent orders in lieu of or in addition to water quality permits. Should this practice be defined by rule?
3. Should those facilities covered by general permits for their wastewater disposal be required to pay a small annual fee if they are in a category which the Department determines needs a periodic inspection by the Department?
4. Should the list of those facilities not requiring submittal of engineering plans prior to construction be expanded to include small impoundments for non-hazardous wastes and small oil/water separators?

INTENDED FOLLOWUP ACTIONS:

At the conclusion of the public participation process it will be the intent of the Department to return to the Commission at the first opportunity for rule adoption.

Approved:

Section:

Division:

Director:

Charles K. Ashbaker
Rydia Taylor
Jul Hansen

Report Prepared By: Charles K. Ashbaker

Phone: 229-5325

Date Prepared: January 16, 1990

CKA:crw
IW\WC6192
2/12/90

STATE OF OREGON
DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 16, 1990

TO: Environmental Quality Commission

FROM: Kent Ashbaker

SUBJECT: PROPOSED CHANGES IN WATER QUALITY RULES

These are some incidental rule changes which are needed in the water quality rules. There are minor changes in Division 14, 45, 51, and 52. This discussion will list the problem to be solved or other reason to change the rules. It will list the alternatives considered, if any, and will then show the proposed rule changes in context with the existing rules. Additions are underlined. Deletions are in [~~brackets~~].

Problem:

Oregon Administrative Rules Chapter 340, Division 14, establish the Department's general procedures for issuance, denial, modification, and revocation of permits. Rule 340-14-030 states that, "If a completed application for renewal of a permit is filed with the Department in a timely manner prior to the expiration date of the permit, the permit shall not be deemed to expire until final action has been taken on the renewal application to issue or deny a permit". This policy has been followed by the Department since permits were first issued. When the Department adopted specific rules for regulating the issuance of NPDES permits, found in OAR Chapter 340 Division 45, the language found in Division 14 concerning renewal of permits was inadvertently omitted. OAR 340-45-040 should be changed to include the omitted language.

Alternatives Considered:

The only alternative considered was to not propose the rule change. The Oregon Administrative Procedures, ORS 183.430, provides that licenses (permits) remain in effect until the agency takes final action on a renewal application. Since this requirement is statutory, adoption of an equivalent rule is probably not necessary. However, this practice would be more clear to those who are regulated by water quality rules, if the rule is adopted.

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Proposal Changes:

Make the following addition to OAR 340-45-040:

OAR 340-45-040 The procedures for issuance of an NPDES permit shall apply to renewal of an NPDES permit and to modification requested by the permittee. If a completed application for renewal of a permit is filed with the Department in a timely manner prior to the expiration date of the permit, the permit shall not be deemed to expire until final action has been taken on the renewal application to issue or deny the permit.

Problem:

House Bill 3445, which was adopted by the 65th Oregon Legislative Assembly in 1989, requires the Department to issue a permit for confined animal feeding operations which does not expire. Oregon Administrative Rules, Division 14, limits the term of DEQ permits to a maximum of 10 years. A change must be made in the rules to be compatible with the new law.

Alternatives Considered:

none

Proposed Changes:

Add to OAR 340-14-015(2).

340-14-015 (1) . . .

(2) The duration of permits will be variable, but shall not exceed ten (10) years[.], except for permits issued to "confined animal feeding operations" pursuant to ORS 468.740 as amended by House Bill 3445. Those permits shall not expire, but may be revoked or modified by the director or may be terminated upon request by the permit holder.

Problem:

Division 51 Contains a definition of "Confined Animal Feeding Operation" which has been used since the rules were adopted in 1972. The 1989 Oregon Legislature adopted a new definition of Confined Animal Feeding Operation in HB 3445. The definition in Division 51 should be changed to be consistent with HB 3445.

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Alternatives Considered:

none

Proposed Changes:

Change the definition in OAR 340-51-010(2).

340-51-010

(2) "Confined animal feeding [~~or holding~~] operation" means the concentrated confined feeding or holding of animals or poultry, including, but not limited to horse, cattle, sheep, or swine feeding areas, dairy confinement areas, slaughterhouse or shipping terminal holding pens, poultry and egg production facilities and fur farms, in buildings or in pens or lots where the surface has been prepared with concrete, rock or fibrous material to support animals in wet weather or [where the concentration of animals has destroyed the vegetative cover and the natural infiltrative capacity of the soil] which have wastewater treatment works.

Other corrections of typographical errors:

340-51-030 . . .

(8) Western Oregon Livestock Association . . .

340-51-060 (1) . . .

(d) . . . washout in the event of failure . . .

Problem:

The regular permitting process does not lend itself to the coordinated approach desirable for environmental cleanups. A preferred process might be for the Director to issue a Stipulated Consent Order which addresses waste water disposal issues, contaminated soil disposal issues, and air quality issues all in the same document. Often the cleanup process, particularly motor vehicle fuel spills and leaks, needs to proceed faster than the permitting process allows.

There are also other instances where it would be desirable to issue a Stipulated Consent Order in addition to, or in lieu of, a permit. In the case of discharges from container nurseries, the nurserymen prefer to be regulated by order rather than by permit. There are many instances where the Department has issued an order in lieu of or in addition to a permit. However, it is not addressed in Water Quality rules.

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Alternatives Considered:

The only alternative considered was to continue to issue Stipulated Consent Orders without the procedures being established by rule.

Proposed Changes:

In order to clarify a process for issuing stipulated consent orders in addition to a water permit or in lieu of a water permit, particularly for the disposal of wastewater associated with an environmental cleanup, the following addition to the Division 45 rules is suggested:

Stipulated Consent Orders

340-45-062 (1) The Director may issue a stipulated consent order in lieu of, or in addition to an NPDES permit or a WPCF permit where it is part of an enforcement action, wastewater disposal associated with the cleanup of a spill, or other activity which does not lend itself to the normal permitting process or permit term.

(2) The stipulated consent order may include, but not necessarily be limited to, compliance schedules, effluent limitations, monitoring and reporting requirements, and/or stipulated penalties.

(3) The term of a stipulated order, when used in lieu of a permit, shall not be longer than the term of the type of permit it is replacing.

(4) For the issuance of a stipulated consent order, the normal permitting procedures found in rules Chapter 340 Divisions 14 and 45 are not required but are optional. However, when the order is issued in lieu of an NPDES permit, a public notice announcement of that intended action will be distributed at least 30 days prior to finalizing the order, except for environmental cleanups or other instances where a delay in issuing the order may magnify the problem. In that instance, a public notice announcement may be issued at the same time the order is issued.

(5) When a stipulated order is used in lieu of a permit, the fee schedule for permits found in 340-45-075 shall apply.

Problem:

There has been some confusion about which permit fees are associated with the registration for coverage under a General Permit issued pursuant to OAR 340-45-055 and for a request for a Special Permit issued pursuant to OAR 340-14-050. Language needs to be added to the Permit Fee Schedule specifying that, unless the fees have been waived by rule, the Filing Fee is required for General Permit registration and for a request for a Special Permit. The rules also need to clarify that a Permit Processing Fee is not required for a General Permit. A

small processing fee should be required for a Special Permit. There are two categories of General Permits for which the Department has waived the payment of a filing fee. No filing fees are required for small recreational gold dredges with an intake hose diameter of 4 inches or less. There are so many of these that the Department makes no attempt to keep track of them. They are given a copy of General Permit 700-J so that they know what the requirements are, but they do not need to register and they are not tracked in the database. Also, there are no filing fees required for small off-stream placer mining operations which qualify for General Permit 600 and which process less than 1500 cubic yards of material per year. These are generally small recreational or assessment operations. They are given a copy of General Permit 600 so that they know what the requirements are. These small operations are not tracked in the database.

Alternatives Considered:

The Department did consider requiring those applying for a General Permit to pay a permit processing fee as well as a filing fee. However, since the general permit has already been issued, applying it to any particular source does not require the same staff effort that would be required if an individual permit was to be written and processed. Therefore, requiring payment of a permit processing fee cannot be justified.

To date, no fees have been charged for Special Permits. However, the number of requests for special permits have accelerated the past year. There has been considerable staff time involved in drafting these "letter permits" especially for short term gasoline cleanup projects.

Proposed Changes:

Change the requirements for filing fees and processing fees found in OAR 340-45-075.

340-45-075 (1) Filing Fee. Unless waived by this rule, a [A] filing fee of \$50 shall accompany any application for issuance, renewal, modification, or transfer of an NPDES [~~Waste-Discharge~~] permit or [~~Water-Pollution-Control-Facilities~~] WPCF permit, including registration for a General Permit pursuant to OAR 340-45-033 and request for a Special Permit pursuant to OAR 340-14-050.

(2) Application Processing Fee. An application processing fee varying between \$75 and \$2000 shall be submitted with each application, except that an application processing fee is not required to register for coverage under a General Permit. The amount of the fee shall depend on the type of facility and the required action as follows:

(a) New Applications . . .

. . .

(e) Special Permits issued pursuant to OAR 340-14-050 . . . \$75

Problem:

There has been some confusion with regards to the Annual Compliance Determination Fees for small mining operations and for those mining operations over 70,000 yards per year. The size limitation should be removed from the definition of small mining operation. Only those mining operations which are classified as "Major" under the Major Industrial Qualifying Factors in footnote 1 will pay the fee required for Major facilities. The Major Qualifying Factors listed in footnote 1 need to be expanded to include a definition of major mining or processing operations. In addition, the Department has waived the filing fees for small recreational suction dredges for gold mining and for small placer mining operations less than 1500 cubic yards per year. That fee waiver should be listed in the fee rules.

Alternatives Considered:

Under the qualifying factors for Major sources, retaining the 70,000 cubic yards per year size was considered. However, that production rate seemed small compared to the qualifying factors associated with other types of industrial sources. Therefore, in the qualifying factors, the number was changed to 100,000 cubic yards per year.

Proposed Changes:

Make minor changes to the industrial sources permit fee schedule found in OAR 340-45-075 as indicated.

(3) Annual Compliance Determination Fee Schedule:

(a) . . .

(b) Industrial, Commercial and Agricultural Sources (Source Type and Initial and Annual Fee):

(A) . . .

. . .

(M) Small mining operations [~~less than 70,000 cubic yards per year,~~]
which:

(i) Discharge to public waters \$175

(ii) Do not discharge to public waters \$125

(iii) Use cyanide or other toxic chemicals for extracting precious metals
. \$700

(N) All facilities

. . .

. . .

(4) Filing Fees Waived:

(a) Recreational suction dredges with an intake hose diameter of four inches or less which are covered by General Permit 700-J.

(b) Small placer mining operations less than 1500 cubic yards per year which are covered by General Permit 600.

1 Major Industries Qualifying Factors:

- 1- Discharges large BOD loads; or
- 2- Is a large metals facility; or
- 3- Is a significant mining or ore processing facility, as follows:
 - (a) Placer mining operation which processes more than 100,000 cubic yards of material per year and which discharges treated process water.
 - (b) Cyanide heap leaching operation which processes more than 35,000 cubic yards of material per year.
 - (c) Conventional milling and flotation facility or non-cyanide leach facility which processes more than 50,000 cubic yards of ore per year.

- ~~[-3-]~~-4- Has significant toxic discharges; or
- ~~[-4-]~~-5- Has a treatment system which, if not operated properly . . .
- ~~[-5-]~~-6- Any other industry which the Department determines . . .

2 Major Domestic Qualifying Factors:

- 1- . . .

Problem:

Normally, permittees covered by General Permits have not been assessed an Annual Compliance Determination Fee because the sources have not been routinely inspected. It has been determined that some of the categories of General Permits should be inspected at least once during the term of the permit. For those categories, a fee will be added which is one fifth (1/5) the amount of annual fee for like facilities on individual permits. Under the current fee schedule this will be \$25 to \$60 per year. Under a revised fee schedule which is being proposed under a separate rule package, the fees would range from \$30 to \$80. For the purposes of this fee schedule modification, the new proposed fees will be used in making the calculation.

Alternatives Considered:

- (1) The annual compliance determination fees for general permittees could be the same as is assessed individual permittees. However, the inspection frequency is much less because they are considered minimal sources.
- (2) A small annual compliance determination fee could be charged which is the same for all general permittees. Although this would simplify the fee schedule, some categories of general permittees are likely to be inspected more frequently than others so a varied schedule would more accurately portray Department costs.

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(3) Establish a fee schedule which is a certain fraction (1/5) of the schedule the permittee would pay if on an individual permit. This is the alternative recommended.

Proposed Changes:

New categories (R), (S), and (T) are added to the permit fee schedule in OAR 340-45-075.

340-45-075(3) (b)

(A) . . .
. . .

<u>(R) General Permits 100-J, 200-J, 400-J, 500-J, 1000</u>	<u>-----</u>	<u>\$50</u>
<u>(S) General Permit 300-J</u>	<u>-----</u>	<u>\$30</u>
<u>(T) General Permits 900-J, 1200-J, 1300-J, 1400, 1500-J</u>	<u>-----</u>	<u>\$80</u>

Note: General Permits 600 and 700-J do not require an annual compliance determination fee. By agreement, the Department of Geology and Mineral Industries will track compliance on the sources covered by those General Permits. General Permit 800 requires an annual fee of \$25, which was established by the 1989 legislature, to be paid directly to the Oregon Department of Agriculture.

Problem:

Oregon Revised Statutes 468.742 requires plan approval by the Department for the construction, installation, or modification of disposal systems prior to construction. By rule, the Commission may exempt from this requirement the class or classes of disposal systems for which the Commission finds plan submittal and approval unnecessary or impractical.

There are certain small impoundments used for the treatment or disposal of cooling water or for the treatment or disposal of muddy wastewaters associated with small gravel mining operations, placer mining operations, or stormwater treatment systems. These small ponds do not normally need to be engineered but can be constructed by the site operator without plans as the need arises. An additional exemption for these types of treatment ponds should be included in the list of exemptions in 340-52-045.

Another type of water treatment facility not requiring plan review is the small oil/water separator. These are usually pre-manufactured units. They are often used for removing petroleum products in stormwater runoff from parking lots and other contaminated areas. Most of them are now installed without Department review.

Alternatives Considered:

The only alternative considered was to not add these two exemptions to the plan review rules.

Proposed Changes:

Two additional exemptions will be added to OAR 340-52-045 as (3) and (4). The existing (3), (4), and (5) will be renumbered as (5), (6), and (7).

340-52-045

(3) Small ponds used for cooling purposes or for the treatment and disposal of turbid wastewaters associated with gravel mining operations, placer mining operations, or, stormwater control systems are exempt from plan submittal under the following conditions:

(a) The pond will not have a dam or dike more than five(5) feet in height or have a surface area of more than 20,000 square feet; and

(b) Groundwater will be adequately protected without the need for an artificial liner; and

(c) No toxic chemicals or industrial wastewater other than cooling water, turbid waters, or turbid waters mixed with non-toxic coagulants will be discharged to the facility; and

(d) Disposal will be by recirculation, evaporation, and seepage with no direct discharge to surface waters.

(4) Small oil/water gravity separators are exempt, if they are designed to meet an effluent limit of no more than 10 milligrams per liter oil and grease and are designed to treat no more than 50 gallons per minute.

Renumber:

- [~~(3)~~](5) The Department may exempt other facilities. . . .
- [~~(4)~~](6) The Department may exempt from submittal
- [~~(5)~~](7) The Department may cancel in writing an

RULE MAKING STATEMENTS

STATEMENT OF NEED FOR RULEMAKING

(1) Legal Authority:

Some of the rule modifications are made pursuant to the general rulemaking authority found in ORS 468.020.

Those rule changes related to confined animal feeding operations are made pursuant to the changes to ORS 468.020 as per HB 3445, passed by the 65th Oregon Legislative Assembly.

One of the rule modifications is made pursuant to Oregon Administrative Procedures found in ORS 183.430.

(2) Need for the Rule:

There are several rule modifications proposed as follows:

- (a) OAR Chapter 340 Division 45 needs to be modified to add the administrative procedure which allows an existing permit to remain in effect until the Department has acted upon the renewal application. This is needed to clarify existing procedures.
- (b) Changes need to be made in OAR Chapter 340 Divisions 14 and 51 to make them consistent with changes made to ORS 468.740 by HB 3445.
- (c) The current practice of issuing stipulated consent orders in lieu of, or in addition to, a permit needs to be described by rule.
- (d) The fee schedule found in OAR 340-45-075 needs to be changed to clarify the fees required for General Permits and Special Permits. In addition, the fee schedule needs to clarify which mining operations would be considered "Major" and requiring the fees associated with major facilities.
- (e) OAR Chapter 340 Division 52 needs to be changed by expanding the list of those small waste water treatment devices which do not require engineering plans to be prepared. This will bring the rules in line with current practice.

Attachment C

FISCAL AND ECONOMIC IMPACT

Most of these proposed rule modifications will have no fiscal or economic impact. Those which will be described in detail, as follows:

Modifying the permit fee schedule in OAR 340-45-075 to establish an annual compliance determination fee for general permittees which is 1/5th the fee required of permittees with individual permits, will add a small fee ranging between \$25 to \$60 per year for most general permittees under the current fee schedule. This amount would change to range between \$30 and \$80 under a new proposed fee schedule. This is much less than the annual fee required of individual permittees. Small business impact will be minimal. One of the primary purposes of having general permits for certain categories of permittees is to lessen the impact on small business.

Modifying the permit fee schedule in OAR-45-075 to waive permit processing fees for those facilities registering to be covered by a general permit will be a savings of about \$600 per permittee for the initial permit and about \$300 per permittee for permit renewal. Many of the sources covered by the general permits which would benefit by this fee waiver are small business.

Prepared by: Charles K. Ashbaker
Phone Number: (503) 229-5325
Date Typed: February 15, 1990

(3) Principal Documents Relied Upon in this Rulemaking:

HB 3445, passed by 1989 Oregon Legislature.

ORS 468.020, 730, 740

ORS 183.430

OAR Chapter 340 Divisions 14, 45, 51, and 52.

These documents are available for review during normal business hours at the Department's office, 811 SW sixth, Portland, Oregon, 5th floor.

LAND USE COMPATIBILITY STATEMENT

All of this proposed rulemaking involves only the modification of existing rules. The Department does not believe that any of the proposed rule modifications affect land use. All of the proposed rule modifications are consistent with Land Use Goals 6 and 11.

Public comment on any land use issue involved is welcome and may be submitted in the same fashion as indicated for testimony in this notice.

It is requested that local, state, and federal agencies review the proposed actions and comment on possible conflicts with their programs affecting land use and jurisdiction.

The Department of Environmental Quality intends to ask the Department of Land Conservation and Development to mediate any appropriate conflicts brought to our attention by local, state, or federal authorities.

Prepared by: Charles K. Ashbaker
Phone Number: (503) 229-5325

SED 424
(1/1/87)

NOTICE OF PROPOSED RULEMAKING HEARING

AGENCY: OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

The above named agency gives notice of hearing.

HEARING(S) TO BE HELD:

Date: April 4, 1990 **Time:** 10:00 a.m. **Location:** DEQ Offices, 811 S.W. Sixth, Portland Room 4A

Hearings Officer(s): Charles K. Ashbaker

Pursuant to the statutory authority of ORS 468.020, ORS 468.730, and ORS 468.740
(ORS 468.740 is amended by HB 3445)

the following action is proposed:

ADOPT: _____

AMEND: OAR Chapter 340 Divisions 14, 45 and 52

REPEAL: _____

SUMMARY: There are several minor amendments to the DEQ permitting and plan review rules. Some of these amendments relate to permit fees. Others relate to stipulated consent orders, permitting non-point sources, waiving certain water pollution control facilities from engineering plan review requirements, and changing rules to conform to state and federal law.

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments received by 5 p.m., April 12, 1990 will also be considered. Written comments should be sent to and copies of the proposed rulemaking may be obtained from:

AGENCY: Department of Environmental Quality
ADDRESS: 811 SW Sixth
Portland, OR 97204

ATTN: Charles K. Ashbaker
PHONE: (503) 229-5325

Signature

Date

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

PROPOSED MODIFICATION OF DEQ WATER QUALITY RULES

Notice Issued: 4-4-90

Comments Due: 4-12-90

WHO IS THE APPLICANT

Operators of Confined Animal Feeding Operations. Holders of general permits, small mining operations, and persons installing oil/water separators.

WHAT IS PROPOSED:

The Department of Environmental Quality is proposing to amend OAR Chapter 340, Divisions 14, 45, 51, and 52. These are considered minor modifications to bring the rules in line with current laws and practices and to clarify issues with regards to fees for general permits and issuance of stipulated consent orders.

WHAT ARE THE HIGHLIGHTS:

1. Make OAR Chapter 340 division 45 consistent with Division 14 by adding language regarding the fate of expiring NPDES permits when renewal application has been submitted in a timely manner.
2. Make permitting rules and confined animal feeding or holding rules consistent with HB 3445, adopted by the 1989 legislature.
3. Provide the circumstances upon which the Director can issue a Stipulated Consent Order in lieu of, or in addition to, a permit.
4. Clarify certain fee requirements pertaining to general permits and clarify the category of major mining operation.
5. Exempt small impoundments and oil/water separators from the requirement to have engineering plans approved by the Department.

HOW TO COMMENT:

Copies of the complete proposed rule package may be obtained from the Water Quality Division in Portland (811 S.W. Sixth Avenue) or the regional office nearest you. For further information contact Charles K. Ashbaker at (503) 229-5325.



811 S.W. 6th Avenue
Portland, OR 97204

11/1/86

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.

A public hearing will be held before a hearing office at:

(Time) 10 a.m.

(Date) April 4, 1990

(Place) Room 4A - DEQ Headquarters

811 S.W. 6th, Portland, Oregon

Oral and written comments will be accepted at the public hearing. Written comments may be sent to the DEQ Water Quality Division, 811 S.W. Sixth Avenue, Portland, OR 97204, but must be received by no later than 5 p.m., April 12, 1990.

**WHAT IS THE
NEXT STEP:**

After public hearing the Environmental Quality Commission may adopt rules amendments identical to the proposed amendments, adopt modified rule amendments on the same subject matter, or decline to act. The Commission's deliberation should come in April or May as part of the agenda of a regularly scheduled Commission meeting.

A Statement of Need, Fiscal and Economic Impact Statement, and Land Use Consistency Statement are attached to this notice.

IW\WC6085



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 1, 1990
Agenda Item: T
Division: Water Quality
Section: Industrial Waste

SUBJECT:

Water Quality Permit Fees: Proposed Industrial Source Fee Increase to Help Fund Groundwater Program.

PURPOSE:

The Department of Environmental Quality proposes to change the fee schedule found in OAR 340-45-075 by increasing the fees sufficient to generate an additional annual revenue of \$38,500.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Program Strategy
 - Proposed Policy
 - Potential Rules
 - Other: (specify)

- Authorize Rulemaking Hearing
 - Proposed Rules (Draft) Attachment A
 - Rulemaking Statements Attachment B
 - Fiscal and Economic Impact Statement Attachment C
 - Draft Public Notice Attachment D

- Adopt Rules
 - Proposed Rules (Final Recommendation) Attachment _____
 - Rulemaking Statements Attachment _____
 - Fiscal and Economic Impact Statement Attachment _____
 - Public Notice Attachment _____

- Issue Contested Case Decision/Order
 - Proposed Order Attachment _____

- Other: (specify)

Meeting Date: March 1, 1990
Agenda Item: T
Page 2

DESCRIPTION OF REQUESTED ACTION:

The Department is requesting the Environmental Quality Commission (Commission) to grant authorization to proceed to a hearing on the proposed fee increase.

AUTHORITY/NEED FOR ACTION:

<input type="checkbox"/> Required by Statute: _____	Attachment _____
Enactment Date: _____	
<input checked="" type="checkbox"/> Statutory Authority: <u>ORS 468.065</u>	Attachment <u>E</u>
<input checked="" type="checkbox"/> Amendment of Existing Rule: <u>OAR 340-45-075</u>	Attachment <u>A</u>
<input type="checkbox"/> Implement Delegated Federal Program: _____	Attachment _____
<input type="checkbox"/> Other: _____	Attachment _____

Time Constraints: Rules need to be adopted before July 1, 1990, in order to be incorporated into the annual fees due during July.

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/> Advisory Committee Report/Recommendation	Attachment _____
<input type="checkbox"/> Hearing Officer's Report/Recommendations	Attachment _____
<input type="checkbox"/> Response to Testimony/Comments	Attachment _____
<input type="checkbox"/> Prior EQC Agenda Items: (list)	Attachment _____
<input type="checkbox"/> Other Related Reports/Rules/Statutes:	Attachment _____
<input type="checkbox"/> Supplemental Background Information	Attachment _____

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

This proposed fee increase will affect only the permittees who will be required to provide the additional revenue. However, the purpose of this fee increase is to help fund the Groundwater Protection Act of 1989. All Oregonians will benefit from the program designed to protect groundwaters in the State.

PROGRAM CONSIDERATIONS:

The total amount of revenue to be generated from fee increases is \$154,000 for the biennium. This amount has been divided, with 50% to be raised from the municipal permittees and 50% to be raised from industrial permittees. The purpose of these proposed changes in the rules is to modify the fee schedule for industrial sources. Those fee changes necessary for the municipal sewage program are being addressed in a separate agenda item.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

All of the alternatives considered relate only to the method of allocating the necessary revenue increases over the range of permittees. The first decision was to divide the required revenue to be generated evenly between the industrial and municipal programs as previously indicated. There are several different methods which could be used to increase the revenue from the existing industrial permittees, as follows:

1. Determine which permittees are most likely to impact groundwater because of their method of wastewater disposal or their location in relation to critical groundwater areas. Impose a permit surcharge only on those permittees. This would be very time consuming and the resources necessary to collect the data would probably exceed the resources which could be supported from the fees generated.
2. Increase the permit processing fees as well as the annual compliance determination fees in order to collect the necessary revenue. Since the number of applications to be processed each year is unpredictable, it is difficult to anticipate the revenue which could be generated from permit applications. Revenue from the annual compliance determination fees is predictable.
3. Impose the fee increases only on the Water Pollution Control Facilities (WPCF) permittees since they dispose of all wastewater on land rather than discharging to surface waters. This method of allocation would make the annual fees for WPCF permits over 50% greater than like facilities which have a National Pollutant Discharge Elimination System (NPDES) permit to discharge to surface waters. In addition, because of the chemicals handled by many NPDES permittees, raw material handling, and sludge disposal, there are many possible avenues for groundwater contamination. Therefore, they should not be excluded from the fee increase.
4. Increase annual fees across the board so that all industrial waste permittees fees are increased by the same percentage. This would be a 35% increase in annual fees for all industrial permittees.
5. Increase the annual fees across the board for industrial permittees but have the increase for large complex sources a little larger than for the smaller non-complex sources.

Meeting Date: March 1, 1990
Agenda Item: T
Page 4

Although some categories of small sources can cause severe groundwater problems, generally the potential for groundwater contamination from larger more complex sources is greater than for the smaller non-complex sources. For this alternative, the fee increase ranges from a 43% increase for major sources to a 20% increase for minor non-complex sources.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends that the alternative listed as No. 5, above, be used in allocating the fee increases. It spreads the increase to all of the industrial permittees and requires a greater percentage increase for those categories of industries most likely to handle complex chemicals and generate waste waters which might contain pollutants which could affect groundwater. This alternative would produce the following changes in the fee schedule:

Category (code)	Current Fees	Proposed Fees	Increase \$	%	No. Permits	Total Increase
IW-A, B, D1, E, F, H, K, L	\$1,400	\$2,000	\$600	43	32	\$19,200
IW-D2, G, J, M3	700	1,000	300	43	7	2,100
IW-N	300	400	100	33	129	12,900
IW-O	200	250	50	25	65	3,250
IW-M1	175	225	50	29	11	550
AG-A, IW-M2, Q	125	150	25	20	<u>45</u>	<u>1,125</u>
					Total	289 \$39,125

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

This type of a permit fee increase is consistent with Department policy.

ISSUES FOR COMMISSION TO RESOLVE:

Since the Groundwater Protection Act of 1989 and the method of funding is legislatively mandated, the only issue for the Commission to resolve is the method of fee increase allocation.

Meeting Date: March 1, 1990
Agenda Item: T
Page 5

INTENDED FOLLOWUP ACTIONS:

At the conclusion of the public participation process, it will be the intent of the Department to return to the Commission at the first opportunity for rule adoption. It is hoped that the fee schedule could be adopted prior to the July 1 mailing of invoices for the 1990-91 compliance determination fees.

Approved:

Section:

Division:

Director:

Charles K. Ashbaker
Sydney Taylor
Jul Hansen

Report Prepared By: Charles K. Ashbaker

Phone: (503) 229-5325

Date Prepared: January 19, 1990

CKA:crw
IW\WC6193
2/12/90

Attachment A

Modification of Fee Schedule Found in OAR 340-45-075

Note: Information added is underlined and information deleted is in [brackets].

Permit Fee Schedule

- 340-45-075 (1) . . .
- (2) . . .
- (3) Annual Compliance Determination Fee Schedule:
 - (a) . . .
 - (b) Industrial, Commercial and Agricultural Sources:
 - (A) Major pulp, paper, paperboard, hardboard, and other fiber pulping industry [~~\$1400~~] \$2000
 - (B) Major sugar beet processing, potato and other vegetable processing, and fruit processing industry [~~\$1400~~] \$2000
 - (C) [~~Fish~~] Seafood Processing Industry:
 - (i) Bottom fish, crab, and/or oyster processing [~~\$175~~] \$225
 - (ii) Shrimp processing [~~\$175~~] \$225
 - (iii) Salmon and/or tuna processing [~~\$300~~] \$400
 - (D) Electroplating industry (excludes facilities with do anodizing only):
 - (i) Rectifier output capacity of 15,000 Amps or more [~~\$1400~~] \$2000
 - (ii) Rectifier output capacity of less than 15,000 Amps but more than 5000 Amps [~~\$700~~] \$1000
 - (E) Primary Aluminum Smelting [~~\$1400~~] \$2000
 - (F) Primary smelting and/or refining of non-ferrous metals utilizing sand chlorination separation facilities . [~~\$1400~~] \$2000
 - (G) Primary smelting and/or refining of ferrous and non-ferrous metals not elsewhere classified above [~~\$700~~] \$1000
 - (H) Alkalies, chlorine, pesticide, or fertilizer manufacturing with discharge of process waste waters [~~\$1400~~] \$2000
 - (I) Petroleum refineries with a capacity in excess of 15,000 barrels per day discharging process waste water . . . [~~\$1400~~] \$2000

- (J) Cooling water discharges in excess of 20,000 BTU/sec [\$1400] \$2000
- (K) Milk products processing industry which processes in excess of 250,000 pounds of milk per day [\$1400] \$2000
- (L) Major mining operations [\$1400] \$2000
- (M) Small mining operations [~~less than 70,000 cubic yards per year,~~7] which:
 - (i) Discharge directly to public waters [\$175] \$225
 - (ii) Do not discharge to public water [\$125] \$150
 - (iii) Use cyanide or other toxic chemicals for extracting precious metals [\$700] \$1000
- (N) All facilities not elsewhere classified with disposal of process waste water [\$300] \$400
- (O) All facilities not elsewhere classified which dispose of non-process waste waters (i.e. small cooling water discharges, boiler blowdown, filter backwash, log ponds, etc,) . . [\$200] \$250
- (P) Dairies and other confined feeding operation [\$125] \$25
- (Q) All facilities which dispose of waste waters only by evaporation from watertight ponds or basins [\$125] \$150

RULE MAKING STATEMENTS

STATEMENT OF NEED FOR RULEMAKING

(1) **Legal Authority:**

This increase in fees is made pursuant to ORS 468.065.

(2) **Need for the Rule:**

The 1989 legislature adopted the Groundwater Protection Act of 1989. In determining the funding for the Department's role in administering the Act, the Ways and Means Committee required the Department to raise permit fees by \$154,000 for the biennium. The purpose of this rule change is to revise the fee schedule with the required fee increases.

(3) **Principal Documents Relied Upon in this Rulemaking:**

HB 3515, passed by 1989 Oregon Legislature.

ORS 468.065

OAR Chapter 340 Division 45

These documents are available for review during normal business hours at the Department's office, 811 SW Sixth, Portland, Oregon, 5th floor.

LAND USE COMPATIBILITY STATEMENT

These permit fee increase have no effect on land use.

Public comment on any land use issue involved is welcome and may be submitted in the same fashion as indicated for testimony in this notice.

It is requested that local, state, and federal agencies review the proposed action and comment on possible conflicts with their programs affecting land use and with Statewide Planning Goals within their expertise and jurisdiction.

The Department of Environmental Quality intends to ask the Department of Land Conservation and Development to mediate any appropriate conflicts brought to our attention by local, state, or federal authorities.

Prepared by: Charles K. Ashbaker
Phone Number: (503)229-5325

Attachment C

FISCAL AND ECONOMIC IMPACT

These proposed permit fee increases will have a fiscal impact on all industrial permittees which have individual permits. The average fee increase will be 35%, ranging between 20% for the small minor sources to 43% to the major sources. The actual fee increases will range from \$25 per year from the small minor sources to \$600 per year for the major industrial sources. It is not likely that the increase of fees will have a significant economic impact on small business or any source.

Prepared by: Charles K. Ashbaker
Phone Number: (503)229-5325
Date Typed: January 19, 1990

EQC-STA.2

SED 424
(1/1/87)

NOTICE OF PROPOSED RULEMAKING HEARING

AGENCY: Department of Environmental Quality

The above named agency gives notice of hearing.

HEARING(S) TO BE HELD:

Date: April 4, 1990 **Time:** 1:00 pm **Location:** DEQ Offices, 811 S.W. Sixth
Portland, Room 4A

Hearings Officer(s): Charles K. Ashbaker

Pursuant to the statutory authority of ORS 468.065

the following action is proposed:

ADOPT: _____

AMEND: OAR 340-45-075 Permit Fee Schedule

REPEAL: _____

SUMMARY: In order to fund a portion of the implementation of the Groundwater Protection Act of 1989, adopted by the 1989 Legislature, the permit fees for industrial permits will be increased to raise an additional \$38,500 in annual revenue. Annual Compliance Determination fees will be increased an average of 35%.

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments received by 5 pm April 12, 1990 will also be considered. Written comments should be sent to and copies of the proposed rulemaking may be obtained from:

AGENCY: Department of Environmental Quality
ADDRESS: 811 SW Sixth
Portland, OR 97204

ATTN: Charles K. Ashbaker
PHONE: (503) 229-5325

Signature

Date

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

**REVISION OF WATER QUALITY PERMIT FEE SCHEDULE FOR INDUSTRIAL PERMITTEES
NOTICE OF PUBLIC HEARING**

Hearing Date: April 04, 1990

Comments Due: April 12, 1990

**WHO IS
AFFECTED:**

All industrial and agricultural facilities with individual wastewater permits issued by the Department of Environmental Quality.

**WHAT IS
PROPOSED:**

The Department of Environmental Quality is proposing to amend OAR 340-45-075 Permit Fee Schedule. In order to provide partial funding for implementation of the Groundwater Protection Act of 1989, the Department is proposing to increase annual compliance determination fees for industrial and agricultural sources.

**WHAT ARE THE
HIGHLIGHTS:**

The annual compliance determination fees will be the only fees increased. The increase will range between \$25 per year for minor sources to \$600 per year for major industrial sources. The Department intends to have the fee increases reflected on the 1990-91 annual fees which will be invoiced in July 1990.

**HOW TO
COMMENT:**

Copies of the complete proposed rule package may be obtained from the Water Quality Division in Portland (811 S.W. Sixth Avenue). For further information contact Charles K. Ashbaker at (503) 229-5325.

A public hearing will be held before a hearings officer at:

TIME: 1:00 p.m.

DATE: April 4, 1990

PLACE: DEQ Offices, Fourth Floor, Room 4A
1811 S.W. Sixth Avenue, Portland, Oregon

Oral and written comments will be accepted at the public hearing. Written comments may be sent to the DEQ Water Quality Division, 811 S.W. Sixth Avenue, Portland, Oregon 97204, but must be received by no later than 5:00 p.m., April 12, 1990.

**WHAT IS THE
NEXT STEP:**

After public hearing the Environmental Quality Commission may adopt rule amendments identical to the proposed amendments, adopt modified rule amendments on the same subject matter, or decline to act. The Commission's deliberation should come in April or May as part of the agenda of a regularly scheduled Commission meeting.

A Statement of Need, Fiscal and Economic Impact Statement, and Land Use Consistency Statement are attached to this notice.

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.



811 S.W. 6th Avenue
Portland, OR 97204

POLLUTION CONTROL

468.070

service who shall serve at the pleasure of the director. The deputy director shall have full authority to act for the director, subject to directions of the director. The appointment of the deputy director shall be by written order, filed with the Secretary of State.

(2) The deputy director shall receive such salary as may be provided by law or, if not so provided, as may be fixed by the director, and shall be reimbursed for all expenses actually and necessarily incurred by the deputy director in the performance of the official duties of the deputy director. [1973 c.291 §2]

Note: 468.050 was enacted into law by the Legislative Assembly but was not added to or made a part of ORS chapter 468 or any series therein by legislative action. See Preface to Oregon Revised Statutes for further explanation.

468.055 Contracts with Health Division. In addition to the authority granted under ORS 190.003 to 190.110, when authorized by the commission and the Health Division, the director and the Assistant Director for Health may contract on behalf of their respective agencies for the purposes of carrying out the functions of either agency, defining areas of responsibility, furnishing services or employes by one to the other and generally providing cooperative action in the interests of public health and the quality of the environment in Oregon. Each contracting agency is directed to maintain liaison with the other and to cooperate with the other in all matters of joint concern or interest. [Formerly 449.062]

468.060 Enforcement of rules by health agencies. On its own motion after public hearing, the commission may grant specific authorization to the Health Division or to any county, district or city board of health to enforce any rule of the commission relating to air or water pollution or solid wastes. [Formerly 449.064]

468.065 Issuance of permits; content; fees; use. Subject to any specific requirements imposed by ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter:

(1) Applications for all permits authorized or required by ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter shall be made in a form prescribed by the department. Any permit issued by the department shall specify its duration, and the conditions for compliance with the rules and standards, if any, adopted by the commission pursuant to ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter.

(2) By rule and after hearing, the commission may establish a schedule of permit fees for permits issued pursuant to ORS 459.205, 468.310, 468.315, 468.555 and 468.740. The permit fees contained in the schedule shall be based upon the anticipated cost of filing and investigating the application, of issuing or denying the requested permit, and of an inspection program to determine compliance or noncompliance with the permit. The permit fee shall accompany the application for the permit.

(3) The department may require the submission of plans, specifications and corrections and revisions thereto and such other reasonable information as it considers necessary to determine the eligibility of the applicant for the permit.

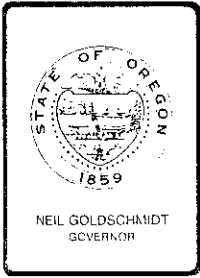
(4) The department may require periodic reports from persons who hold permits under ORS 448.305, 454.010 to 454.040, 454.205 to 454.225, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter. The report shall be in a form prescribed by the department and shall contain such information as to the amount and nature or common description of the pollutant, contaminant or waste and such other information as the department may require.

(5) Any fee collected under this section shall be deposited in the State Treasury to the credit of an account of the department. Such fees are continuously appropriated to meet the administrative expenses of the program for which they are collected. The fees accompanying an application to a regional air pollution control authority pursuant to a permit program authorized by the commission shall be retained by and shall be income to the regional authority. Such fees shall be accounted for and expended in the same manner as are other funds of the regional authority. However, if the department finds after hearing that the permit program administered by the regional authority does not conform to the requirements of the permit program approved by the commission pursuant to ORS 468.555, such fees shall be deposited and expended as are permit fees submitted to the department. [Formerly 449.733; 1975 c.445 §7; 1983 c.144 §2; 1983 c.740 §182]

468.070 Denial, modification, suspension or revocation of permits. (1) At any time, the department may refuse to issue, modify, suspend, revoke or refuse to renew any permit issued pursuant to ORS 468.065 if it finds:

(a) A material misrepresentation or false statement in the application for the permit.

(b) Failure to comply with the conditions of the permit.



Environmental Quality Commission

811 SW SIXTH AVENUE, PORTLAND, OR 97204 PHONE (503) 229-5696

REQUEST FOR EQC ACTION

Meeting Date: March 2, 1990

Agenda Item: U

Division: Water Quality

Section: Municipal Waste

SUBJECT:

Increases to Annual Compliance Determination Fees for Sewage Treatment Facilities regulated under Water Pollution Control Facilities (WPCF) and National Pollutant Discharge Elimination System (NPDES) permits.

PURPOSE:

Fee increases are proposed to generate revenue totalling \$99,000 per year to implement aspects of the Groundwater Protection Act for point sources and to oversee pollution abatement activities in the Tualatin Basin as authorized by the 1989-91 Legislature.

Also, fee increases are proposed to generate revenue in the amount of \$719,000 per year to fund the Department's sludge management and pretreatment programs contingent upon Legislative Emergency Board review.

ACTION REQUESTED:

- Work Session Discussion
 - General Program Background
 - Potential Strategy, Policy, or Rules
 - Agenda Item ___ for Current Meeting
 - Other: (specify)
- Authorize Rulemaking Hearing
 - Proposed Rules Attachment A
 - Rulemaking Statements Attachment A
 - Fiscal and Economic Impact Statement Attachment A
 - Public Notice Attachment A
- Adopt Rules
- Issue a Contested Case Order
- Approve a Stipulated Order
- Enter an Order
 - Proposed Order Attachment ___

Meeting Date: March 2, 1990
Agenda Item: U
Page 2

<input type="checkbox"/>	Approve Department Recommendation	
<input type="checkbox"/>	Variance Request	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Exception to Rule	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Informational Report	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Other: (specify)	Attachment <input type="checkbox"/>

DESCRIPTION OF REQUESTED ACTION:

The Department requests the Environmental Quality Commission authorize a public hearing to receive comment on the proposed fee schedule modifications and fee increases. The proposed fee schedule is presented in Attachment A. The background report presenting the basis for the proposed fee increases and allocation to specific sources and fee categories is presented in Attachment B. Notice of the Public Hearing and Need for Rulemaking contained in Attachment A also will be mailed to interested persons, permittees affected by the proposed fee increases and published in the Secretary of State's Bulletin.

AUTHORITY/NEED FOR ACTION:

<input type="checkbox"/>	Required by Statute: _____	Attachment <input type="checkbox"/>
	Enactment Date: _____	
<input checked="" type="checkbox"/>	Statutory Authority: <u>ORS 468.065 (2)</u>	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Pursuant to Rule: _____	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Pursuant to Federal Law/Rule: _____	Attachment <input type="checkbox"/>
<input checked="" type="checkbox"/>	Other: Amendment of Existing Rule, OAR 340-45-075	Attachment <u>A</u>
<input checked="" type="checkbox"/>	Time Constraints: Rules need to be in effect before July 1, 1990 to adjust annual compliance determination fees to be effective in Fiscal Year (FY) 1991. Compliance determination fees are invoiced in July of each fiscal year.	

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/>	Advisory Committee Report/Recommendation	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Hearing Officer's Report/Recommendations	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Response to Testimony/Comments	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Prior EQC Agenda Items: (list)	Attachment <input type="checkbox"/>
<input type="checkbox"/>	Other Related Reports/Rules/Statutes:	Attachment <input type="checkbox"/>
<input checked="" type="checkbox"/>	Supplemental Background Information: Background Report for Proposed Changes to the Permit Fee Schedule for Sewage Disposal Systems	Attachment <u>B</u>

REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:

Not all of the proposed fee increases apply to all permitted sewage treatment facilities. The base compliance fee for each category will be increased by \$90 to fund groundwater program activities. This fee increase reflects a substantial percentage increase to the smaller facilities who currently pay between \$100 - \$150/year annual fee.

Fee increases to generate revenue to conduct Tualatin Basin Pollution Abatement activities only apply to Unified Sewerage Agency (USA) facilities and the City of Portland-Tryon Creek facility. The fee increases make the Department better able to respond to corrective actions proposed by these communities.

For sludge management, substantially higher fees of between \$3,000 and \$20,000 will be imposed on the 58 permittees operating the largest treatment facilities. The majority of the facilities which are less than 1 MGD in size have permit fee increases of between \$25 and \$720 more each year for sludge management (Attachment B-4).

The 25 permittees currently required to implement industrial waste pretreatment programs will bear the fee increases to fund the Department's pretreatment program activities. The fees for these permittees will range between \$7500 and \$40,000 per year under proposed rules (Attachment B-5).

A comparison of existing and proposed fees and the cumulative total of proposed fee increase for these four programs are presented in Attachments B-6 and B-7, respectively.

The Association of Oregon Sewerage Agencies (AOSA) supports the Department seeking funding through fees for sludge and pretreatment activities since no federal program monies are available (Attachment B-8). USA and the City of Portland express support for the Department focusing resources in the Tualatin River Basin as they begin to implement corrective programs to improve water quality in the basin.

PROGRAM CONSIDERATIONS:

The fee increase proposed for domestic waste treatment facilities, in combination with a similar increase for industrial permitted facilities, will better enable the Department to conduct point source groundwater pollution abatement and prevention activities authorized with enactment of the Groundwater Protection Act of 1989. The proposed fee increase specifically geared to USA and the City of Portland

for Tualatin Basin program activities will fund one position. These fees were specifically approved during the Legislative review of the Department's budget.

Fee increases to generate revenue to fund sludge management and pretreatment activities are needed for the Department to continue to implement these two programs. The Department accepted responsibility to regulate sludge management and oversee municipal pretreatment programs in 1984 and 1981 respectively, with no increase in staff or funding. Existing resources which have provided a limited amount of time to sludge management efforts will be able to focus on other source related activities which are currently backlogged or not being conducted because of insufficient resources. Before fees related to sludge management and pretreatment would become effective, Legislative Emergency Board review is required.

ALTERNATIVES CONSIDERED BY THE DEPARTMENT:

1. Authorize the Department to hold public hearings on the entire fee increase proposal which includes generating revenue to address four water quality program areas pertaining to permitted sewage treatment facilities.

This action will provide the permittees and general public an opportunity to comment on the proposed fees for each of the program needs and the funding mechanism proposed for sludge management and pretreatment. Public comment on proposals for sludge and pretreatment fees will also provide the Legislative Emergency Board a picture of the level of support that exists for resources and the funding mechanism for the Department to conduct these activities.

2. Authorize the Department to conduct a public hearing only on those fee increases related to items for which the Department has received Legislative authorization.

This action will limit the opportunity for public comment on fee increase proposals for Groundwater and Tualatin Basin Pollution Abatement activities. Because existing resources are not sufficient to conduct sludge management and pretreatment activities effectively, the Department will advise permittees and the Environmental Protection Agency that no staff activities for these issues would occur in FY 91. The Department will address resource needs for these two program areas again as part of the next biennium's budget if directed by the Environmental Quality Commission.

DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:

The Department recommends approval of Alternative 1; Authorization for the Department to hold a public hearing on the entire fee increase package for sewage disposal facilities (Attachment A).

There is a critical need to receive comment on the funding proposals for sludge management and pretreatment in addition to the proposed fee increases to generate funds for Groundwater and Tualatin Basin activities. The Association of Oregon Sewerage Agencies encouraged the Department to assess both resource needs and propose a funding mechanism to conduct these two high priority water quality programs as soon as possible. The Department's Domestic Sludge Technical Advisory Committee also requested DEQ to pursue adequate funding to support sludge program activities. Delays in proposing fee increases to fund these activities until 1991 will mean the Department will not be in the position to effectively regulate and provide technical guidance to permittees regarding these pollution issues. Departmental regulatory oversight of domestic waste treatment systems and guidance to permittees about sludge and pretreatment program requirements are needed to correct and prevent pollution problems associated with poor sludge management practices and industrial wastewater discharges into domestic systems. Conducting an effective pretreatment program is part of the Department's responsibilities for being delegated to administer the National Pollutant Discharge Elimination (NPDES) permit program by the Environmental Protection Agency (EPA) for municipal waste treatment systems.

CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:

The Department's identification of resource needs and the proposed mechanism for generating funds to conduct regulatory responsibilities related to groundwater protection, pollution abatement in the Tualatin Basin, sludge management and pretreatment program activities are consistent with the agency's strategic plan direction, agency policies and legislative policy.

ISSUES FOR COMMISSION TO RESOLVE:

1. Should the proposed fee schedule include fee increases to conduct sludge and pretreatment program activities?

2. Should the Department, instead, wait until the 1991 Legislative Session to address sludge and pretreatment resource needs?

To resolve these issues, the Commission must decide whether the Department should be involved in sludge management and pretreatment program activities as authorized by statute and existing rules, or whether to request EPA assume these responsibilities. It is possible that if the Department does not conduct pretreatment program activities that the NPDES program delegation to DEQ could be in jeopardy.

INTENDED FOLLOWUP ACTIONS:

If the EQC authorizes the Department to conduct a public hearing, the public notice and copy of the proposed fee schedule rules will be sent to the Department's mailing list and hearing held. Following receipt, summary and evaluation of comments, the Department will return to the EQC to request adoption of rules. The Department will then fill vacant positions already approved by the Legislature. A request for Emergency Board review of fees and approval of budget limitation and new positions will be made to implement sludge management and pretreatment efforts. Invoices for annual compliance determination fees will be mailed to permittees of sewage disposal facilities in July 1990 with new fees to be effective at that time for Fiscal Year 1991.

Approved:

Section:

Mary M. Halliburton

Division:

Rydia Taylor

Director:

Fullerton

Report Prepared By: Mary Halliburton and
Mark Ronayne

Phone: 229-6099/229-6442

Date Prepared: February 14, 1990

**PROPOSED RULE LANGUAGE AND FEES
FOR SEWAGE DISPOSAL SYSTEMS
OAR 340-45-075(3)**

Note: Rule language to be deleted is [bracketed] and proposed rule language to be added is underlined.

Application of proposed sludge and pretreatment fees in FY91 (July 1, 1990) is dependent upon legislative review.

340-45-075

(3) Annual Compliance Determination Fee Schedule Table:

(a) Domestic Waste Sources [~~(Select only one category per permit)~~ ~~--(Category, Dry Weather Design Flow, and Initial and Annual Fee):~~] Initial and Annual Fee is based on Dry Weather Design Flow, Type of Facility and Applicable Special Fees as follows:

- {~~(A) Sewage Disposal --- 10 MGD or more ----- \$1150}~~}
- {~~(B) Sewage Disposal --- At least 5 but less than 10 MGD ----- \$ 900}~~}
- {~~(C) Sewage Disposal --- At least 1 but less than 5 MGD ----- \$ 500}~~}
- {~~(D) Sewage Disposal --- Less than 1 MGD ----- \$ 300}~~}
- {~~(E) Non-overflow sewage lagoons ----- \$ 150}~~}
- {~~(F) Subsurface Sewage disposal systems larger than 20,000 gallons per day ----- \$ 150}~~}
- {~~(G) Subsurface sewage disposal systems larger than 5000 gallons per day but not greater than 20,000 gallons per day ----- \$ 100}~~}

	<u>Base Fee</u>	<u>Sludge Fee¹</u>	<u>Pretreatment Fee²</u>
<u>(A₁) Sewage Disposal - 50 MGD or more</u>	<u>\$1,240</u>	<u>\$20,000</u>	<u>\$40,000</u>

A source determined by the Department to be required to have a pretreatment program as specified by federal pretreatment program regulations (40 CFR Part 403; January 28, 1981) shall pay an additional \$40,000 a year.

<u>(A₂) Sewage Disposal - At least 25 MGD but less than 50 MGD.</u>	<u>\$1,240</u>	<u>\$15,000</u>	<u>\$20,000</u>
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A source determined by the Department to be required to have a pretreatment program as specified by federal pretreatment program regulations (40 CFR Part 403) shall pay an additional \$20,000 per year.

<u>(A₃) Sewage Disposal - At least 10 MGD but less than 25 MGD.</u>	<u>\$1,240</u>	<u>\$ 6,250</u>	<u>\$15,000</u>
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A source determined by the Department to be required to have a pretreatment program as specified by federal pretreatment program regulations (40 CFR Part 403) shall pay an additional \$15,000 per year.

<u>(B) Sewage Disposal - At least 5 MGD but less than 10 MGD.</u>	<u>\$ 990</u>	<u>\$ 4,500</u>	<u>\$ 8,500</u>
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A source determined by the Department to be required by have a pretreatment program as specified by federal pretreatment regulations (40 CFR Part 403) shall pay an additional \$8,500 per year.

<u>(C) Sewage Disposal - At least 1 MGD but less than 5 MGD</u>	<u>\$ 590</u>	<u>\$ 3,000</u>	<u>\$ 8,000</u>
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A source determined by the Department to be required by have a pretreatment program as specified by federal pretreatment regulations (40 CFR Part 403) shall pay an additional \$8,000 per year.

NOTES: ¹ Application of this fee is contingent upon Legislative Emergency Board review.
² Application of this fee is contingent upon Legislative Emergency Board review.

	<u>Base Fee</u>	<u>Sludge Fee¹</u>	<u>Pretreatment Fee²</u>
(D) <u>Sewage Disposal - Less than 1 MGD, and not otherwise categorized under Category E, F, or G.</u>	\$ 390	\$ 720	\$ 7,500

A source determined by the Department to be required by have a pretreatment program as specified by federal pretreatment regulations (40 CFR Part 403) shall pay an additional \$7,500 per year.

(E) <u>Sewage Disposal - Systems where treatment is limited to lagoons which do not discharge to surface waters</u>	\$ 240	\$ 200	
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(F) <u>Sewage Disposal - Systems larger than 20,000 gallons per day which dispose of treated effluent via subsurface means only.</u>	\$ 240	\$ 50	
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(G) <u>Sewage Disposal - Systems less than 20,000 gallons per day which dispose of treated effluent via subsurface means only and other systems required by OAR 340, Division 71 to have a Water Pollution Control Facilities (WPCF) permit</u>	\$ 190	\$ 25	
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(H) In addition to applicable fees specified above, special Annual Compliance Fees for Tualatin Basin Pollution Abatement Activities will be applied to the following permittees until Fiscal Year 1998:

<u>Unified Sewerage Agency - Durham</u>	\$26,720
<u>Unified Sewerage Agency - Rock Creek</u>	\$22,995
<u>Unified Sewerage Agency - Forest Grove</u>	\$ 5,450
<u>Unified Sewerage Agency - Hillsboro</u>	\$ 4,240
<u>Unified Sewerage Agency - Banks</u>	\$ 185
<u>City of Portland - Tryon Creek</u>	\$ 910

- NOTES: ¹ Application of this fee is contingent upon Legislative Emergency Board review.
² Application of this fee is contingent upon Legislative Emergency Board review.

Oregon Department of Environmental Quality

A CHANCE TO COMMENT ON...

**REVISION OF WATER QUALITY PERMIT FEE SCHEDULE FOR
DOMESTIC WASTEWATER FACILITIES PERMITTEES**

NOTICE OF PUBLIC HEARING

Hearing Date: April 05, 1990
Comments Due: April 12, 1990

**WHO IS
AFFECTED:**

All domestic sewage treatment facilities regulated under Water Pollution Control Facilities (WPCF) or National Pollutant Discharge Elimination System (NPDES) permits issued by the Department of Environmental Quality.

**WHAT IS
PROPOSED:**

The Department of Environmental Quality (DEQ) is proposing to amend OAR 340-45-075 Permit Fee Schedule. Under the proposal, source Annual Compliance Determination fees would be increased to generate revenue totalling \$99,000 per year to implement elements of the Groundwater Protection Act of 1988 pursuant to House Bill 3515 for point sources and to oversee pollution abatement activities in the Tualatin Basin authorized by the 1989-91 Legislature.

Further, fee increases are proposed to provide \$719,000 per year to fund the Department's domestic sludge management and industrial waste pretreatment programs.

**WHAT ARE THE
HIGHLIGHTS:**

Under this proposal, Annual Compliance Determination fees for all permitted sewage treatment facilities will be increased by \$90 to fund groundwater program activities.

Fee increases to generate revenue to conduct Tualatin Basin Pollution Abatement activities will only apply to Unified Sewerage Agency (USA) facilities (5), and the City of Portland's Tryon Creek facility. These fees will vary from \$26,620/year for USA's Durham facility to \$185/year for USA's Bank's facility and are proportioned to the sewage flow generated within the basin received by the specified facility.

Fee increases to fund domestic sludge program activities will also apply to all permitted sources. The proposed allocation of fee increase is structured so the larger municipal wastewater treatment facilities would bear the greatest costs since they generate considerably more sludge than smaller treatment facilities. To better reflect the differences in the amount of sludge generated by facilities with design flows above 10 million gallons per day (MGD), the Department proposes to divide the existing fee category for these systems into three (3) subcategories. These include categories for:

FOR FURTHER INFORMATION:

Contact the person or division identified in the public notice by calling 229-5696 in the Portland area. To avoid long distance charges from other parts of the state, call 1-800-452-4011.



811 S.W. 6th Avenue
Portland, OR 97204

11/1/86

OVER

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- (1) Systems larger than 50 MGD;
- (2) Systems between 25 and 50 MGD; and
- (3) Systems between 10 and 25 MGD.

Under the proposed fee schedule, the City of Portland's Columbia Boulevard Sewage Treatment Plant (STP) will pay the most to help fund sludge management activities at \$20,000 per year, followed by MWMC-Eugene/Springfield STP and the City of Salem at \$15,000 per year. The six facilities with dry weather design flows above 10 MGD, but less than 25 MGD, will pay \$6,250 per year. The nine facilities with design flows above 5 MGD, but less than 10 MGD, will pay \$4,500 per year, and 41 facilities with flows above 1 MGD, but less than 5 MGD, will pay \$3,000 per year.

The majority of permittees which have design flows less than 1 MGD will be expected to pay an additional amount of between \$25 and \$720 per year to help fund sludge management program activities.

Fee increases to fund pretreatment program activities will apply to 25 sources required to implement federal pretreatment programs. As will be the case with fees proposed to subsidize sludge program activities, pretreatment fees applied to sources with design flows of 10 MGD or above will be divided into three (3) categories in proportion to design flow to more equitably distribute costs.

Of the existing 25 permittees required to implement federal pretreatment programs because of their size and the nature of industrial wastes they receive, the nine largest will be required to pay between \$15,000 and \$40,000 per year. The other 16 facilities will pay from \$7,500 to \$8,500 per year above the fee established to be applicable to all permittees within a particular fee category.

Also, to address the potential for additional permittees to be required in the future to implement pretreatment programs, the fee schedule will be modified to allow the Department to assess the additional pretreatment fee if the Department finds a permittee is required to have a pretreatment program as specified by federal pretreatment program regulations, 40 CFR Part 403.

Prior to applying the proposed fee increases for sludge and pretreatment in FY91, the Legislative Emergency Board will have to review them.

HOW TO
COMMENT:

Copies of the complete proposed rule package may be obtained from the Water Quality Division in Portland (811 S.W. Sixth Avenue). For further information, contact Mark P. Ronayne at (503) 229-6442.

A public hearing will be held before a hearings officer at:

TIME: 1:00 p.m.
DATE: April 5, 1990
PLACE: Linn County Armory
104 4th Street S.W.
Albany, Oregon

Oral and written comments will be accepted at the public hearing. Written comments may be sent to the DEQ, Water Quality Division, 811 S.W. Sixth Avenue, Portland, Oregon 97204, but must be received by no later than 5:00 p.m., April 12, 1990.

WHAT IS THE
NEXT STEP:

After public hearing the Environmental Quality Commission may adopt rule amendments identical to the proposed amendments, adopt modified rule amendments on the same subject matter, or decline to act. The Commission's deliberation should come in April or May as part of the agenda of a regularly scheduled Commission meeting.

A Statement of Need, Fiscal and Economic Impact Statement, and Land Use Consistency Statement are attached to this notice.

NOTICE OF PROPOSED RULEMAKING HEARING

AGENCY: department of Environmental Quality

The above named agency gives notice of hearing.

HEARING(S) TO BE HELD:

Date:	Time:	Location:
April 5, 1990	1:00 pm	Linn County Armory 104 4th Street S.W. Albany, Oregon

Hearings Officer(s): Neil J. Mullane

Pursuant to the statutory authority of ORS 468.065

the following action is proposed:

ADOPT: _____

AMEND: OAR 340-45-075 (3) Permit Fee Schedule

REPEAL: _____

SUMMARY:

Annual Compliance Determination Fees for sewage treatment facilities regulated under Water Pollution Control Facilities (WPCF) and National Pollutant Discharge Elimination (NPDES) permits are proposed to be increased to generate revenue totalling \$99,000 per year to implement aspects of the Groundwater Protection Act and to oversee pollution abatement activities in the Tualatin Basin authorized by the 1989 Legislature.

Also, fee increases are proposed to generate \$719,000 annually to fund the Department's sludge management and pretreatment programs.

Interested persons may comment on the proposed rules orally or in writing at the hearing. Written comments received by 5 pm April 11, 1990 will also be considered. Written comments should be sent to and copies of the proposed rulemaking may be obtained from:

AGENCY: Department of Environmental Quality
ADDRESS: 811 SW Sixth Avenue
Portland, OR 97204

ATTN: Mark P. Ronayne
PHONE: (503) 229-6442

Signature _____

Date _____

STATEMENT OF NEED FOR RULEMAKING(1) Legal Authority:

This increase in fees is made pursuant to ORS 468.065 and A-Engrossed House Bill 5033 (passed by the 1989 Oregon Legislature).

(2) Need for the Rule:

The 1989 Oregon Legislature approved the Department's budgetary decision package to provide funding for resources to help implement regulatory controls to cleanup the Tualatin River and authorize the Department to seek permit fee increases to fund the activities. The annual amount to be recovered from permit fee increases is \$60,500.

The 1989 Legislature also approved a Department of Environmental Quality budgetary decision package to provide resources to oversee implementation of the Groundwater Protection Act of 1989. The approved decision package specified permit fee revenue be used to help fund groundwater contamination prevention activities related to permitted industrial and sewage treatment facilities. The annual amount to be recovered from domestic permit fee increases is \$38,500 per year.

At the direction of the 1983 Legislature, the Environmental Quality Commission (EQC) adopted rules and guidelines (OAR, Chapter 340, Division 50) to enable beneficial utilization of domestic sewage treatment facility sludge as a soil amendment. Sludge program activities were initially implemented without additional Department resources. The revenue needed to fund sludge activities is \$412,133 per year.

Pursuant to the Federal Clean Water Act (Public Law 95-466) and Code of Federal Regulations (40 CFR, Part 403), May 16, 1989, the EQC adopted rules (OAR 340-45-063) which require permitted sources that receive process wastewater discharges from several categories of industry to be regulated under federal pretreatment standards. Implementation of the federal pretreatment program at the state level was required in order for the Department to continue its implementation of the NPDES permit issuance program. Pretreatment program regulatory oversight and technical existence have been minimal because of insufficient resources. Revenue necessary to fund pretreatment program activities is \$305,287 per year.

(3) Principal Documents Relied Upon:

- a. HB 3515, passed by 1989 Oregon Legislature.
- b. ORS 468.065.
- c. OAR 340-45-075(3).

- d. OAR Chapter 340, Division 50.
- e. A-Engrossed House Bill 5033, Section 6.

These documents are available for review during normal business hours at the Department's office, 811 S.W. Sixth, 5th Floor, Portland, Oregon.

LAND USE COMPATIBILITY STATEMENT

These permit fee increases have no effect on land use.

Public comment on any land use issue involved is welcome and may be submitted in the same fashion as indicated for testimony in this notice.

It is requested that local, state, and federal agencies review the proposed action and comment on possible conflicts with their programs affecting land use and with Statewide Planning Goals within their expertise and jurisdiction.

The Department of Environmental Quality intends to ask the Department of Land Conservation and Development to mediate any appropriate conflicts brought to our attention by local, state, or federal authorities.

Mark P. Ronayne
(503) 229-6442
February 2, 1990

FISCAL AND ECONOMIC IMPACT STATEMENT

Proposed source Annual Compliance Determination Fee increases will affect all domestic sources regulated under individual Water Pollution Control Facilities (WPCF) and National Pollutant Discharge Elimination Permit System (NPDES) permits. Most municipalities will likely transfer sludge and Groundwater Protection Act related Annual Compliance Determination Fee increases to all users by raising monthly sewer rates. If sewer user rates are expanded to generate sufficient revenue to meet added Annual Compliance Determination fees, the sewer bill to the average home owner will increase between \$.03 and \$2.20 annually for Fee Categories A - F (Attachment A-3; Tables 1 and 2-1 to 2-8). The larger facilities will bear substantially higher fees, but they also have more users. The permitted facilities under Fee Category G are mostly small businesses. Their fees will increase from \$100 to \$215/year.

Significant Annual Compliance Determination Fee increases (net increase of \$3,000 to \$60,090/year) will affect 58 sources (Attachment B-7). These sources process the largest quantity of wastewater and generate greater than 98 percent of the sludge. Twenty-five of the sources receive industrial wastewater discharges which require regulation under federal pretreatment regulations. In the case of the five sources operated by the Unified Sewerage Agency (USA) some extraordinary level of regulation to restore the quality of surface water within the Tualatin Basin is needed.

Annual Compliance Determination Fees for sources with design flows ranging from 1 to 5 MGD that lie outside the Tualatin Drainage Basin Pollution Abatement area and do not operate a federally required pretreatment program will increase by \$3,000 (Attachment B-7). Fees for sources that operate wastewater treatment facilities with design flows less than 1 MGD (with the exception of Canby and USA's Banks facilities) will rise \$810. Similar fees for sources that operate wastewater treatment lagoons will increase by \$290. Fees for facilities designed to process 20,000 gallons or more per day which discharge treated effluent to soil absorption systems will increase \$140; and similar facilities designed to process less than 20,000 per day will increase \$115.

Annual Compliance Determination Fee increases should not cause small businesses and institutions significant financial hardship. Fee increases will vary somewhat depending on the type of wastewater treatment system, the design flow of the source served, and the nature of the connected business or institution (Attachment A-3, Tables 2-1 to 2-9). Businesses connected to on-site sewage treatment and disposal systems will experience the greatest percent increase in Annual Compliance Determination Fees, yet the smallest dollar amount of increase (\$115 - \$145/year).

During the first year following Commission adoption of rules for increased Annual Compliance Determination Fees, a few small and medium sized sources operating under tight budgets may not have sufficient contingency funds to immediately absorb increased fees. The Department will be sensitive to this problem and expects to work with affected sources to arrive at a

reasonable time table within the Fiscal Year for them to remit required fees.

The net economic impact on municipal sources which receive wastewater discharges from industries that require management under federal pretreatment regulations and affected industries is expected to be minor. Sources are expected to distribute the majority of pretreatment related Annual Compliance Determination Fee increases among categorical industries and other significant industrial users via increasing monthly sewer rates. They may also elect to transfer a small portion of pretreatment associated costs (via a modest sewer rate increase) to lesser industrial users and nonindustrial users which discharge to their wastewater treatment facilities.

Table 1: Average Existing, Projected and Net Cost Increases Which Would Result From
The Adoption of Proposed Annual Compliance Determination Fee Increase

Source Category	Principal Sources Affected ¹	Existing Fee (€/yr)		Proposed Fee (€/yr)		Net Fee Increase (€/yr)	
		Per Person ²	Per EDU ³	Per Person	Per EDU	Per Person	Per EDU
A ₁ Flow > 50 MGD	City of Portland - Columbia Blvd.	1	3	5	17	4	14
A ₂ Flow ≥ 25 but < 50 MGD	Salem MwMC	1 1	3 3	14 12	43 37	11 11	40 34
A ₃ Flow ≥ 10 but < 25 MGD	Clackamas Co. S.D. No. 1 Gresham, Medford, USA - Durham, & USA - Rock Creek	1	4	8	24	7	20
B Flow ≥ 5 but < 10 MGD		<1	<1	1	4	<1	3
C Flow ≥ 1 but < 5 MGD		1	3	7	22	6	19
D ⁴ Flow < 1 MGD		6	19	22	70	16	51
E Lagoons -- All Flows		15	47	44	138	29	91
F ⁵ Flow > 0.02 MGD		75	236	145	457	70	220
G Flow < 0.02 MGD		200	630	430	1,340	230	730

1 Cost for Categories A₁ and A₂ based on a sewered population of 420,000 and 220,000 respectively. Cost for Categories A₃, B, C, D, E, F, and G based on design flows of 10 MGD, 5 MGD, 1 MGD, 0.5 MGD, 0.1 MGD, 0.02 MGD, and 0.005 MGD respectively.

2 Per Person = Derived by dividing design flow by 100 gallons/person/day.

3 EDU = Equivalent Dwelling Unit or the quantity of flow (315 gallons/day) expected from a single family dwelling.

4 Relates to conventional secondary sewage treatment facilities but excludes lagoons and systems which dispose of treated effluent by subsurface means.

5 Categories F and G relate to systems which dispose of treated effluent by subsurface means.

Table 2-1: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments* & **

Source and Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
A ₁ City of Portland (Columbia Blvd. WWTP)	500 Seat Church	2,500	0.25	1.25	1.00
	50 Person Office	750	0.08	0.40	0.32
	50 Person Factory With Showers	1,750	0.18	0.88	0.70
	50-Unit Mobile Home Park	12,500	1.25	6.25	5.00
	200 Bed Hospital	50,000	5.00	25.00	20.00
	500 Person School With Showers & Cafeteria	12,500	12.50	6.25	5.00
	10 Person Day Care Facility	200	0.02	0.10	0.08
	200 Seat Theatre	1,000	0.10	0.50	0.40
	50 Unit RV Park	5,000	0.50	2.50	2.00
* Cost for Category based on a sewered population of 420,000 persons; design flow > 50 MGD.					
** Excludes proposed pretreatment fee increase.					

Table 2-2: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments* & **

Source and Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
A ₂ Salem	500 Seat Church	2,500	0.75	3.50	2.75
	50 Person Office	750	0.23	1.05	0.82
	50 Person Factory With Showers	1,750	0.53	2.45	1.92
	50-Unit Mobile Home Park	12,500	3.75	17.50	13.75
	200 Bed Hospital	50,000	15.00	75.00	60.00
	500 Person School With Showers & Cafeteria	12,500	3.75	17.50	13.75
	10 Person Day Care Facility	200	0.06	0.28	0.22
	200 Seat Theatre	1,000	0.30	1.40	1.10
	50 Unit RV Park	5,000	1.50	7.50	6.00

* Cost for Category based on a sewered population of 420,000 persons; design flow ≥ 25 but < 50 MGD.

** Excludes proposed pretreatment fee increase.

Table 2-3: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments * & **

Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
A ₃	500 Seat Church	2,500	0.25	2.00	1.75
	50 Person Office	750	0.08	0.60	0.52
	50 Person Factory With Showers	1,750	0.18	1.40	1.22
	50-Unit Mobile Home Park	12,500	1.25	10.00	8.75
	200 Bed Hospital	50,000	5.00	40.00	35.00
	500 Person School With Showers & Cafeteria	12,500	1.25	10.00	8.75
	10 Person Day Care Facility	200	0.02	0.16	0.14
	200 Seat Theatre	1,000	0.10	0.80	0.70
	50 Unit RV Park	5,000	0.50	4.00	3.50

* Cost for Category based on a design flow of 10 MGD.

** Excludes proposed pretreatment and Tualatin Basin pollution abatement oversight activities fee increases.

Table 2-4: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments* & **

Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
B	500 Seat Church	2,500	0.05	0.28	0.23
	50 Person Office	750	0.02	0.08	0.06
	50 Person Factory With Showers	1,750	0.04	0.19	0.15
	50-Unit Mobile Home Park	12,500	0.23	1.37	1.14
	200 Bed Hospital	50,000	0.90	5.49	4.59
	500 Person School With Showers & Cafeteria	12,500	0.23	1.37	1.14
	10 Person Day Care Facility	200	0.01	0.02	0.01
	200 Seat Theatre	1,000	0.01	0.11	0.10
	50 Unit RV Park	5,000	0.09	0.55	0.46

* Cost for Category based on a design flow of 5 MGD.

** Excludes proposed pretreatment and Tualatin Basin pollution abatement oversite activities fee increases.

Table 2-5: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments * & **

Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
C	500 Seat Church	2,500	0.25	1.75	1.50
	50 Person Office	750	0.08	0.53	0.45
	50 Person Factory With Showers	1,750	0.18	1.23	1.05
	50-Unit Mobile Home Park	12,500	1.25	8.75	7.50
	200 Bed Hospital	50,000	5.00	35.00	30.00
	500 Person School With Showers & Cafeteria	12,500	1.25	8.75	7.50
	10 Person Day Care Facility	200	0.02	0.14	0.12
	200 Seat Theatre	1,000	0.10	0.70	0.60
	50 Unit RV Park	5,000	0.50	3.50	3.00

* Cost for Category based on a design flow of 1 MGD.

** Excludes proposed pretreatment and Tualatin Basin pollution abatement oversight activities fee increases.

Table 2-6: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments* & **

Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
D	500 Seat Church	2,500	1.50	5.50	4.0
	50 Person Office	750	0.45	1.65	1.20
	50 Person Factory With Showers	1,750	1.05	3.85	3.70
	50-Unit Mobile Home Park	12,500	7.50	27.50	20.00
	200 Bed Hospital	50,000	30.00	110.00	80.00
	500 Person School With Showers & Cafeteria	12,500	7.50	27.50	20.00
	10 Person Day Care Facility	200	0.12	0.44	0.32
	200 Seat Theatre	1,000	0.60	2.20	1.60
	50 Unit RV Park	5,000	3.00	11.00	8.00

* Cost for Category based on a design flow of 0.5 MGD.

** Excludes proposed pretreatment and Tualatin Basin pollution abatement oversite fee increases.

Table 2-7: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments*

Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
E	500 Seat Church	2,500	3.75	11.00	7.25
	50 Person Office	750	1.13	3.30	2.17
	50 Person Factory With Showers	1,750	2.63	7.70	5.07
	50-Unit Mobile Home Park	12,500	18.75	55.00	36.25
	200 Bed Hospital	50,000	75.00	220.00	145.00
	500 Person School With Showers & Cafeteria	12,500	18.75	55.00	36.25
	10 Person Day Care Facility	200	0.30	0.88	0.58
	200 Seat Theatre	1,000	1.50	4.40	2.90
	50 Unit RV Park	5,000	7.50	22.00	14.50
* Cost for Category based on a lagoon system with a design flow of 0.1 MGD.					

Table 2-8: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments*

Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
F	50 Person Office	750	5.63	10.88	5.25
	400 Seat Theatre	2,000	15.00	29.00	14.00
	10 Person Day Care Facility	200	1.50	2.90	1.40
	50 Person Factory With Showers	1,750	13.13	25.38	12.25
	90-Unit Mobile Home Park	22,500	168.75	270.00	101.25
	800 Person School With Showers & Cafeteria	20,000	150.00	240.00	90.00
	220 Unit RV Park	22,000	165.00	264.00	99.00

* Category based on a design flow of 20,000 gallons per day or lesser flows for individual establishments in a shopping mall which, together with other mall establishments, would be 20,000 gallons or more per day. Also, assumes individual businesses in a shopping mall would be billed separately but shopping mall would be regulated under a common permit.

Table 2-9: Analysis of Potential User Rate Impacts Related to Projected Annual Compliance Determination
 Fee Increases for Small Commercial and Institutional Establishments*

Source Category	Type of Establishment	Unit Flow (Gal/Day)	Current Expense (\$/Yr)	Potential Expense (\$/Yr)	Net Increase (\$/Yr)
G	50 Person Office	750	15.00	32.25	17.25
	200 Seat Theatre	1,000	20.00	43.00	23.00
	10 Person Day Care Facility	200	4.00	8.60	4.60
	50 Person Factory With Showers	1,750	35.00	75.25	40.25
	20-Unit Mobile Home Park	5,000	100.00	215.00	115.00
	200 Person School With Showers & Cafeteria	500	10.00	21.50	11.50
	50 Unit RV Park	5,000	100.00	215.00	115.00

* Category based on a design flow of less than 20,000 gallons per day or lesser flows for individual establishments in a small shopping mall which, together with other mall establishments, would be greater than 5,000 but less than 20,000 gallons per day. Also, assumes individual businesses in a shopping mall would be billed separately but shopping mall businesses would be regulated under a common permit.

**BACKGROUND REPORT FOR PROPOSED CHANGES TO THE PERMIT FEE
SCHEDULE FOR SEWAGE DISPOSAL SYSTEMS,
OAR CHAPTER 340, DIVISION 45**

This report describes the rationale for proposed permit fee increases for domestic sewage treatment systems which are operated under Water Pollution Control Facility (WPCF) and National Pollutant Discharge Elimination System (NPDES) permits issued by the Department.

Increases to the Annual Compliance Determination Fee schedule are proposed to address four water pollution control program issues:

1. Tualatin Basin Pollution Abatement Activities
2. Groundwater Protection Activities
3. Sludge Management Program Activities
4. Pretreatment Program Activities

Under each of these four items, the basis for the proposed fee increase is presented, followed by a description of the sources or source fee categories to which the fee increases proposals would apply and the amount of the fee increase to recover revenue needed to address each of the program items. Proposed sludge and pretreatment related and cumulative fee increases for certain sources and compliance fee categories are displayed in Attachments B-4, B-5 and B-6, respectively.

1. Tualatin Basin Pollution Abatement Efforts to Achieve TMDLs

The 1989 Oregon Legislature approved the Department's budgetary decision package (Budget Decision Package 118) to provide a position to help implement regulatory controls to clean up the Tualatin River. The Legislature also authorized the Department to seek permit fee increases to fund the activities. Increased permit fees were to be based on sewage flow generated within the Tualatin River basin and assigned to the permitted municipalities that collect and treat this wastewater. These municipalities include Unified Sewerage Agency of Washington County and the City of Portland.

The Legislatively approved limitation to be derived from permit fee increases, including indirect expenses and an adjustment for inflation and position class salary changes, amounts to \$121,000 for 24 months. The annual amount to be recovered from permit fee increases is \$60,500.

Unified Sewerage Agency owns and operates five permitted municipal treatment systems serving residences, businesses and industries in the Tualatin Basin. The City of Portland Tryon Creek facility serves a portion of population located within the Tualatin basin. The total flow of wastewater generated within the basin, percentage treated by

the various treatment systems, and the portion of the \$60,500/year allocated to each facility based on flow generated within the basins follows:

<u>Facility Providing Treatment</u>	<u>Wastewater Flow Generated within the Tualatin Basin</u>	<u>Percent of Total</u>	<u>Fee Increase Amount</u>
USA-Durham	14.8 MGD	44	\$26,720
USA-Rock Creek	12.9 MGD	39	22,995
USA-Hillsboro	3.0 MGD	9	5,450
USA-Forest Grove	2.3 MGD	7	4,240
USA-Banks	0.1 MGD	0.3	185
Portland-Tryon Creek	0.5 MGD	1.5	910
TOTAL			\$60,500

The special fee increase for these facilities is proposed to be effective until the Department concludes its special oversight activities to ensure that the wasteload allocations for point and nonpoint sources of pollution are achieved and water quality standards in the Tualatin Basin are consistently met. The Department expects the special permit fee surcharge to recover expenses associated with these activities to conclude by FY 1998. By this date, special efforts to abate pollution in the Tualatin are expected to be concluded. USA's final compliance date for achieving winter mass load limits is December 1997.

2. Groundwater Protection

The 1989 Oregon Legislature approved the Department's budgetary decision package to provide a position to oversee implementation of the Groundwater Protection Act of 1989 pursuant to HB 3515. This legislation was designed to provide for consistent and coordinated groundwater management and ensure appropriate preventive actions are taken before groundwater problems occur. The approved decision package specified permit fee revenue to help fund groundwater prevention activities related to permitted waste sources. The fees are to be applied to both industrial and sewage treatment facilities under WPCF and NPDES permits issued by the Department. Assuming an equal split of the total revenue between domestic and industrial waste sources, the amount to be applied to fee increases for domestic waste sources is \$38,500 per year.

Currently, there are 430 domestic sewage treatment systems covered by either an NPDES or WPCF permit. Thirty five of these sources are major municipalities that serve populations of 10,000 or more. Allocating the total revenue needed to fund groundwater program activities equally among all permitted sources would mean an increase in permit fee amounting to \$90 per year per each permitted facility for groundwater program activities. This fee increase is substantial for the smaller facilities that currently pay between \$100 and \$300 annually. However, because much of the point source groundwater

protection efforts will be directed to facilities that utilize lagoon, polishing ponds or subsurface treatment and disposal systems, it is reasonable that they pay a reasonable share of the increase. There is little justification for expecting major municipalities to assume a greater share of the increase.

3. Sludge Management Program Activities

At the direction of the 1983 Legislature, the Environmental Quality Commission adopted rules and guidelines (OAR Chapter 340, Division 50) to enable beneficial utilization of domestic sewage treatment sludges as a soil amendment. Utilization, compared to disposal of sludge as a waste product, is a more viable method of dealing with sludge. The program subsequently developed to oversee management of sludge utilization is based on providing sound technical direction to sources about sludge management considerations given the quality and quantity of sludge they generate and the type and characteristics of sites they may have available for utilizing sludge. The objectives of sludge management are to prevent pollution of land, surface and groundwater and the creation of public health problems that might result from sludge mismanagement or overapplication.

While sludge is recognized as a desirable recyclable resource when properly handled, its use must be judiciously managed to prevent potential problems. These may include: adverse impacts on the health and well-being of humans and grazing livestock; damage to land from overloading by pollutants which could affect crop cultivation or necessitate eventual remedial site clean up actions to restore site usefulness; or surface or groundwater pollution due to mismanagement of sludges.

The program activities were initially implemented without additional Department resources. In 1987, the Department received a special \$157,000 supplemental grant from the Environmental Protection Agency to help implement the sludge management program. The grant also enabled the Department to create and work with a Domestic Sewage Sludge Advisory Committee. This Committee helped the Department examine the existing program rules and guidance and formulate appropriate program changes in response to new federal regulations resulting from 1987 amendments to the federal Clean Water Act. In reviewing program resource needs for regulatory oversight and technical assistance about sludge management program requirements and issues, the Advisory Committee unanimously recommends the Department pursue an increase in source permit fees as a means of funding program activities. They also support the Department seeking delegation of the national sludge management program which EPA intends to have in place by 1991. The Association of Oregon Sewerage Agencies (AOSA) also supports the Department pursuing resources to fund sludge management activities (Attachment B-8).

Sludge program activities to be conducted are summarized in Attachment B-1. A summary of the positions and revenue needed to conduct these activities is summarized in Attachment B-3.

The revenue needed to fund these program activities totals \$412,138/year. The proposed allocation of fee increases to fund sludge management activities is based on the larger municipalities bearing a larger percentage of the fee increase, while recognizing they generate more sludge than smaller treatment systems (Attachment B-4).

There are 58 facilities with design flows above 1 million gallons per day (MGD). Eight of these have sewage treatment design flows above 10 MGD, but they range in size from 10 to 100 MGD. To better reflect the differences in the amount of sludge generated by these facilities and also the number of users who may be expected to pay for the fee increases, the Department proposes to delineate three subcategories within the existing category for facilities larger than 10 MGD. These would include: A₁ - systems larger than 50 MGD; A₂ - systems at least 25 MGD, but less than 50 MGD; and A₃ - systems at least 10 MGD, but less than 25 MGD (Attachment B-6).

Under the proposed fee schedule, the City of Portland's Columbia Boulevard STP would pay the most to help fund sludge management activities at \$20,000 per year, followed by MWMC-Eugene/Springfield STP and the City of Salem at \$15,000 per year (Attachment B-4). The six facilities with dry weather design flows above 10 MGD, but less than 25 MGD would pay \$7,500 per year. The nine facilities with design flows above 5 MGD, but less than 10 MGD would pay \$5,000 per year and forty one facilities would pay \$3,000 per year.

The majority of permittees which have design flows less than 1 MGD would be expected to pay an additional amount of between \$720 and \$25 per year to help fund sludge management program activities.

Unlike the fee increase proposals to fund Tualatin Basin and Groundwater activities which have been approved by the state legislature, the proposed fee increases to cover sludge management activities beginning in FY 91 (July 1, 1990) would be dependent upon adoption of the fee schedule by the Environmental Quality Commission and review by the Legislative Emergency Board. The Department would present a request to the Emergency Board subsequent to EQC action on the fee schedule rule revisions.

4. Pretreatment Program Activities

Over 600 significant and categorical industries discharge wastewaters into municipal sewage treatment systems. These industries can cause pass-through of toxics in treated sewage effluent, upsets to treatment processes and sewage sludge contamination rendering sludges unsuitable for beneficial land application. In 1984, the Department accepted regulatory oversight responsibilities under the Clean Water Act to assure that municipalities that accept industrial waste discharges into their systems implement effective "pretreatment programs" to prevent these types of problems.

Also, as the Environmental Clean-up Division requires clean-up of more sites, a greater number of site clean-up proposals include discharge of wastewater to municipal sewerage systems. The Municipal Waste

subprogram is often requested to evaluate feasibility studies and provide technical assistance to municipalities regarding their evaluation on the appropriate regulatory controls needed prior to accepting clean-up wastewaters.

Currently, 25 permitted municipal sewage treatment systems are required to implement industrial pretreatment programs under federal regulations of the Clean Water Act. It is the Department's responsibility as a delegated NPDES permit issuance authority to assure these municipalities comply with the federal requirements. A list of Department activities to effectively oversee federal pretreatment program development and implementation efforts by these municipalities is shown in Attachment B-2. The resource needs for this program are shown in Attachment B-3.

Regulatory oversight and technical assistance related to pretreatment has been minimal because of insufficient resources. However, the Association of Oregon Sewerage Agencies (AOSA) strongly encourages the Department to increase its role and supports the Department securing necessary funding through permit fees (Attachment B-8).

The proposed minor revisions to the existing fee categories to better delineate facilities with dry weather design flows to 10 MGD and above would also apply to permittees with industrial pretreatment programs to allocate costs more equitably based on dry weather design flows of the largest facilities (Attachment B-5).

Of the existing 25 permittees required to implement federal pretreatment programs because of their size and the nature of industrial wastes they receive, the nine largest would be required to pay between \$15,000 and \$40,000 per year. The other 16 facilities would pay between \$7,500 and \$8,500 per year to fund Department pretreatment activities.

Also, to address the potential for additional permittees to be required in the future to implement pretreatment programs, the fee schedule would be modified to allow the Department to assess the additional pretreatment fee if the Department finds a permittee is required to have a pretreatment program as specified by federal pretreatment program regulation (40 CFR Part 403).

The Department recognizes that funding the pretreatment program activities will result in substantial fee increases for some permittees. Those required under federal regulations to have a pretreatment program have sewer user charge systems that account for the treatment capacity utilized by industries and the type and quantity of industrial wastewater pollutants discharged into their systems. The Department expects that most municipalities will pass the special pretreatment fee imposed by the Department on to the industrial facilities they serve to offset the additional expense.

As with the proposed fee amounts to fund sludge management program activities, the special pretreatment fee to begin in FY 91 (July 1, 1990) will apply. In addition to EQC action on the proposed rules,

Legislative Emergency Board review is required. The Department would request Emergency Board review subsequent to EQC action on the fee schedule rules.

LIST OF SLUDGE MANAGEMENT PROGRAM TASKS

1. Review and evaluation of new sludge land application site authorization requests;
2. New and revised sludge and septage management plan review/approvals;
3. Annual Compliance-Assurance Inspections of permitted sources that generate sludge;
4. Sludge and septage related enforcement and complaint investigation;
5. Technical evaluation of solids processing and land application summaries reported in DMRs and source sludge analytical data;
6. General sludge and septage related technical assistance to sources, consultants, the public, special interest groups, and others;
7. Federal sludge regulation evaluation and interpretation;
8. Technical assistance related to Oregon Sludge (Division 50), On-site (septage haulers; Division 71) and Solid Waste (Division 61) rule and guideline (Division 50) application;
9. Sludge and septage related rule making (Divisions 50, 61, and 71);
10. Sludge and septage program policy development;
11. Sludge and septage program training and guidance for sources and regions;
12. Data management (e.g., periodic inventory of sludge and septage quantity, quality, process methods and utilization) and source compliance tracking;
13. Coordination of work on sludge and septage related issues with the Department's Domestic Sludge Technical Advisory Committee;
14. Preparation of source evaluation reports and draft sludge related permit terms prior to renewing or issuing source permits; and
15. Development of a package for the delegation of sludge program activities from EPA to DEQ pursuant to 40 CFR Parts 122, 123, and 124 (revised May 2, 1989) and 40 CFR Part 501 (promulgated May 2, 1989).

LIST OF PRETREATMENT PROGRAM TASKS

1. Identification of municipal sources needing pretreatment programs and data collection and assessment;
2. Guidance and technical assistance on pretreatment program development;
3. Review and evaluation of pretreatment program submittals;
4. Audits of existing pretreatment programs;
5. Inspections of existing pretreatment programs;
6. Review and follow-up on monitoring data required by general pretreatment conditions;
7. Compliance assurance and enforcement activities;
8. Pretreatment program policy review and rule development;
9. Federal pretreatment regulation evaluation and interpretation;
10. Development and updating of technical pretreatment related guidance;
11. Data management system development for pretreatment program reporting requirements;
12. Data management system implementation;
13. Pretreatment program training and guidance to sources and regions;
14. Review of sewer user ordinances regarding pretreatment;
15. Review of industrial removal credit applications;
16. Review of local limit proposals;
17. Preparation of source evaluation reports. Draft pretreatment conditions for permits, including evaluation of monitoring needs and requirements;
18. Review and evaluation of source biomonitoring data assessing the effects of effluent with respect to chronic and acute toxicity standards;
19. Evaluation of toxicity reduction plans and implementation activities submitted by permittees as required to reduce toxicity;
20. Review and evaluation of Hazardous and Solid Waste discharge proposals to municipal systems as requested by H&SWD.
21. Review and guidance on industrial waste proposals to municipal systems; and
22. Coordination with Advisory Committee.

**SUMMARY OF RESOURCE NEEDS FOR
SLUDGE AND PRETREATMENT PROGRAM ACTIVITIES**

SLUDGE PROGRAM

<u>FTE</u>	<u>Classification</u>	<u>\$/12 months¹</u>
1.0	Env. Spec. 4	\$ 56,349
6.0	Env. Spec. 3	322,260
1.5	Clerical Specialist	19,396
<u>0.5</u>	Word Processing Spec.	<u>14,133</u>
Total <u>9.0</u>		<u>\$ 412,138</u>

PRETREATMENT PROGRAM

<u>FTE</u>	<u>Classification</u>	<u>\$/12 months</u>
2.5	Env. Spec. 4	\$ 140,873
2.0	Env. Spec. 3	107,420
0.5	Clerical Specialist	12,861
0.5	Word Processing Spec.	14,133
<u>0.5</u>	Chemist	<u>30,000</u>
Total <u>6.0</u>		<u>\$ 305,287</u>

¹ Includes salaries, benefits, expenses, and overhead (indirect expenses).

Table 1: Summary of Proposed Fees Needed to Conduct Sludge Management Activities

Fee Category	Number of Sources at Specific Fee Increase Amount for Activity	Proposed Fee Amount to Fund Sludge Program Activities	Projected Revenue to be Generated
A ₁	1	\$20,000	\$ 20,000
A ₂	2	\$15,000	\$ 30,000
A ₃	5	\$ 6,250	\$ 31,250
B	9	\$ 4,500	\$ 40,500
C	41	\$ 3,000	\$123,000
D	221	\$ 720	\$159,120
E	43	\$ 200	\$ 8,600
F	32	\$ 50	\$ 1,600
G	69	\$ 25	\$ 1,725
		Total	\$412,795

Table 1: Summary of Proposed Fees Needed to Conduct Pretreatment Activities

Fee Category	No. of Facilities with Federal Pre-Treatment Program Requirements	Permittees to Which Fee Increase Would Apply	Proposed Fee Amount to Fund Pretreatment Program Activities	Projected Revenue to Be Generated
A ₁	1	City of Portland - Columbia Blvd.	\$40,000	\$ 40,000
A ₂	3	Metropolitan Wastewater Management Commission -- Eugene/Springfield Salem and St. Helens	\$20,000	\$ 60,000
A ₃	5	Clackamas County S.D. No. 1, Gresham, Medford, USA - Rock Creek, and USA - Durham	\$15,000	\$ 75,000
B	7	Albany, Corvallis, Klamath Fall, LaGrande, Portland - Tryon, Tri-Cities S.D., and USA - Forest Grove	\$ 8,500	\$ 59,500
C	8	Coos Bay No. 1, McMinnville, Newberg, North Bend, Oak Lodge S.D., Roseburg Urban Sanitary Authority, Unified Sewerage Agency - Hillsboro, and Woodburn	\$ 8,000	\$ 64,000
D	1	Canby	\$ 7,500	\$ 7,500
			Total	\$306,000

Table 1: Table Summary of Proposed Fee Increases to Fund Water Quality Program Activities Associated with Sewage Facilities Under WPCF and NPDES Permits*

Fee Category	Annual Compliance Determination Fee Category	Existing Fee	Tualatin Basin Proposed Fee Increase	Groundwater Protection Proposed Fee Increase	Sludge Management Proposed Fee Increase	Pretreatment Proposed Fee Increase	Net Fee Increase
A ₁	Sewage Disposal: 50 MGD or more.	\$1,150 (1)	Not Applicable	\$90 (1)	\$ 20,000 (1)	Sources with Program Requirements (1) \$40,000	\$ 61,240
A ₂	Sewage Disposal: At least 25 MGD or more, but less than 50 MGD.	\$1,150 (2)	Not Applicable	\$90 (3)	\$ 15,000 (2)	Sources with Program Requirements (3) \$20,000	\$ 92,570
A ₃	Sewage Disposal: At least 10 MGD or more, but less than 25 MGD.	\$1,150 (5)	(2) Not Applicable Except to: USA - Durham (\$26,720) USA - Rock Creek (\$22,995)	\$90 (5)	\$ 6,250 (5)	Sources with Program Requirements (5) \$15,000	\$162,165
B	Sewage Disposal: At least 5 MGD or more, but less than 10 MGD.	\$ 900 (9)	(2) Not Applicable Except to: USA - Forest Grove (\$ 5,450) USA - Tryon (\$ 910)	\$90 (9)	\$ 4,500 (9)	Sources with Program Requirements (7) \$ 8,500	\$115,270
C	Sewage Disposal: At least 1 MGD or more, but less than 5 MGD.	\$ 500 (40)	(1) Not Applicable Except to: USA - Hillsboro (\$ 4,240)	\$90 (40)	\$ 3,000 (41)	Sources with Program Requirements (8) \$ 8,500	\$214,840
D	Sewage Disposal: Less than 1 MGD, not otherwise categorized in Category E,F or G.	\$ 300 (221)	(2) Not Applicable Except to: USA - Banks (\$ 185)	\$90 (221)	\$ 720 (221)	Sources with Program Requirements (1) \$ 7,500	\$252,995
E	Sewage Disposal: Where treatment is limited to non-overflow lagoons which do not discharge to surface waters.	\$ 150 (43)	Not Applicable	\$90 (43)	\$ 200 (43)	Not Applicable	\$ 18,920
F	Sewage Disposal: Systems larger than 20,000 gallons per day which dispose of treated effluent via subsurface.	\$ 150 (32)	Not Applicable	\$90 (32)	\$ 50 (32)	Not Applicable	\$ 9,280
G	Sewage Disposal: Systems less than 20,000 gals. per day which dispose of treated effluent via subsurface and other systems required by OAR 340-71-120 to have a WPCF Permit.	\$ 100 (69)	Not Applicable	\$90 (69)	\$ 25 (69)	Not Applicable	\$ 14,835
TOTAL		\$121,750	\$ 60,500	\$38,070	\$415,795		\$942,115

* Number in parenthesis related to number of sources affected by the fee.

Table 1: Cumulative Cost Impact to Sources to Fund Applicable Program Activities

Fee Category	Principal Source(s) Affected	Existing Fee	Cumulative of Total Proposed Fee Increases	Net Increases
A ₁	City of Portland - Columbia Blvd. (1)	\$ 1,150	\$ 61,240	60,090
A ₂	MWMC, Salem (2)	\$ 1,150	\$ 36,240	35,090
	St. Helens* (1)	Currently under IWA @ \$1,400	\$ 23,590	22,190
A ₃	Clackamas Co. S.D. #1, Gresham, and Medford (3)	\$ 1,150	\$ 22,490	21,340
	USA - Durham (1)	\$ 1,150	\$ 49,210	48,060
	USA - Rock Creek (1)	\$ 1,150	\$ 45,485	44,335
B	Albany, Corvallis, Klamath Falls, La Grande, & Tri-Cities (5)	\$ 900	\$ 13,990	13,090
	USA - Forest Grove (1)	\$ 900	\$ 19,440	18,540
	Portland-Tryon Creek (1)	\$ 900	\$ 14,900	14,000
	Pendleton and Bend (2)	\$ 900	\$ 5,490	4,590
C	Coos Bay No. 1, McMinville, Newberg, North Bend, Oak Lodge S.D., Roseburg Urban S.D., & Woodburn (7)	\$ 500	\$ 11,590	11,090
	USA - Hillsboro (1)	\$ 500	\$ 15,830	15,330
	Others (32)	\$ 500	\$ 3,500	3,000
D	Canby (1)	\$ 300	\$ 8,600	8,300
	USA - Banks (1)	\$ 300	\$ 1,295	995
	Others (219)	\$ 300	\$ 1,110	810
E	(43)	\$ 150	\$ 440	290
F	(32)	\$ 150	\$ 290	140
G	(69)	\$ 100	\$ 215	115

* St. Helens treats less than 2 MGD of domestic wastewater and over 30 MGD of Boise Cascade's wastewater in partially separated systems. They will be categorized A2 for Pretreatment and C for Sludge Fee Increases.



ASSOCIATION of OREGON SEWERAGE AGENCIES

PO Box 68592, Portland, OR 97268-0592

Member Agencies

Albany
Arch Cape
Service District
Bandon
Canby
Clackamas County
Dept. of Utilities
Clatskanie
Coos Bay
Corvallis
Culver
Douglas County
Engineer Dept.
Enterprise
Estacada
Eugene
Cervais
Green Sanitary District
Gresham
Hermiston
Hood River
John Day
Klamath Falls
Lebanon
McMinnville
Medford
Molalla
Mt. Angel
MWMC
Myrtle Creek
Netarts-Oceanside
Sanitary Dist.
Newberg
North Bend
North Tillamook County
Sanitary Authority
Nyssa
Oak Lodge
Sanitary Dist.
Pacific City
Sanitary District
Philomath
Portland Bureau of
Environmental Services
Prineville
Redwood
Sewer Service Dist.
Roseburg Urban
Sanitary Authority
Salem
Sandy
Seaside
Shady Cove
Silverton
South Suburban
Sanitary District
Springfield
St. Helens
Sutherlin
Sweethome
Tillamook
Troutdale
Unified Sewerage Agency
Veneta
Wasco
Waterloo
Wilsonville
Winston
Woodburn

May 23, 1989

Fred Hanson
Director
Dept. of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204

Dear Fred:

The Association of Oregon Sewerage Agencies is concerned about the DEQ's apparent decision to curtail or relinquish its oversight of industrial pretreatment and sludge disposal/utilization programs. Our member agencies are presently responsible for carrying out these programs and the consensus of them is that the DEQ should continue or expand its oversight of these programs.

One AOSA goal is to initiate and participate in the development of sound environmental policy. We believe that DEQ's continued involvement in pretreatment and sludge programs is needed in order to develop sound environmental policy. These programs are changing and evolving. We feel that the State input and perspective are necessary in the State as Federal regulations are developed and administered. Clearly, our members would rather work with DEQ staff who understand the impacts of oversight decisions and are closer to local situations than with EPA regulators. Also, many of our member agencies require program assistance or advice from time to time. DEQ, as a resource, is in a better position to provide sound help to our members than EPA.

Another goal of AOSA is to promote public awareness and education. DEQ is best positioned to work with AOSA and its member agencies to accomplish this goal relative to pretreatment and sludge. DEQ has credibility and has already begun public awareness and public education work for these programs. We are anxious for DEQ to continue these activities.

When you addressed our February, 1989 meetings, you stated that there would be a future need to "do more" to implement industrial pretreatment and to properly handle and manage sludge. We assumed that you were referring to a coordinated

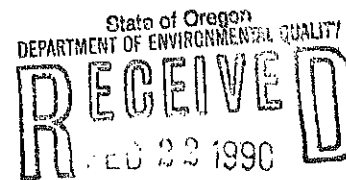
Chair
John M. Lang
724 7160

Vice Chair
Floyd Collins
598 1780

Secretary/Treasurer
Michael Read
455-2291

February 19, 1990

The Hon. William P. Hutchison, Jr.
Chairman
Environmental Quality Commission
811 SW Sixth Avenue
Portland, Oregon 97204



OFFICE OF THE DIRECTOR

Dear Mr. Hutchison:

I was extremely pleased to learn that your commission is devoting part of your agenda at your March meeting for a discussion of groundwater issues. I regret that I will be unable to attend and participate in those discussions because of conflicts in my own schedule.

My best wishes to you for a successful meeting in Pendleton in March.

Sincerely,

Barry S. Fujishin

Barry S. Fujishin
Chairman
Malheur County Groundwater Committee

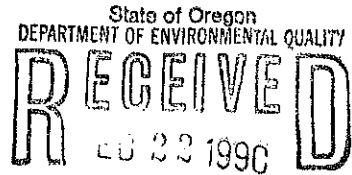
EXTENSION SERVICE
Umatilla County



418 N. Main
P. O. Box E
Milton-Freewater,
Oregon 97862-0905

(503) 938-5597

February 20, 1990



WILLIAM P. HUTCHINSON, JR.
Oregon Environmental Quality Commission
811 S.W. 6th Avenue
Portland, OR 97204

OFFICE OF THE DIRECTOR

Dear Mr. Hutchinson,

Thank you very much for the invitation to present to the Commission information regarding the protection of groundwater quality at your March 1 meeting in Pendleton.

I plan on taking you up on the offer and will have no problem staying within the time limit.

Sincerely,

A handwritten signature in cursive script that reads "Tom Darnell".

Tom Darnell
O.S.U. Extension Agent
Umatilla County

cc: Dawn Hawkins



Agriculture, Home Economics, 4-H Youth, Forestry, Community Development, Energy, and Marine Advisory Programs. Oregon State University, United States Department of Agriculture, and Oregon Counties cooperating



PENDLETON GRAIN GROWERS, INC.

Main office at 1000 S.W. Dorion
P.O. Box 1248 • PENDLETON, OREGON 97801 • Area 503 276-7611 • 503 276-1723 FAX

February 20, 1990

State of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY
RECEIVED
FEB 22 1990

William P. Hutchison, Jr.
Chairman of the Environmental
Quality Commission
811 S. W. 6th Avenue
Portland, OR 97204

OFFICE OF THE DIRECTOR

Dear Mr. Hutchison:

Thank you for the invitation to participate in the Groundwater Quality forum in Pendleton on March 1. Unfortunately, my schedule will not permit me to attend.

Our Company does have a special interest in preserving the quality of groundwater and in view of this, Jim Brown, the Manager of our Agronomy and Feed Division, will attend the hearing.

Jim does not plan to present any specific comments.

Sincerely yours,

PENDLETON GRAIN GROWERS, INC.

Don Cook
Manager

DC:yr

CC: Jim Brown

WASTE INCINERATOR RULES IN OTHER STATES

THIS TABLE CONTAINS THE MAJOR REQUIREMENTS FOR WASTE INCINERATORS FOUND IN THOSE STATES WHICH HAVE RECENTLY REVISED THEIR RULES TO ADOPT BEST AVAILABLE CONTROL TECHNOLOGY STANDARDS. INCLUDED ARE THE PROPOSED INCINERATOR RULES FOR OREGON, AND EPA'S PROPOSED MUNICIPAL INCINERATOR RULES.

OREGON'S EXISTING INCINERATOR RULES SET LIMITS FOR PARTICULATE MATTER, OPACITY, AND TEMPERATURE ONLY, WITH NO CONTINUOUS MONITORING REQUIRED.

COMPARING OREGON'S PROPOSED RULES WITH OTHER STATES AND EPA SHOWS THE FOLLOWING:

- o OREGON'S PROPOSED RULES ADDRESS BOTH NEW INCINERATORS AND EXISTING. OTHER STATES RULES ARE INCOMPLETE - SOME ADDRESSING ONLY NEW. NEARLY ALL ARE CURRENTLY CONSIDERING ADOPTING SIMILAR REQUIREMENTS FOR EXISTING.
- o OREGON'S PROPOSED RULES CONTAIN UNIFORM EMISSION LIMITS AND CONTINUOUS MONITORING REQUIREMENTS WHICH ARE INDIVIDUALLY NO MORE STRINGENT THAN OTHER STATES.
- o IN COMPARING REQUIREMENTS FOR MSW (MUNICIPAL SOLID WASTE) - OREGON'S RULES ARE SLIGHTLY LESS STRINGENT THAN NEW YORK AND PENNSYLVANIA, ABOUT THE SAME AS COLORADO AND MINNESOTA, AND SLIGHTLY MORE STRINGENT THAN WASHINGTON.
- o IN COMPARING REQUIREMENTS FOR IW (INFECTIOUS OR HOSPITAL WASTE) - OREGON'S RULES ARE ABOUT AS STRINGENT AS NEW YORK, AND SLIGHTLY MORE STRINGENT THAN PENNSYLVANIA, COLORADO, MINNESOTA, WISCONSIN AND WASHINGTON.
- o FOR CREMATORIES, OREGON'S RULES ARE AS STRINGENT AS NEW YORK.
- o IN COMPARING EPA'S PROPOSED MSW RULES WITH OREGON'S, BOTH ARE ABOUT THE SAME, WITH OREGON'S SLIGHTLY MORE STRINGENT FOR FACILITIES UNDER 250 TONS/DAY.

A COMPARISON OF STATE INCINERATOR REGULATIONS

STATE	Type of Waste	Size Cut-off (ton/day)	Partic. Matter (gr) ¹	Hydrogen Chloride (ppm)	EMISSION LIMITS					Temp-RT (second)	CONTINUOUS MONITORING					
					Sulfur Dioxide (ppm)	Carbon Monoxide (ppm)	Nitrogen Oxide (ppm)	Opacity	Toxics (ng) ²		HCl	SO ₂	CO	Opac	O ₂	Temp	NOx
NY	MSW*	—	.010	50			(USE BACT)	10%	.2	1800-1s	X	X	X	X	X	X
	IW	>50	.010	50			(USE BACT)	10%	—	1800-1s	X	X	X	X	X	X
	IW	<50	.015/.030 ³	50			—	10%	—	1800-1s			X	X	X	X
	C*	—	.080	—			—	10%	—	1800-1s					X	X
PA	MSW*	—	.010	30	30	200	300	10%	1.0	1800-1s	X	X	X	X	X	X
	IW	>50	.010	30	30	200	300	10%	—	2000-2s	X	X	X	X	X	X
	IW	>24	.015	30	30	100	—	10%	—	2000-2s	X	X	X	X	X	X
	IW	>3.6	.030	30	30	100	—	10%	—	2000-2s	X	+	X	X	X	X
	IW	<3.6	.080	4lb/hr	—	100	—	10%	—	2000-2s		+	—	—	—	X
CO	MSW*	—	.015	50	30	100	300	10%		1800-1s			X	X	X	X
	IW*	>12	.015	50	—	100	—	10%		1800-2s			X	X	X	X
	IW*	>2.5	.030	50	—	100	—	10%		1800-2s			X	X	X	X
	IW*	<2.5	.080	4lb/hr	—	100	—	10%		1800-1s			—	—	—	X
MN	all	>250	.015	50		100	250	10%	1.0	1800-1s			X	X	X	X
	all	>50	.020	50		100	250	10%	1.0	1800-1s			X	X	X	X
	all	>6	.040	—		100	—	20%	3.0	1800-1s			X	X	X	X
	all	<6	.080	—		100	—	20%	—	1800-1s			X	—	X	X
WI	MSW	>50	.015	25		50		5%		1800-2s			X	X	X	X
	MSW	<50	.015	50		75		5%		1800-2s			X	X	X	X
	IW	>12	.015	50		75		5%		1800-2s			X	X	X	X
	IW	>2.5	.030	50		75		5%		1800-2s			—	—	—	X
	IW	<2.5	.080	—		75		5%		1800-2s			—	—	—	X
WA	all*	>250	.020	50	50			10%		1800-1s	X	X	X	X	X	X
	all*	<250	.030	50	50			10%		1800-1s						
	<12 ⁵															
OR	MSW	—	.015/.030 ⁶	50	50	100	200*	10%		1800-1s	+	X	X	X	X	X
	IW	—	.015/.030 ⁶	50	50	100	—	10%		1800-1s	+	+	X	X	X	X
	C	—	.080	—	—	—	—	10%		1800/ 1600-1s ⁶						X
EPA	new	>250	.015	25	30	50-150	120-200	10%	5-30			X	X	X	X	X
	new	<250	.015	25	30	50-150	—	10%	75			X	X	X	X	X
	ex.	>2200	.015	25	30	50-150	—	10%	5-30			X	X	X	X	—
	ex.	>250	.030	25	30	50-150	—	10%	125			X	X	X	X	—
	ex.	<250	.030	—	—	50-150	—	10%	500			X	X	X	X	—

FOOTNOTES: MSW = Municipal Solid Waste
 IW = Infectious (hospital) Waste
 C = Crematories
 * = new incinerator facilities only
 + = required on a case-by-case basis
 ppm = part per million

¹ grains per dry standard cubic foot
² nanograms per dry standard cubic foot (one billionth of a gram)
³ Off site/On site incinerators (commercial vs. hospital run unit)
⁴ Current state guidelines for infectious waste incineration
⁵ Incinerators less than 12 ton/day covered by permit condition
⁶ New/Existing incinerators

TESTIMONY SUBMITTED FOR THE RECORD
OF
THE CONFEDERATED TRIBES OF THE UMATILLA
INDIAN RESERVATION
BEFORE THE
OREGON ENVIRONMENTAL QUALITY COMMISSION

March 1, 1990

Mr. Chairman, members of the Commission, my name is Antone Minthorn. I am the Chairman of the General Council of the Confederated Tribes of the Umatilla Indian Reservation. I am here today to present our Tribes' position on the continued pollution of the streams in the Columbia River Basin and specifically, Oregon's policies regarding dioxin discharges into these streams.

The fish resources of the Columbia River and tributaries represent the backbone of our religion, culture, and economy. In the treaty of 1855, our people acknowledged the importance of the fish, wildlife, vegetation, water, air, and the land. We recognized our intimate relationship with all these things and understood that the health of the land, water, and wildlife represented the health and life of our people. Our forefathers fought to secure and preserve all these things for us today. We are obligated to them, our children, and our CREATOR to protect and preserve these same resources not only in our life time, but for thousands of generations to come.

The Confederated Tribes of the Umatilla Indian Reservation have federally secured fishing rights in the Columbia River Basin. We have established ourselves as co-managers of the fish resource, equal to that of the state, federal, and Canadian governments. We have used our legal rights in court to protect, enhance, and utilize the fishery resources in the Columbia River Basin. It is our inherent and legal right to have fish, water, and all other aquatic life totally free of harmful pollutants and contaminants.

It is upon these principles that the Confederated Tribes of the Umatilla Indian Reservation, in unity with the Yakima Indian Nation and the Affiliated Tribes of Northwest Indians (from the states of Alaska, Idaho, Montana, Nevada, Oregon, and Washington) adopted resolutions demanding the states of Oregon (and Washington and Idaho) to exercise their current legal responsibilities under state and federal law to establish and implement policies for the total elimination of organochlorine pollution from the pulp and paper industry within five years. We also demand that all state and federal regulatory agencies place the burden of proof for demonstrating the environmental consequences of continued pollution from the chlorine bleaching process on the industry that is creating the problems, and not those who must live with the problems for generations to come.

Attached are copies of the Confederated Tribes of the Umatilla Indian Reservation's resolution February 2, 1990 and the Affiliated Tribes of Northwest Indians' resolution of February 14, 1990. I thank you for the opportunity to testify on behalf of the Tribe.

C E R T I F I C A T E

The undersigned Elwood H. Patawa and Betty Van Pelt, hereby certify that they are the Chairman and Secretary, respectively of the Board of Trustees of the Confederated Tribes of the Umatilla Indian Reservation of Oregon, that at a duly called and held work session of said Board at the Chief's Room of the Nicht-Yow-Way Community Center, Mission, Oregon on February 2, 1990, a quorum of said Board was present and the following resolution was polled and adopted by a vote of 7 to 0, 0 abstaining.

R E S O L U T I O N

WHEREAS, the Confederated Tribes of the Umatilla Indian Reservation is a federally recognized tribe pursuant to the Treaty of 1855, and that the Board of Trustees is the governing body of the Confederated Tribes of the Umatilla Indian Reservation, and

WHEREAS, the Confederated Tribes of the Umatilla Indian Reservation, by the Treaty of 1855, reserved certain rights, including the right to take fish at all usual and accustomed fishing areas and to hunt and gather roots and berries for food and medicine and said rights were to be secured by the United States, and

WHEREAS, these traditional and cultural resources reserved rights have been interpreted by the federal courts to include the right to a suitable habitat for the fish resources, and

WHEREAS, the fish and all other natural resources of the Columbia Basin have great cultural, religious and social significance to the people of the Confederated Tribes of the Umatilla Indian Reservation, and

WHEREAS, the quality of the Columbia River water must be maintained in a manner that protects the fish resources and the tribal members who depend on the River to provide them with healthy sustenance, and

WHEREAS, studies by the United States Environmental Protection Agency and the Northwest Pulp and Paper Association make it clear that the Columbia River and its fish are polluted with dioxin and other toxic chemicals from pulp and paper mills operating on the Columbia River and Clearwater River, and

WHEREAS, the pulp and paper industry in Oregon, Washington and Idaho dumps into the Columbia River system tons of organochlorines, including dioxin and furans, many of which are highly toxic, persistent in the environment, and bioaccumulate through the food chain to humans, and

WHEREAS, the chlorine bleached paper products such as milk and beverage cartons, coffee filters, baby diapers, personal hygiene products, and office paper contain dioxin residues that pose a threat to the health of people who use them, and

WHEREAS, the pollution from the pulp and paper industry could be prevented by not utilizing the chlorine bleaching process, and

WHEREAS, an unbleached paper industry would provide healthier employment and projects, and would reduce waste by utilizing a greater percentage of the wood resources, and


WHEREAS, the CTUIR supports following the lead of Sweden and the Science Advisory Board of the U.S. Canada International Joint Commission and setting as a goal the total elimination of the use of chlorine and the production of chlorinated organic pollutants by the pulp and paper industry,

NOW THEREFORE BE IT RESOLVED, by the Board of Trustees of the Confederated Tribes of the Umatilla Indian Reservation, that:

1. The Confederated Tribes of the Umatilla Indian Reservation demand the pulp and paper industry within five years to phase out the use of the chlorine bleaching process and stop the production of all dioxin and other organochlorines, and immediately begin providing the Confederated Tribes of the Umatilla Indian Reservation and others with the environmentally safe, healthy, unbleached paper products;
2. The Confederated Tribes of the Umatilla Indian Reservation demand that all branches of the federal government to exercise its trust responsibility for the protection of tribal natural resources and peoples and utilize its current legal powers (such as the Clean Water Act to establish and implement a policy for total elimination of organochlorine pollution from the pulp and paper industry within five years, and to give preference to purchasing unbleached paper products by the government;
3. The Confederated Tribes of the Umatilla Indian Reservation demand that the State of Oregon, Washington and Idaho to utilize their current legal powers and exercise their current legal responsibilities under state and federal law to establish and implement policies for the total elimination of organochlorine pollution from the pulp and paper industry within five years, and to give preference to purchasing unbleached paper products;

4. The Confederated Tribes of the Umatilla Indian Reservation demand that all state and federal regulatory agencies to place the burden of proof for demonstrating the environmental consequences of continued pollution from the chlorine bleaching process on the industry that is creating the problems, and not those who must live with the problems for generations to come;
5. The Confederated Tribes of the Umatilla Indian Reservation requests the member tribes of the Affiliated Tribes of Northwest Indians to study the serious pollution problem caused by the northwest's pulp and paper industry, and to consider establishing coordinated tribal policies that call for the elimination of the chlorine bleaching process and that favor the purchasing of unbleached paper products by the tribal governments;
6. The Confederated Tribes of the Umatilla Indian Reservation call upon the citizens of the Pacific Northwest to address and to understand the danger posed by the release of organochlorine compounds into the waters of the Pacific Northwest and to act both individually and jointly to accomplish the purpose of this resolution.

AND, that said resolution has not been modified, amended or repealed and is still in full force and effect.



Elwood H. Patawa, Chairman
Board of Trustees

ATTEST:



Betty Van Pelt, Secretary
Board of Trustees

1990 WINTER CONFERENCE
Yakima, Washington

RESOLUTION #90-17

PREAMBLE

We, the members of the Affiliated Tribes of Northwest Indians of the United States, involking the divine blessing of the Creator upon our efforts and purposes, in order to preserve for ourselves and our descendents rights secured under Indian Treaties and agreements with the United States, and all other rights and benefits to which we are entitled under the laws and Constitution of the United States and the several States, to enlightened the public toward a better understanding of the Indian people, to preserve Indian cultural values, and otherwise promote the welfare of the Indian people, do hereby establish and submit the following resolution:

WHEREAS, the Affiliated Tribes of Northwest Indians (ATNI) are resrepresentatives of and advocates for national, regional, and Tribal concerns; and

WHEREAS, ATNI is a regional organization comprised of American Indians in the states of Alaska, Idaho, Montana, Nevada, Oregon, and Washington; and

WHEREAS, the health, safety, welfare, education, culture, economic and employment opportunity, and preservation of natural resources are primary goals and objectives of ATNI; and

WHEREAS, the quality of the Columbia River water must be maintained in a manner that protects the fish resources and the tribal members who depend on the River to provide them with health and sustenance; and

WHEREAS, studies by the United States Environmental Protection Agency and the Northwest Pulp and Paper Association make it clear that the Columbia River and its fish are polluted with dioxin and other toxic chemicals from pulp and paper mills operating on the Columbia River; and

WHEREAS, the pulp and paper industry in Oregon, Washington, and Idaho dumps into the Columbia River system tons of organochlorines, including dioxin and furans, many of which are highly toxic, persistent in the environment, and bioaccumulate through the food chain to humans; and

WHEREAS, chlorine bleached paper products such as milk and beverage cartons, coffee filters, baby diapers, personal hygiene products, and office paper contain dioxin residues that pose a threat to the health of people who use them; and

Resolution #90-17

WHEREAS, the pollution from the pulp and paper industry could be prevented by not utilizing the chlorine bleaching process; and

WHEREAS, an unbleached paper industry would provide healthier employment and products, and would reduce waste by utilizing a significantly greater percentage of the wood resource; and

WHEREAS, no reason is apparent for not following the lead of Sweden and the Science Advisory Board of the U.S.-Canada International Joint Commission and setting as a goal the total elimination of the use of chlorine and the production of chlorinated organic pollutants by the pulp and paper industry; and

WHEREAS, the Yakima Indian Nation and the Confederated Tribes of the Umatilla Indian Reservation have called upon the member tribes of ATNI to recognize the serious pollution problem caused by the northwest pulp and paper industry, and to assist in coordinating the development of tribal policies that call for the elimination of the chlorine bleaching process and that favor the purchasing of unbleached paper products by tribal governments; now

THEREFORE BE IT RESOLVED, that ATNI calls upon the pulp and paper industry within five years to phase out the use of the chlorine bleaching process and stop the production of all dioxin and other organochlorines, and immediately begin providing northwest tribes and their communities with environmentally safe, healthy, unbleached paper products;

BE IT FURTHER RESOLVED, that ATNI calls upon all branches of the federal government to exercise its trust responsibility for the protection of tribal natural resources and peoples and utilize its current legal powers (such as the Clean Water Act) to establish and implement a policy of total elimination of organochlorine pollution from pulp and paper industry within five years, and to give preference to purchasing unbleached paper products by the government;

BE IT FURTHER RESOLVED, that ATNI calls upon the states of Washington, Oregon, and Idaho to utilize their current legal powers and exercise their current legal responsibilities under state and federal law to establish and implement policies for the total elimination of organochlorine pollution from the pulp and paper industry within five years, and to give preference to purchasing unbleached paper products;

BE IT FURTHER RESOLVED, that ATNI calls upon all state and federal regulatory agencies to establish a policy that places the burden of proof for demonstrating the environmental consequences of continued pollution from the chlorine bleaching process on the industry that is creating problems, and not those who must live with the problems for generations to come; and

JASON BOE & ASSOCIATES, Inc. of Oregon
DEPARTMENT OF ENVIRONMENTAL QUALITY

GOVERNMENTAL RELATIONS

RECEIVED

FEB 28 1990

TELEPHONE 503.243-2489
TELECOPIER 503.243-2488

319 SW WASHINGTON STREET
SPALDING BUILDING, SUITE 810
POST OFFICE BOX 157
PORTLAND, OREGON 97207

February 26, 1990

TO: The Members of the Environmental Quality Commission

FROM: Jason Boe
Jason Boe & Associates, Inc.
Portland, Oregon

REPRESENTING: The Oregon Petroleum Marketers Association and The
Oil Heat Institute of Oregon

RE: THE PROPOSED RULES FOR STAGE II VAPOR RECOVERY IMPLEMENTATION
BY THE DEQ

As you know, I have twice testified before the EQC on the matter of the proposed Stage II rules. I am taking this opportunity to provide some added information that may assist you as you consider whether or not the State of Oregon should attempt to implement this proposed Stage II rule at this time and at this great of an expense to the individual dealers and owners of service stations.

The United States Senate is considering S. 1630 at the present moment. This measure contains Stage II provisions. If adopted, it would require stage II in most of the non-attainment areas of the U.S.A. Portland, Oregon and the balance of the tri-county area are NOT listed as non-attainment areas. In addition, if on-board canisters are included in S. 1630 (and they are included), this will also have a positive effect on the air quality in the Portland area, insofar as petroleum vapor recoveries are concerned.

The companion House bill on clean air also has Stage II provisions, but the provisions in the House bill are not as inclusive as the Senate bill. The key measure there is H.R. 3030, and it, too, limits the applicability of Stage II to only non-attainment areas in the nation.

The point of this is that Oregon does not need to jump out in front on this issue when, by so doing, you will be directly responsible for a number of service stations going out of business in Multnomah, Clackamas and Washington counties. The State of Washington and many other states are waiting to see what the federal legislation is going to require before passing any laws, rules or regulations of their own prior to such passage.

Please review the testimony you have been given on Stage II and carefully consider your vote on this issue. Stage II is not needed now in Oregon. When and if it is, the industry will comply with the provisions thereof. But please don't adopt a rule that will be far more onerous, punitive and costly for Oregon's small service station operators than even the bills that are now before the Federal Congress.

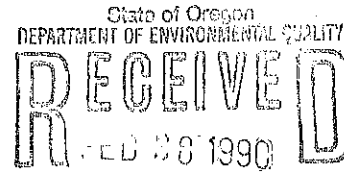
Thank you.



ASSOCIATION of OREGON SEWERAGE AGENCIES

PO Box 68592, Portland, Oregon 97268-0592

February 27, 1990



Member Agencies

Albany
Arch Cape
Service District
Bandon
Bear Creek Valley
Sanitary Authority
Bend
Boardman
Canby
Charleston Sanitary District
Clackamas County
Dept. of Utilities
Clatskanie
Coos Bay
Corvallis
Cottage Grove
Culver
The Dalles
Douglas County
Engineer Dep't.
Enterprise
Estacada
Eugene
Gervais
Green Sanitary District
Gresham
Hermiston
Hood River
John Day
Klamath Falls
Lebanon
Madras
McMinnville
Medford
Molalla
M.W.M.C.
Mt. Angel
Myrtle Creek
Newberg
North Bend
North Tillamook County
Sanitary Authority
Nyssa
Oak Lodge
Sanitary Dist.
Pacific City
Sanitary District
Philomath
Portland Bureau of
Environmental Services
Redwood
Sewer Service Dist.
Roseburg Urban
Sanitary Authority
Salem
Sandy
Seaside
Shady Cove
Silverton
Silverton
South Suburban
Sanitary District
Springfield
St. Helens
Sutherlin
Sweethome
Tillamook
Troutdale
Unified Sewerage Agency
Veneta
Wasco
Wilsonville
Winston
Woodburn

OFFICE OF THE DIRECTOR

Mr. Fred Hansen, Director
Oregon Department of Environmental Quality
811 SW 6th Avenue
Portland, OR 97204-1334

Re: EQC Agenda Item U - NPDES Fee Increases

Dear Mr. Hansen:

The Association of Oregon Sewerage Agencies (AOSA) is supportive of a strong state role in the administration of sludge and pretreatment programs but is concerned with the magnitude and nature of certain aspects of the proposed NPDES fee increases.

In the spring of 1989, AOSA approached the Department requesting increased state involvement in the above areas. Since the Department was uncomfortable pursuing a general fund budget request for such increases, AOSA indicated a willingness to explore funding staff increases through permit fees. Discussions were held with the Department and a proposal developed to fund 7 full-time equivalents (FTEs), which was consistent with budget decision packages that had been developed by the Department.

EQC Agenda Item U reflects an increase in the request from 7 to 15 FTEs. Most affected jurisdictions have already submitted budgets that do not reflect the new proposal. AOSA cannot support this level of effort without more detailed review with the Department.

Another significant concern exists. The proposed fee increase for administration of programs within TMDL basins signals potential application of similar fee increases throughout the state and needs to be considered in that larger context.

Chair
William C. Gaffi
796-7181

Vice Chair
Floyd Collins
588-6380

Secretary/Treasurer
Michael Read
240-3215

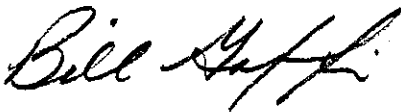
Fred Hansen
February 27, 1990
Page 2

This element of the proposal is of concern for several reasons:

1. The proposed fee increases are of very substantial magnitude relative to current fees as are increases for sludge and pretreatment.
2. It is inappropriate to allocate TMDL administrative costs only to sewer users and not to others sources such as agriculture and forestry.
3. The State of Oregon general fund would seem to be the most appropriate funding source for the general management of DEQ programs. The application of fees to other governmental units could be construed as indirect or hidden taxation and should therefore be employed with restraint.

Although some issues need to be resolved, AOSA remains supportive of a strong DEQ role in the administration of both the sludge and pretreatment programs and feels that these programs are of such significance to the Oregon public that they warrant permit fee increases if general fund appropriations are not forthcoming. AOSA does request, however, the opportunity to review the proposal with the Department prior to hearing. Such review should avoid time consuming discussion before the EQC and E-Board. Thank you for consideration of this request.

Very truly yours,



Bill Gaffi
Chair

WCG
c: EQC Members

AOSAdcq

Citizens for Klamath Quality Living

P O Box 1888
Klamath Falls, OR 97601
(503) 882-5406
Fax (503) 884-1869

Transmit to: William P. Hutchinson, Jr., Emery N. Castle, Henry Lorenzen
Genevieve Pisarski Sage, William W. Wessinger
Company: Environmental Quality Commission
From: Carol Yarbrough

We are transmitting a total of 3 pages including this cover letter. If you do not receive all the pages, please call us as soon as possible.

Date: 3/1/90
Time: 4:30 pm

Notes:

Mr. Mundy also was quoted, "We're running out of places to put stuff. We have to recycle, and this (incineration) is a way."s According to Mr. Mundy's permit he is not permitted to recycle.

We have submitted both oral and written testimony to the DEQ requesting bio-accumulation testing of dioxins and heavy metals. It appears that the DEQ wishes to make Klamath County into a regional incinerator site for hospital waste, and we have not seen definitions of regional or site considerations nor indications that the DEQ has been doing research concerning this issue.

Significant evidence exists establishing the connection between dioxin and heavy metal contamination and public health risk. "What is emitted from incinerators? Emissions testing conducted by Air Resource Board (ARB) staff and other agencies shows that medical waste incinerators are sources of dioxins, beryllium, cadmium, benzene, polycyclic aromatic hydrocarbons, lead, mercury, nitrogen oxides, sulfur dioxide, nickel, particulate matter, and hydrochloric acid."

"What are the current potential risks due to dioxins and cadmium emissions? We conducted emissions testing on 8 medical waste incinerators in California. Based on these tests and the risk assessment methods recommended by Department of Health Services (DHS), we estimate that the potential maximum individual lifetime cancer risk from exposure to dioxins ranges from 2 to 410, and from exposure to cadmium emissions ranges from 1 to 305, for a total of about 10 to 500 chances in a million. (The risk values from dioxins and cadmium are not additive here because the ranges reflect different facilities.) The risk assessment analysis recommended by DHS staff considers exposure from inhalation, dirt ingestion, dermal absorption, and ingestion of mother's milk."6

California tests have shown that "the 15 identified chlorinated dioxins and dibenzofurans are known animal carcinogens and potential human carcinogens. Animals exposed to low levels of dioxin have developed cancer of the liver, thyroid and other organs. It has been determined by the Department of Health Services (DHS) that dioxin can be assumed to be a carcinogen for humans as well.

the incinerator, and a dairy operation is less than a mile away. All of this points to improper siting of what is now one incinerator, but we suspect that plans are being made by Oregon DEQ and Mundy to expand operations.

Lower Klamath and Tulelake Wildlife Refuges are within sight (several miles) from the incinerator. The Bear Valley National Eagle Refuge, the largest wintering concentration of eagles in the lower forty-eight States, is less than one mile from the incinerator. In fact, eagles fly over the incinerator, through the emissions plume every day.

The Klamath Basin airshed is fragile. Located east of the Cascade Mountains and between lesser ranges of hills and maintains the term basin is appropriate. Due to the weather problems and the geography, the air in the Klamath Basin becomes an inland sea. It doesn't flush very well. Thermal inversions are common, especially in the winter months, but can and do occur at any time.

The PM 10 levels are bad enough but when highly toxic emissions of heavy metals, dioxins, and furans are added from waste incineration the problem becomes even more serious. To develop a regional incinerator placed in such a fragile airshed is not in the health interests of the people of Klamath Basin. The tendency for inversion, the lack of cleansing action all concentrate any toxic materials placed into the air. The emissions of heavy metals and dioxins are putting our environment in serious jeopardy.

This is a summary of the issues:

- Improper land use;

- Sustaining the requirement that utility operations, especially waste incineration, require public hearings;

- The inclusions of environmental impact studies with provisions for dioxin and heavy metals bio-accumulation testing required;

- Challenging building of waste incinerators on or near agricultural land;

- Challenge building of waste incinerators near Bear Valley National Eagle Refuge and Lower Klamath National Wildlife Refuge.

The DHS risk factor for a lifetime of exposure to 1 picogram/m³ of dioxin is 24 to 38 potential chances in a million of contracting cancer."

"Cadmium is a known animal and human carcinogen. Animals exposed to cadmium have developed lung tumors. Humans exposed to cadmium have developed cancer of the lung. The DHS risk factor for a lifetime of exposure to 1 nanogram/m³ of cadmium is 2 to 12 potential chances in a million of contracting cancer."7

"Several research studies do indicate, however, that dioxins can be transported over long distances by the wind and therefore could have effects both in the immediate vicinity of the source and at areas distant from the source."

"Dioxins and furans attached to airborne particles are eventually deposited on soil or water opening a secondary exposure route via ingestion and skin exposure. These substances are highly persistent in soils and can be present years after the introduction of dioxins occurred. The chemical properties of dioxins also allow it to be accumulated in fatty tissue. This has led to concerns that dioxins could accumulate up the food chain resulting in an effective dose of dioxins greater than that indicated by the levels in the air."

"Thus, secondary exposure may be as significant as atmospheric exposure and could substantially increase the total public health risk of dioxin and furan emissions."

..."A number of polychlorinated dioxins and furans have been tested for their toxicity in animal studies and have been found to be highly toxic. The toxic effects of these substances include severe weight loss, liver disease, skin lesions, reproductive toxicity, suppression of the immune system, cancer, and death."8

Dr. Paul Connett, Associate Professor of Chemistry at St. Lawrence University in New York, and an expert on the chemistry involved in incineration, has findings indicating a strong association of bio-accumulation of dioxins in the food chain.

Southern Klamath County is agricultural. A grain elevator is less than 1/3 of a mile from the incinerator site. Cattle graze in sight of

FOOTNOTES:

1. Herald and News, Klamath Fall, Oregon, 2-22-90.
2. Ibid.
3. Herald and News, Klamath Falls, Oregon, 12-19-89.
4. Perspectives on Medical Waste: A Report of The Nelson A. Rockefeller Institute of Government, State University of New York, June 1989, p. II.20.
5. Herald and News, Klamath Falls, Oregon, 4-10-89.
6. Draft Dioxins and Cadmium Control Measure for Medical Waste Incinerators, Air Resources Board, Sacramento, CA, 2-22-90, p. 4.
7. Ibid, p. 3.
8. Program Update #3: Air Toxics Update, California Air Resources Board, 1986, p. 4-5.

OREGON LEGISLATIVE AUTHORITIES

1. Oregon Revised Statute 454
(Sewage Treatment and Disposal Systems)
2. Oregon Revised Statute 459
(Solid Waste Control)
3. Oregon Revised Statute 466
(Hazardous Waste and Hazardous Materials)
4. Oregon Revised Statute 468
(Pollution Control)
5. House Bill 3515 Sections 17 - 66
(Groundwater Quality Protection Act of 1989)

IMPLEMENTING DEQ DIVISIONS

- Water Quality Division
- Hazardous and Solid Waste Division
- Environmental Cleanup Division

MAJOR ELEMENTS OF GROUNDWATER ACT OF 1989

1. Groundwater Management Goal
2. Groundwater Policies
3. Strategy for Implementation
4. Grants for Research and Public Education
5. Groundwater Protective Action Levels
6. Statewide Monitoring Programs
7. Domestic Well Testing
8. Areas of Groundwater Concern / Action Plans
9. Local Groundwater Advisory Committees
10. Groundwater Management Areas / Action Plans
11. Interagency Coordination / SWMG

GOAL

- Prevent Contamination
- Conserve and Restore
- Maintain High Quality
- Present and Future Uses

POLICIES

1. Public Education, Research and Demonstration Projects
2. State Agency Consistency
3. Identify and Characterize the Resource
4. Require Highest & Best Practicable Methods
5. Numerical Levels Trigger Specific Actions
6. All Groundwater Protected for Suitable Uses

GREEN LIGHT PROGRAMS

- Hydrogeologic Characterizations
- Statewide Groundwater Monitoring
- Groundwater Information Repository
- Highest & Best Practical Methods
- Basic Research, Public Education
- Technical Assistance to Local Governments
- Well Head Protection / Local Planning
- Well Construction, Operation and Maintenance

YELLOW LIGHT PROGRAMS

- Triggered by Contaminants at Low Levels
- Local Advisory Committee Involvement
- Targeted Research and Public Education
- Increased Monitoring / Hydrogeologic Assessment
- Non-Regulatory Action Plan / Local Level

RED LIGHT PROGRAMS

- State Lead
- Action Plan May Include the Following Elements:
 - Limitations on Water Use
 - Limitations on Agricultural Chemicals
 - Regulation of Exempt (Groundwater) Uses
 - Land Use Plan Review

DEVELOPMENT OF GROUNDWATER QUALITY PROTECTION RULES

(OAR Chapter 340 Division 40)

The Department of Environmental Quality is responsible under Oregon Revised Statute 468 for protecting and improving groundwater quality. Statutes authorizing solid waste, and hazardous waste activities also contain groundwater quality protection requirements. Historically, groundwater protection has been implemented by the agency through the rules and policies of individual work units, such as, Water Quality, Solid Waste, and Hazardous Waste. The Water Quality Division, and in particular, the Monitoring and Planning Section, is responsible for overall groundwater quality characterization, and developing standards and rules that ensure that the water quality protection requirements contained in ORS 468 are achieved. Groundwater protection activities implemented by other agency programs have tended to be limited in scope to a particular activity regulated under that program, i.e., landfills or RCRA sites.

Over the past 10 years there has been a rapid and steady increase in the evidence of groundwater quality problems, both within Oregon, and nationally. Increased monitoring activities have snowballed into the documentation of more and more instances of groundwater contamination. Once thought to relatively immune from contamination, it is now realized that groundwater is vulnerable to contamination from a multitude of sources and activities. Contamination ranges from slight levels of increase in naturally occurring compounds, to contamination with highly toxic or carcinogenic synthetic compounds such as EDB. Areas affected may be small, such as is often the case with a spill or point source activity; or they may cover tens or hundreds of square miles, such as is the case with nitrate contamination in certain agricultural areas.

As a result of this heightened awareness of groundwater vulnerability; individual regulatory programs (both federal and state) such as Solid Waste, RCRA, UST, CERCLA, and several others, have developed specific groundwater assessment, protection and remedial action requirements. This activity has occurred without the benefit of an clearly defined overall groundwater protection goal, and strategy. As a result there are often inconsistencies in the objectives and methods among the different programs. This is true for both state and federal regulatory programs.

In 1981, the Environmental Quality Commission adopted as Administrative Rule 340-41-029 the General Groundwater Quality Protection Policy. This policy was adopted by the Commission in response to the increasing evidence of groundwater quality impairment, and the need for clearly articulated agency policies for groundwater management and problem resolution. The Policy contained three sections: General Policies, Source Control Policies, and Problem Abatement. As stated in the Policy, it was

to be implemented through all programs in the agency where groundwater quality protection activities were appropriate. Since its adoption, the policy has become the cornerstone of the agencies groundwater protection activities. The Policy, however, lacked specificity in how certain requirements of the Policy were to be measured or obtained. As a result the Department initiated efforts to revise and greatly expand the scope of the Policy. That effort turned into a long and drawn out process that can be broken down into 11 stages:

1. 1985-1986 -- Water Quality Planning staff put together a white paper that evaluated and discussed at length groundwater quality management and protection. It contained an extensive review of existing Department programs, other state and federal programs, and various alternatives for groundwater management.
2. 1986 -- The White Paper on Groundwater went through extensive intraagency review and comment. An Interagency Committee was established to review and comment on the White Paper and its recommendations.
3. 1986-1987 -- A citizens advisory committee was established. This committee worked with the Department in the preparation of proposed groundwater water protection rules. These rules greatly expanded on the original Policy. The proposed rules contained a General Policies Section, a Aquifer Management Classification Section, a Point Source Control Section, a Nonpoint Source Section, and a Standards Section.
4. 1987 -- The proposed groundwater rules went through a 12 month period of internal agency review and comment. Major concerns addressed during this period were implementability, and consistency with requirements contained in Senate Bill 122 (Remedial Action Program); which was adopted by the 1987 Legislature after the development of the proposed groundwater rules. When these concerns were resolved Public hearings were scheduled.
5. March 1988 -- Public hearings were conducted on proposed Groundwater Rules. Controversial areas were the Classification System, the Standards Section, and the Nonpoint Source Section. As a result of these comments the Classification Section and the Nonpoint Source Section were deleted from the proposed rules, and the Standards Section was revised. These public hearings helped focus attention on Oregon's groundwater management needs. Many commented that those needs went well beyond what could be accomplished through rule adoption alone, particularly with respect to nonpoint source and funding issues. The Department agreed with some of these comments. A meeting was held with Gail Achterman. As a result of that meeting it was decided to establish an interagency committee to evaluate the need for, and make recommendations on proposed legislation. It was

decided that those parts of the rules that deal with point sources should be continued toward adoption.

6. May-June 1988 -- The Remedial Action Advisory Committee completed its development of clean-up rules. Major Sections of those rules were included in the revised proposed groundwater rules as the process for selecting a remedial action under the groundwater rules. The Department believed it essential that the remedial action rules and the groundwater rules be consistent.

7. August 1988 -- Public hearing were conducted for the second addition of the proposed groundwater rules.

8. September 1988 - March 1989 -- The Department continued to work with an ad hoc public "workgroup" to iron out lingering public concerns with the proposed rules.

9. January 1989 - June 1989 -- The legislature considered and adopted a Groundwater Quality Protection Act.

10. July 1989 -- Public hearings were conducted on the third edition of the proposed groundwater rules.

11. October 20, 1989 -- The EQC adopted the proposed groundwater quality protection rules (OAR Chapter 340 Division 40).

Proposed additional revisions to OAR 340-12-045(1)(c)(A). Refer to Attachment A, pages 7 - 9.

(A) "P" is whether the respondent has any prior [violations] significant actions relating to [of] statutes, rules, orders and permits pertaining to environmental quality or pollution control. The values for "P" and the finding which supports each are as follows:

- (i) 0 if no prior [violations] significant actions; ~~[the prior [violation] significant action described in [subsection]-subparagraph (ii)-is-greater-than-three-years-old;]~~ or there is insufficient information on which to base a finding;
- (ii) 1 if the prior [violation] significant action is [an unrelated Class Three] one Class Two or two Class Threes; ~~[-or-the prior [violations] significant actions described in [subsection]-subparagraph-(iii)-are-greater than-three-years-old;]~~
- (iii) 2 if the prior [violation(s)] significant action(s) is [an unrelated Class Two, two unrelated Class Threes or an identical Class Three] one Class One or equivalent; ~~[or-the prior-[violations] significant-actions described in [subsection] subparagraph-(iv)-are-greater-than-three-years old;]~~
- (iv) 3 if the prior significant actions [violation(s)] is an unrelated Class One, three unrelated Class Threes or two identical Class Threes] are two Class Ones or equivalents; ~~[-or-the prior-[violations] significant-actions described-in-[subsection]-subparagraph-(v)-are greater-than-three-years-old;]~~
- (v) 4 if the prior [violations] significant actions are [two unrelated Class Twos, four unrelated Class Threes, an identical Class Two or three identical Class Threes] three Class Ones or equivalents; ~~[-or-the prior [violations]-significant-actions-described-in [subsection]-subsection-(vi)-are-greater-than three-years-old;]~~
- (vi) 5 if the prior [violations] significant actions are [five unrelated Class Threes or four identical Class Threes] four Class Ones or equivalents; ~~[-or-the prior-[violations] significant-actions-described-in [subsection]-subparagraph-(vii)-are-greater than-three-years-old;]~~
- (vii) 6 if the prior [violations] significant actions are [two or more unrelated Class Ones, three or more unrelated Class Twos, six or more unrelated Class Threes, an identical Class One, two identical Class Twos or five

identical Class Threes] five Class Ones or equivalents; [,-or-the-prior-[violations] significant-actions-described-in-[subsection] subparagraph-(viii)-are-greater-than-three years-old;]

(viii) 7 if the prior [violations] significant actions are six Class Ones [of] or equivalents; [,-or-the-prior-[violations] significant-actions described-in-[subsection] subparagraph-(ix)-are-greater-than-three years-old;]

(ix) [(viii)] 8 if the prior [violations] significant actions are [two or more identical Class Ones, three or more identical Class Twos, or six or more identical Class Threes.] seven Class Ones or equivalents; [,-of-the-prior-[violations] significant-actions described-in-[subsection]-subparagraph-(x)-are greater-than-three-years-old;]

(x) 9 if the prior [violations] significant actions are eight Class Ones or equivalents; [,-or-the

prior-[violations]-significant-actions described-in-[subsection]-subparagraph-(xi) are-greater-than-three-years-old;]

(xi) 10 if the prior [violations] significant actions are nine Class Ones [of] or equivalents.

(xii) In determining the appropriate value for prior significant actions as listed above, the Department shall reduce the appropriate factor by:

(I) A value of two (2) if all the prior significant actions are greater than three years old but less than five years old;

(II) A value of four (4) if all the prior significant actions are greater than five years old;

(III) In making the above reductions, no finding shall be less than 0.

(xiii) Any prior significant action which is greater than ten years old shall not be included in the above determination.

The following represents the amended, renumbered rule language which replaces Oregon Administrative Rule (OAR) 340-41-029, effective October 27, 1989.

OREGON ADMINISTRATIVE RULES

DEPARTMENT OF ENVIRONMENTAL QUALITY

CHAPTER 340

DIVISION 40

GROUNDWATER QUALITY PROTECTION

PREFACE

340-40-001

The Rules within this Division establish the mandatory minimum groundwater quality protection requirements for federal and state agencies, cities, counties, industries, and citizens. Other federal, state, and local programs may contain additional or more stringent groundwater quality protection requirements. Unless specifically exempted by statute, groundwater quality protection requirements must meet or be equivalent to these rules. Removal and remedial actions subject to Oregon Revised Statutes (ORS) 466.540 to 466.590, 466.705 to 466.835 and 466.895 shall not be subject to the requirements of these Rules.

DEFINITIONS

340-40-010

Terms not defined in this section have the meanings set forth in OAR 340-41-006 unless otherwise noted. Unless otherwise required by context, as used in this Division:

- (1) "Background Water Quality" means the quality of water immediately upgradient from a current or potential source of pollution that is unaffected by the source.
- (2) "Compliance Point(s)" means the point or points where groundwater quality parameters must be at or below the permit-specific concentration limits or the concentration limit variance.
- (3) "Concentration Limit" means the maximum acceptable concentration of a contaminant allowed in groundwater at a Department specified compliance point.

- (4) "Concentration Limit Variance" means a groundwater quality concentration limit which is granted by the Director or the EQC on a case-by-case basis as an alternative to a permit-specific concentration limit established under Section (3) of OAR 340-40-030.
- (5) "Contaminant" has the meaning set forth for "pollutant" as defined in OAR 340-45-010(13), and means dredged spoil, solid waste, incinerator residue, sewage, garbage, sewerage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged to water, and includes any pollutant or other characteristic element which may result in pollution of the waters of the State.
- (6) "Downgradient Detection Monitoring Point(s)" means the point or points at which groundwater quality is monitored to immediately determine whether a pollutant has been discharged to groundwater. The detection monitoring point is not necessarily the same as the compliance point.
- (7) "Existing Facility" means any facility or activity operating under a Department approved permit on or before the effective date of OAR 340-40-030. Such facilities or activities shall include those facilities specifically exempted by statute from the permitting process.
- (8) "Guidance Level" means the contaminant concentration level used to evaluate the significance of a particular contaminant in groundwater. A guidance level generally indicates when the quality of groundwater may not be suitable for use as drinking water due to its aesthetic characteristics.
- (9) "Natural Water Quality" means the water quality that would exist as a result of conditions unaffected by human-caused pollution.
- (10) "New Facility" means a facility or activity authorized to operate under a Department approved permit for the first time after the effective date of OAR 340-40-030. A new facility or activity includes changes in facility operation, disposal technique, or other alterations which justify new conditions to and necessitate major modifications of an existing permit.
- (11) "Non-permitted Activity" means an activity which is not regulated through a Department-approved permit which could result in or has resulted in groundwater pollution. Unless specifically exempted by statute, such activities shall include but not be limited to spills, releases and past practices which either are not subject to a permit or are subject to a permit but were not permitted at the time of the release.

- (12) "Nonpoint Sources" refers to diffuse or unconfined sources of pollution where contaminants can either enter into -- or be conveyed by the movement of water to -- public waters.
- (13) "Permitted Operation" means any facility or activity which emits, discharges, or disposes of wastes or otherwise operates in accordance with specified limitations set forth in a written permit issued by the Department.
- (14) "Point Source" means any confined or discrete source of pollution where contaminants can either enter into -- or be conveyed by the movement of water to -- public waters.
- (15) "Pollution" has the meaning set forth for "pollution" as defined in the Water Pollution Control Statute ORS 468.700 (3) and 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.
- (16) "Reference Level" means the contaminant concentration level used to evaluate the significance of a particular contaminant in groundwater. A reference level generally indicates when groundwater may not be suitable for human consumption.
- (17) "Uppermost Aquifer" means the geologic formation, group of formations, or part of a formation that contains the uppermost potentiometric surface capable of yielding water to wells or springs, and may include fill material that is saturated.
- (18) "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 water of the state.
- (19) "Waste Management Area" means any area where waste, or material that could become waste if released to the environment, is located or has been located.

GENERAL POLICIES

340-40-020

- (1) Groundwater is a critical natural resource providing domestic, industrial, and agricultural water supply; and other legitimate

beneficial uses; and also providing base flow for rivers, lakes, streams, and wetlands.

- (2) Groundwater, once polluted, is difficult and sometimes impossible to clean up. Therefore, the EQC shall employ an anti-degradation policy to emphasize the prevention of groundwater pollution, and to control waste discharges to groundwater so that the highest possible water quality is maintained.
- (3) All groundwaters of the state shall be protected from pollution that could impair existing or potential beneficial uses for which the natural water quality of the groundwater is adequate. Among the recognized beneficial uses of groundwater, domestic water supply is recognized as being the use that would usually require the highest level of water quality. Existing high quality groundwaters which exceed those levels necessary to support recognized and legitimate beneficial uses shall be maintained except as provided for in these Rules.
- (4) Numerical groundwater quality reference levels and guidance levels are listed in Tables 1 through 3 of this Division. These levels have been obtained from the Safe Drinking Water Act, and indicate when groundwater may not be suitable for human consumption or when the aesthetic quality of groundwater may be impaired. They will be used by the Department and the public to evaluate the significance of a particular contaminant concentration, and will trigger necessary regulatory action. These levels should not be construed as acceptable groundwater quality goals because it is the policy of the EQC (OAR 340-41-026(1)(a)) to maintain and preserve the highest possible water quality.
- (5) For pollutant parameters for which numerical groundwater quality reference levels or guidance levels have not been established, or for evaluating adverse impacts on beneficial uses other than human consumption, the Department shall make use of the most current and scientifically valid information available in determining at what levels pollutants may affect present or potential beneficial uses. Such information shall include, but not be limited to, values set forth in OAR Chapter 340, Division 41, Table 20.
- (6) The Department shall develop, implement and conduct a comprehensive groundwater quality protection program. The program shall contain strategies and methods for problem prevention, problem abatement and the control of both point and nonpoint sources of groundwater pollution. The Department shall seek the assistance of federal, state, and local governments in implementing the program.
- (7) In order to assure maximum reasonable protection of public health, the public shall be informed that groundwater, and most particularly local flow systems or water table aquifers, may not be suitable for human consumption due either to natural or human-caused pollution problems, and shall not be assumed to be safe for

domestic use unless quality testing demonstrates a safe supply. The Department shall work cooperatively with the Water Resources Department and the Health Division in identifying areas where groundwater pollution may affect beneficial uses.

- (8) It is the policy of the EQC that groundwater quality be protected throughout the state. The Department will concentrate its groundwater quality protection implementation efforts in areas where practices and activities have the greatest potential for degrading groundwater quality, and where potential groundwater quality pollution would have the greatest adverse impact on beneficial uses.
- (9) The Department, as lead agency for groundwater quality protection, shall work cooperatively with the Water Resources Department, the lead agency for groundwater quantity management, to characterize the physical and chemical characteristics of the aquifers of the state. The Department will seek the assistance and cooperation of the Water Resources Department to design an ambient monitoring program adequate to determine representative groundwater quality for significant groundwater flow systems. The Department shall assist and cooperate with the Water Resources Department in its groundwater studies. The Department shall also seek the advice, assistance, and cooperation of local, state, and federal agencies to identify and resolve groundwater quality problems.
- (10) It is the intent of the EQC to see that groundwater problems associated with areawide on-site sewage disposal are corrected by developing and implementing areawide abatement plans. In order to accomplish this, all available and appropriate statutory and administrative authorities will be utilized, including but not limited to: permits, special permit conditions, penalties, fines, EQC orders, compliance schedules, moratoriums, Department orders, and geographic area rules (OAR 340-71-400). It is recognized, however, that in some cases the identification, evaluation and implementation of abatement measures may take time and that continued degradation may occur while the plan is being developed and implemented. The EQC may allow short-term continued degradation only if the beneficial uses, public health, and groundwater resources are not significantly affected, and only if the approved abatement plan is being implemented on a schedule approved by the Department.
- (11) In order to minimize groundwater quality degradation potentially resulting from point source activities, point sources shall employ the highest and best practicable methods to prevent the movement of pollutants to groundwater. Among other factors, available technologies for treatment and waste reduction, cost effectiveness, site characteristics, pollutant toxicity and persistence, and state and federal regulations shall be considered in arriving at a case-by-case determination of highest and best practicable methods that protect public health and the environment.

- (12) In regulating point source activities that could result in the disposal of wastes onto or into the ground in a manner which allows potential movement of pollutants to groundwater, the Department shall utilize all available and appropriate statutory and administrative authorities, including but not limited to: permits, fines, EQC orders, compliance schedules, moratoriums, Department orders, and geographic area rules. Groundwater quality protection requirements shall be implemented through the Department's Water Pollution Control program, Solid Waste Disposal program, On-Site Sewage Disposal System Construction program, Hazardous Waste Facility (RCRA) program, Underground Injection Control program, Emergency Spill Response program, or other programs, whichever is appropriate.

PERMITTED OPERATIONS

340-40-030

- (1) Permits required by point sources shall specify appropriate groundwater quality protection requirements. Water Pollution Control Facility (WPCF) permits may be used in cases other than for those covered by Solid Waste Disposal Facility permits, NPDES permits, On-Site Sewage Disposal permits, or Hazardous Waste Facility permits.
- (2) The Department shall review and evaluate appropriate technical information and reports submitted by permitted sources to determine the potential for adverse impacts to groundwater quality. Where the above technical information and reports indicate that there is a likely adverse groundwater quality impact, the Department shall require through the permits and rules referred to in OAR 340-40-020 (12), and other appropriate statutory and administrative authorities, the following groundwater quality protection program:
- (a) **Groundwater Monitoring Requirements.** The permittee or permit applicant shall submit to the Department for approval a groundwater monitoring plan for the uppermost aquifer and any other potentially affected aquifers. The groundwater monitoring plan shall be capable of determining rate and direction of groundwater movement, and monitoring the groundwater quality immediately upgradient and downgradient from the waste management area. The plan shall include, but not be limited to, detailed information on the following:
- (A) System Design:
- (i) Well Locations.
 - (ii) Well Construction.
 - (iii) Background Monitoring Point(s).
 - (iv) Detection Monitoring Point(s).
 - (v) Water Quality Compliance Point(s).

(B) **Sample Collection and Analysis:**

- (i) Parameters to be Sampled.
- (ii) Sampling Frequency and Duration.
- (iii) Sample Collection Methods.
- (iv) Sample Handling and Chain of Custody
- (v) Analytical Methods.
- (vi) Acceptable Minimum Reporting Levels.
- (vii) Quality Assurance and Quality Control Plan.

(C) **Data Analysis Procedure:**

- (i) Statistical Analysis Method.
- (ii) Frequency of Analysis.

- (b) **Reporting Requirements.** The facility permit shall specify monitoring and assessment reporting requirements.
- (c) **Background Monitoring Point(s) Requirements.** The permittee shall monitor the background water quality of the uppermost aquifer. The background monitoring point(s) shall be located where water quality is unaffected by facility operation.
- (d) **Downgradient Detection Monitoring Point(s) Requirements.** The permittee shall monitor the aquifer directly downgradient from the waste management area to ensure immediate detection of waste released to groundwater. This shall be known as the downgradient detection monitoring point(s).
- (e) **Compliance Point(s) Requirements.** The Department shall specify the location at which groundwater quality parameters must be at or below the permit-specific concentration limits. Unless otherwise specified by the Department, that location will be defined by a vertical plane located along the waste management area boundary. Any monitoring point on that plane is a compliance point. The compliance point(s) may not necessarily be the same as the downgradient detection monitoring point(s).

- (3) **Concentration Limits.** The facility permit shall specify the maximum contaminant concentration allowed at the compliance point(s). Unless otherwise established according the variance procedure contained in Section (4) of this Rule, the Department shall set permit-specific concentration limits at new and existing facilities as established below.

- (a) **Concentration Limit at Existing Facilities:** The concentration limit at existing facilities shall be established by the Department on a case-by-case basis. The concentration limit at these facilities may be established at any level between background water quality levels and the numerical groundwater quality reference levels or guidance levels as listed in Tables 1 through 3 of this Division

unless the background water quality is above those numerical levels. If the background water quality exceeds those numerical levels, then the concentration limit shall be established at the background level. When a contaminant of concern has no numerical level listed in Tables 1 through 3 of this Division, the permit-specific concentration limit shall not exceed background water quality levels.

- (b) **Concentration Limit at New Facilities:** The permit-specific concentration limits at new facilities shall be established at the background water quality levels for all contaminants.

(4) **Concentration Limit Variance.**

- (a) Upon request by the permittee, Department, or permit applicant, and after opportunity for public review and comment, a concentration limit variance may be granted as an alternative to the permit-specific concentration limits specified in Section (3) of this Rule provided an existing, permit-specific concentration limit has not been exceeded at a compliance point.
- (b) The Director may grant such concentration limit variances for concentrations up to but not exceeding numerical groundwater quality reference levels contained in Tables 1 and 2 of this Division; concentrations up to and above numerical groundwater quality guidance levels contained in Table 3 of this Division; and concentrations for contaminants for which there are no reference or guidance levels in Tables 1 through 3 of this Division. Concentration limit variances in excess of a numerical groundwater quality reference level listed in Tables 1 and 2 of this Division may only be granted by the EQC.
- (c) The EQC or Director, as specified in Subsection (4)(b) of this Section above, may grant on a case-by-case determination a concentration limit variance for a pollutant provided no substantial present or potential hazard to human health or the environment is posed at that level. The party requesting the concentration limit variance shall provide all data required for consideration of the variance, and shall identify where gaps exist in the data for the required analysis. In establishing concentration limit variances, the EQC or Director shall consider the effects on groundwater quality, interconnected surface water quality, and associated effects on beneficial uses. Among others, the following factors shall be considered:
 - (A) The physical and chemical characteristics of the pollutant and degradation products, including the potential for migration;

- (B) The hydrogeologic characteristics at the facility and the surrounding area;
- (C) The quantity of groundwater and the direction of groundwater flow.
- (D) The proximity and withdrawal rates of groundwater users.
- (E) The current and future uses of groundwater in the area.
- (F) The existing quality of the groundwater, including other sources of pollution and their cumulative impact on water quality.
- (G) The potential for health risks caused by exposure to the pollutant and its degradation products.
- (H) The potential damage to wildlife, crops, vegetation, and physical structures caused by exposure to the pollutant and its degradation products.
- (I) The persistence and permanence of potential adverse effects of the contaminant and its degradation products.
- (J) The proximity and interconnections with surface water in the area.
- (K) The potential effect on interconnected surface water.
- (L) The potential effect of the pollutant and its degradation products on ecosystems of the area.
- (M) The comparative feasibility and cost of obtaining the permit-specific concentration limit and the concentration limit variance.

(5) **Action Requirements.**

- (a) **Resampling:** If monitoring indicates a significant increase (increase or decrease for pH) in the value of a parameter monitored, the permittee shall immediately resample. If the resampling confirms the change in water quality the permittee shall: (A) report the results to the Department within 10 days of receipt of the laboratory data; and (B) prepare and submit to the Department within 30 days a plan for developing a preliminary assessment unless another time schedule is approved by the Department.
- (b) **Preliminary Assessment Plan:** The preliminary assessment plan must provide for an assessment of the source, extent, and potential migration of the pollution; a time schedule for the implementation of the preliminary assessment plan activities; and an evaluation of whether or not action will be necessary

to remain within the concentration limit at the Department approved compliance point(s).

- (c) **Preventive Action:** In order to prevent additional groundwater pollution from occurring, the Department shall require the utilization of all available and reasonable technology to decrease or prevent the release of additional contaminants when a significant change in water quality has occurred at a detection monitoring point.

(6) **Remedial Action Requirements.**

- (a) If the monitoring indicates a concentration limit for a contaminant other than those listed in Table 3 of this Division is violated at a compliance point, the Department shall require a remedial investigation and feasibility study be conducted by the permittee pursuant to the requirements contained in OAR 340-40-040, and remedial action conducted pursuant to the requirements contained in OAR 340-40-050.
- (b) If the monitoring indicates a concentration limit for a contaminant listed in Table 3 of this Division is violated at a compliance point and if the permittee demonstrates to the Director's satisfaction that beneficial uses are being protected, the permittee will not be required to conduct a remedial investigation and feasibility study in accordance with OAR 340-40-040, or to conduct remedial action pursuant to the requirements contained in OAR 340-40-050. However, if the Director determines that beneficial uses are not being protected, the Department shall require adequate remedial investigation necessary to characterize the extent of the pollution, and shall also require appropriate remedial action to protect beneficial uses.

REMEDIAL INVESTIGATION AND FEASIBILITY STUDY

340-40-040

- (1) If, based upon the preliminary assessment or other information, the Director determines there is a substantial likelihood that remedial action will be necessary to maintain or restore groundwater quality to achieve a specified concentration limit, or to protect public health, safety, or welfare or the environment, the Director shall require a remedial investigation and/or feasibility study be performed to develop information to determine the need for and selection of a remedial action.
- (2) The Department shall develop and maintain a list of all facilities currently developing remedial investigations and feasibility studies, and shall make such a list available to the public on request.

- (3) The remedial investigation shall include but is not limited to characterization of pollution, characterization of the facility, and an endangerment assessment. In presenting the required information, a clear description of the data used as well as any data gaps encountered in the analysis shall be included.
- (a) The characterization of the pollution as appropriate shall include but is not limited to information regarding:
 - (A) Extent to which the source can be adequately identified and characterized;
 - (B) Amount, form, concentration, toxicity, environmental fate and transport, and other significant characterization of present substances; and
 - (C) Extent to which the substances might be reused or recycled.
 - (b) The characterization of the facility as appropriate shall include but is not limited to information regarding:
 - (A) Contaminant substance mixtures present, media of occurrence, and interface zones between media;
 - (B) Hydrogeologic factors;
 - (C) Climatologic and meteorologic factors; and
 - (D) Type, location, and description of facilities, or activities that could have resulted in the pollution.
 - (c) The endangerment assessment as appropriate shall include but is not limited to information regarding:
 - (A) Potential routes of exposure and concentration;
 - (B) Characterization of toxic effects;
 - (C) Populations at risk;
 - (D) Potential or actual adverse impact on:
 - (i) Biological receptors,
 - (ii) Present and future uses of the groundwater,
 - (iii) Ecosystems and natural resources, and
 - (iv) Aesthetic characteristics of the environment;
 - (E) Extent to which substances have migrated or are expected to migrate and the threat such migration might pose to public health, safety and welfare or the environment; and

- (F) Potential for release of any substances or treatment residuals that might remain after remedial action.
- (4) The feasibility study shall include but is not limited to the development and evaluation of remedial action options.
- (a) The development of remedial action options as appropriate shall include but is not limited to the following range of options:
 - (A) Remedial action attaining the specified concentration limit;
 - (B) Highest and best technology attaining the lowest concentration levels technically achievable if item (A) above is not technically achievable;
 - (C) Best practicable technology attaining the lowest concentration level that meets the requirements of OAR 340-40-050 (1)(b) and (2), and does not exceed a site-specific concentration level considered protective of public health, safety, and welfare and the environment;
 - (D) Other measures to supplement or substitute for cleanup technologies, including but not limited to engineering or institutional controls (e.g., environmental hazard notice, alternative drinking water supply, caps, security measures, etc.);
 - (E) Combinations of any of the above options; and
 - (F) No action option.
 - (b) (A) Remedial action options developed under Subsection (4)(a) of this Section shall be evaluated under the requirements, criteria, preferences, and factors set forth in OAR 340-40-050 and according to any other criteria determined by the Director to be relevant to selection of a remedial action under OAR 340-40-050.
 - (B) The evaluation of remedial action options developed under Subsection (4)(a) of this Section shall include an evaluation of the extent to which the option or combination of options complies with relevant state, local, and federal law, standards, and guidance.

SELECTION OF THE REMEDIAL ACTION:

340-40-050

- (1) **Requirements:** After opportunity for public review and comment,

the Director shall select a remedial action. Such remedial action shall meet the following requirements:

- (a) Be protective of present and future public health, safety, and welfare and the environment; and
 - (b) To the maximum extent practicable:
 - (A) be cost effective;
 - (B) use permanent solutions and alternative technologies or resource recovery technologies;
 - (C) be implementable; and
 - (D) be effective.
- (2) **Remedial Action Concentration Limit:** The remedial action shall attain the concentration limit specified under OAR 340-40-030 (3) for permitted operations or OAR 340-40-060 (2) for non-permitted activities for the contaminant substances, unless the Director determines that the specified concentration limit does not satisfy the requirement set forth in Subsection (1)(b) of this Rule, in which case the Director shall select a remedial action that attains the lowest concentration level of the contaminant substances that satisfies the requirements set forth in Section (1) of this Rule.
- (3) **Other Measures to Supplement Cleanup:** The Director may require other measures (e.g. institutional controls, environmental hazard notice, alternate drinking water supply, caps, security measures, etc.) to supplement cleanup of contaminant substances to the remedial action concentration limit in accordance with Section (2) of this Rule, where such supplementary measures are necessary to satisfy the requirements set forth in Section (1) of this Rule.
- (4) **Other Measures to Substitute for Cleanup:** The Director may require other measures to substitute for cleanup of contaminant substances to the remedial action concentration limit under Section (2) of this Rule, provided that:
- (a) The Director finds that there is no remedial action under Section (2) of this Rule, combined with supplementary measures under Section (3) of this Rule, that satisfies the requirements of Section (1) of this Rule;
 - (b) Any such substitute measures, as appropriate, include provision for long-term care and management, including monitoring and operation and maintenance, and periodic review to determine whether a remedial action satisfying the requirements of Section (1) of this Rule has become available;

(5) **Protection:**

- (a) In determining whether a remedial action assures protection of the present and future public health, safety, and welfare and the environment under Subsection (1)(a) of this Rule, only the concentration limit specified under OAR 340-40-030 (3) for permitted operations or OAR 340-40-060 (2) for non-permitted activities shall be presumed to be protective. This presumption may be rebutted by information showing that a higher concentration level is also protective.
 - (b) In determining whether a concentration level higher than the specified concentration limit is protective, the Director shall consider:
 - (A) The characterization of contaminant substances and the facility, and the endangerment assessment;
 - (B) Other relevant cleanup or health standards, criteria, or guidance;
 - (C) Relevant and reasonably available scientific information; and
 - (D) Any other information relevant to the protectiveness of a remedial action.
 - (c) When comparing between potential concentration levels, a concentration level lower than another shall generally be considered to be more protective and preferable. This presumption may be rebutted by information showing that a higher concentration level is also protective.
 - (d) Any person responsible for undertaking the remedial action who proposes that the remedial action attain a concentration level higher than the specified concentration limit on the basis of protection shall have the burden of demonstrating to the Director that such concentration level is protective.
- (6) **Cost-effectiveness:** In determining whether a remedial action is cost-effective under Subsection (1)(b) of this Rule, the Director may consider:
- (a) Costs of the remedial action relative to the costs of another remedial action option, if any, that achieves the same concentration level;
 - (b) Extent to which the remedial action's incremental costs are proportionate to its incremental results;
 - (c) Extent to which the remedial action's total costs are proportionate to its total results; and

- (d) Any other criterion relevant to cost-effectiveness of the remedial action.
- (e) Costs that may be considered include but are not limited to:
 - (A) Capital costs;
 - (B) Operation and maintenance costs;
 - (C) Costs of periodic reviews, where required;
 - (D) Net present value of capital and operation and maintenance costs; and
 - (E) Potential future remedial action costs.
- (7) **Permanent Solutions and Alternative or Resource Recovery Technologies:** In determining whether a remedial action uses a permanent solution and alternative or resource recovery technologies under Subsection (1)(b) of this Rule:
 - (a) Remedial action options that use permanent solutions shall be preferred over other remedies;
 - (b) Remedial action options in which resource recovery or alternative technology is a principal element shall be preferred over remedial action options not involving such technology;
 - (c) Subject to Subsection (7)(e) of this Section, the offsite transport and secure disposition of contaminated materials without treatment may be preferred where practicable alternative treatment technologies are not available;
 - (d) Subject to Subsections (7)(e) and (f) of this Section, and notwithstanding the availability of practicable alternative treatment technologies as provided in Subsection (7)(c) above, offsite transport and secure disposition of contaminated materials may be preferred when the disposal method would significantly expedite the cleanup or would achieve a total cleanup, especially at sites with contaminant materials of small quantity or low toxicity.
 - (e) The transport and secure disposition offsite of a hazardous waste under ORS 466.005 in a treatment, storage, or disposal facility shall meet the requirements of Section 3004(c) to (g), (m), (o), (p), (u) and (v) and 3005(c) of the federal Solid Waste Disposal Act, as amended, P.L. 96-482 and P.L. 98-616.
 - (f) The transport and secure disposition of contaminated materials, other than hazardous wastes, at an offsite facility may be allowed provided that the transport and

secure disposition of such contaminated materials, in the Director's determination, is adequate to protect the public health, safety, and welfare and the environment.

- (8) **Implementability:** In determining whether a remedial action is implementable under Subsection (1)(b) of this Rule, the Director may consider:
- (a) Degree of difficulty associated with implementing the technology;
 - (b) Expected operational reliability of the technology;
 - (c) Need to coordinate with and obtain necessary approvals or permits from other agencies;
 - (d) Availability of necessary equipment and specialists;
 - (e) Available capacity and location of needed treatment, storage, and disposal services; and
 - (f) Any other criterion relevant to implementability of the remedial action.
- (9) **Effectiveness of the Remedial Action:** In determining whether a remedial action is effective under Subsection (1)(b) of this Rule, the Director shall consider the following unless immediate action is needed to protect public health, safety and welfare and the environment:
- (a) Expected reduction in toxicity, mobility, and volume of the contaminant substances;
 - (b) Short-term risks that might be posed to community, workers, and the environment during implementation, including potential threats to human health and the environment associated with excavation, transport, and redispersion or containment;
 - (c) Length of time until full protection is achieved;
 - (d) Magnitude of residual risks in terms of amounts and concentrations of contaminant substances remaining following implementation of a remedial action, including consideration of the persistence, toxicity, mobility, and propensity to bioaccumulate of such contaminant substances and their constituents;
 - (e) Type and degree of long-term management required, including monitoring, operation and maintenance;
 - (f) Long-term potential for exposure of human and environmental receptors to remaining contaminants;

- (g) Long-term reliability of engineering and institutional controls, including long-term uncertainties associated with land disposal, treated or untreated waste, and residuals;
 - (h) Potential for failure of the remedial action or potential need for replacement of the remedy; and
 - (i) Any other criterion relevant to effectiveness of the remedial action.
- (10) Any person responsible for undertaking the remedial action who proposes one remedial action option over another on the basis of one or more of the elements of Subsection (1)(b) of this Rule shall have the burden of demonstrating to the Director that such remedial action option fulfills the requirements of Subsections (1)(a) and (b) of this Rule.

NON-PERMITTED ACTIVITIES

340-40-060

Non-permitted activities shall include, but not be limited to, spills, releases and past practices from activities that are not subject to a permit and activities that are subject to a permit but were not permitted at the time of the release.

- (1) Except as provided otherwise under statutory or administrative authorities, when a non-permitted activity could result in or has resulted in the pollution of groundwater the Department may require the liable person to:
 - (a) Conduct a remedial investigation and feasibility study pursuant to OAR 340-40-040.
 - (b) Implement remedial action pursuant to OAR 340-40-050
- (2) In conducting the remedial investigation and feasibility study, and selecting the remedial action under the requirements contained in OAR 340-40-040 and OAR 340-40-050, the concentration limits will be established at background water quality levels.
- (3) Clean-up levels for non-permitted activities will be established by the procedures contained in OAR 340-40-040 and OAR 340-40-050 which include evaluations of practicability as contained in OAR 340-40-050 (1)(b).

ON-SITE SEWAGE DISPOSAL: AREA WIDE MANAGEMENT

340-40-070

- (1) In areas where groundwater is being degraded as a result of on-site sewage disposal practices and an area wide solution is necessary, the Department may propose a rule for adoption by the EQC and incorporation into the appropriate basin section of the State Water Quality Management Plan (OAR 340 Division 41) which will:
 - (a) Recite the findings describing the problem and the aquifer impacted;
 - (b) Define the area where corrective action is required;
 - (c) Describe the problem correction and preventative measures to be ordered;
 - (d) Establish the schedule for required major increments of progress;
 - (e) Identify conditions under which new, modified, or repaired on-site sewage disposal systems may be installed in the interim while the area correction program is being implemented and is on schedule;
 - (f) Identify the conditions under which enforcement measures will be pursued if adequate progress to implement the corrective actions is not made. These measures may include but are not limited to measures authorized in ORS 454.235(2), 454.685, 454.645, and 454.317;
 - (g) Identify all known affected local governing bodies which the Department will notify by certified mail of the final rule adoption; and
 - (h) Accomplish any other objectives declared to be necessary by the EQC.
- (2) The Department shall notify all known impacted or potentially affected local units of government of the opportunity to comment on the proposed rule at a scheduled public hearing and of their right to request a contested case hearing pursuant to ORS Chapter 183 prior to the EQC's final order adopting the rule.

NUMERICAL GROUNDWATER QUALITY REFERENCE LEVELS AND GUIDANCE LEVELS

340-40-080

- (1) The numerical groundwater quality reference levels and guidance levels contained in Tables 1 through 3 of this Division are to be

considered by the Department and the public in weighing the significance of a particular chemical concentration, and in determining the level of remedial action necessary to restore contaminated groundwater for human consumption. They are not to be construed as acceptable groundwater quality management goals. They are to be used by the Director and the EQC in establishing permit-specific and remedial action concentration limits according to the requirements of OAR 340-40-030 through OAR 340-40-060.

- (2) The Department shall periodically review information as it becomes available for establishing new numerical groundwater quality reference levels and guidance levels, and to ensure consistency with other statutorily mandated standards.
- (3) Human consumption is recognized as the highest and best use of groundwater, and the use which usually requires the highest level of water quality. The numerical groundwater quality reference levels listed in Tables 1 and 2 of this Division reflect the suitability of groundwater for human consumption.
- (4) The numerical groundwater quality guidance levels listed in Table 3 of this Division are for contaminants which do not adversely impact human health at the given concentrations. At considerably higher concentrations, human health implications may exist. These guidance levels are for contaminants that primarily affect the aesthetic qualities relating to the public acceptance of drinking water. The aesthetic degradation of groundwater may impair its beneficial use.
- (5) For pollutant parameters for which numerical groundwater quality reference levels or guidance levels have not been established and listed in Tables 1 through 3, or for evaluating adverse impacts on beneficial uses other than human consumption, the Department shall make use of the most current and scientifically valid information available in determining at what levels pollutants may affect present or potential beneficial uses. Such information shall include, but not be limited to, values set forth in OAR Chapter 340, Division 41, Table 20.

TABLE 1

Numerical Groundwater Quality Reference Levels:¹

<u>Inorganic Contaminants</u>	<u>Reference Level (mg/L)</u>
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Fluoride	4.0
Lead	0.05
Mercury	0.002
Nitrate-N	10.0
Selenium	0.01
Silver	0.05

¹All reference levels are for total (unfiltered) concentrations unless otherwise specified by the Department.

TABLE 2

Numerical Groundwater Quality Reference Levels (Continued):¹

<u>Organic Contaminants</u>	<u>Reference Level (mg/L)</u>
Benzene	0.005
Carbon Tetrachloride	0.005
p-Dichlorobenzene	0.075
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.200
Trichloroethylene	0.005
Total Trihalomethanes	0.100
(the sum of concentrations bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform))	
Vinyl Chloride	0.002
2,4-D	0.100
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.100
Toxaphene	0.005
2,4,5-TP Silvex	0.010

¹ All reference levels are for total (unfiltered) concentrations unless otherwise specified by the Department.

TABLE 3

Numerical Groundwater Quality Guidance Levels:¹

<u>Miscellaneous Contaminants</u>	<u>Guidance Level (mg/L)²</u>
Chloride	250
Color	15 Color Units
Copper	1.0
Foaming agents	0.5
Iron	0.3
Manganese	0.05
Odor	3 Threshold odor number
pH	6.5-8.5
Sulfate	250
Total dissolved solids	500
Zinc	5.0

¹All guidance levels except total dissolved solids and are for total (unfiltered) concentrations unless otherwise specified by the Department.

²Unless otherwise specified, except pH.

(To Resolve Conflicts)

**B-Engrossed
House Bill 3515**

Ordered by the Senate July 2
Including House Amendments dated June 30
and Senate Amendments dated July 2
to resolve conflicts

Sponsored by JOINT COMMITTEE ON WAYS AND MEANS

SUMMARY

The following summary is not prepared by the sponsors of the measure and is not a part of the body thereof subject to consideration by the Legislative Assembly. It is an editor's brief statement of the essential features of the measure.

Establishes programs for protection of environment from contamination from toxic substances, hazardous materials and waste, other contaminants and solid waste disposal sites. Establishes funding mechanisms for cleanup and response to contamination and to protect ground water quality. Appropriates moneys. Limits expenditures.

A BILL FOR AN ACT

1. Relating to environment; creating new provisions; amending ORS 275.275, 284.310, 366.155, 448.123,
2 448.150, 459.005, 459.235, 466.010, 466.020, 466.055, 466.060, 466.590, 466.620, 466.670, 466.675,
3 466.785, 466.795, 468.065, 468.220, 468.230, 536.120, 536.220, 536.340, 536.410, 537.525, 537.545,
4 537.665, 537.775, 537.780, 540.610, 561.020, 568.225, 633.440, 633.460 and 634.016; repealing ORS
5 466.653, 466.660 and 466.665; limiting expenditures; appropriating money; and declaring an
6 emergency.
7

8 **Be It Enacted by the People of the State of Oregon:**

9 **SECTION 1.** Sections 2 to 16 of this Act shall be known as the Toxics Use Reduction and
10 Hazardous Waste Reduction Act.

11 **SECTION 2.** As used in sections 2 to 16 of this Act:

12 (1) "Commission" means the Environmental Quality Commission.

13 (2) "Conditionally exempt generator" means a generator who generates less than 2.2 pounds of
14 acute hazardous waste as defined by 40 C.F.R. 261, or who generates less than 220 pounds of haz-
15 ardous waste in one calendar month.

16 (3) "Department" means the Department of Environmental Quality.

17 (4) "Director" means the Director of the Department of Environmental Quality.

18 (5) "Facility" means all buildings, equipment, structures and other stationary items located on
19 a single site or on contiguous or adjacent sites and owned or operated by the same person or by
20 any person who controls, is controlled by or under common control with any person.

21 (6) "Fully regulated generator" means a generator who generates 2.2 pounds or more of acute
22 hazardous waste as defined by 40 C.F.R. 261, or 2,200 pounds or more of hazardous waste in one
23 calendar month.

24 (7) "Generator" means a person who, by virtue of ownership, management or control, is re-
25 sponsible for causing or allowing to be caused the creation of hazardous waste.

NOTE: Matter in bold face in an amended section is new; matter (*italic and bracketed*) is existing law to be omitted.

1 (8) "Hazardous waste" has the meaning given that term in ORS 466.005.

2 (9) "Large user" means a facility required to report under section 313 of Title III of the Super-
3 fund Amendments and Reauthorization Act of 1986 (P.L. 99-499).

4 (10) "Person" means individual, the United States, the state or a public or private corporation,
5 local government unit, public agency, partnership, association, firm, trust, estate or any other legal
6 entity.

7 (11) "Small-quantity generator" means a generator who generates between 220 and 2,200 pounds
8 of hazardous waste in one calendar month.

9 (12) "Toxic substance" or "toxics" means any substance in a gaseous, liquid or solid state listed
10 pursuant to Title III, Section 313 of the Superfund Amendments and Reauthorization Act of 1986,
11 or any substance added by the commission under section 4 of this Act. "Toxic substance" does not
12 include a substance used as a pesticide or herbicide in routine commercial agricultural applications.

13 (13)(a) "Toxics use reduction" means in-plant changes in production or other processes or oper-
14 ations, products or raw materials that reduce, avoid or eliminate the use or production of toxic
15 substances without creating substantial new risks to public health, safety and the environment,
16 through the application of any of the following techniques:

17 (A) Input substitution, which refers to replacing a toxic substance or raw material used in a
18 production or other process or operation with a nontoxic or less toxic substance;

19 (B) Product reformulation, which refers to substituting for an existing end product, an end
20 product which is nontoxic or less toxic upon use, release or disposal;

21 (C) Production or other process or operation redesign or modifications;

22 (D) Production or other process or operation modernization, which refers to upgrading or re-
23 placing existing equipment and methods with other equipment and methods;

24 (E) Improved operation and maintenance controls of production or other process or operation
25 equipment and methods, which refers to modifying or adding to existing equipment or methods in-
26 cluding, but not limited to, techniques such as improved housekeeping practices, system adjustments,
27 product and process inspections or production or other process or operation control equipment or
28 methods; or

29 (F) Recycling, reuse or extended use of toxics by using equipment or methods that become an
30 integral part of the production or other process or operation of concern, including but not limited
31 to filtration and other methods.

32 (b) "Toxics use reduction" includes proportionate changes in the usage of a particular toxic
33 substance by any of the methods set forth in paragraph (a) of this subsection as the usage of that
34 toxic substance changes as a result of production changes or other business changes.

35 (14) "Toxics use" means use or production of a toxic substance.

36 (15) "Toxics user" means a large user, a fully regulated generator or a small-quantity generator.

37 (16)(a) "Waste reduction" means any recycling or other activity applied after hazardous waste
38 is generated that is consistent with the general goal of reducing present and future threats to public
39 health, safety and the environment and that results in:

40 (A) The reduction of total volume or quantity of hazardous waste generated that would other-
41 wise be treated, stored or disposed of;

42 (B) The reduction of toxicity of hazardous waste that would otherwise be treated, stored or
43 disposed of; or

44 (C) Both the reduction of total volume or quantity and the reduction of toxicity of hazardous

1 waste.

2 (b) "Waste reduction" includes proportionate changes in the total volume, quantity or toxicity
3 of a particular hazardous waste in accordance with paragraph (a) of this subsection as the gener-
4 ation of that waste changes as a result of production changes or other business changes.

5 (c) "Waste reduction" may include either onsite or offsite treatment where such treatment can
6 be shown to confer a higher degree of protection of the public health, safety and the environment
7 than other technically and economically practicable waste reduction alternatives.

8 **SECTION 3.** (1) In the interest of protecting the public health, safety and the environment, the
9 Legislative Assembly declares that it is the policy of the State of Oregon to encourage reduction in
10 the use of toxic substances and to reduce the generation of hazardous waste whenever technically
11 and economically practicable, without shifting risks from one part of a process, environmental media
12 or product to another. Priority shall be given to methods that reduce the amount of toxics used and,
13 where that is not technically and economically practicable, methods that reduce the generation of
14 hazardous waste.

15 (2) The Legislative Assembly finds that the best means to achieve the policy set forth in sub-
16 section (1) of this section is by:

17 (a) Providing toxics users and generators with technical assistance;

18 (b) Requiring toxics users to engage in comprehensive planning and develop measurable per-
19 formance goals; and

20 (c) Monitoring the use of toxic substances and the generation of hazardous waste.

21 **SECTION 4.** The Environmental Quality Commission by rule may add or remove any toxic
22 substance or hazardous waste from the provisions of sections 2 to 16 of this Act.

23 **SECTION 5.** (1) The Department of Environmental Quality shall provide technical assistance
24 to toxics users and conditionally exempt generators. In identifying the users and generators to
25 which the department shall give priority in providing technical assistance, the department shall
26 consider at least the following:

27 (a) Amounts and toxicity of toxics used and amounts of hazardous waste disposed of, discharged
28 and released;

29 (b) Potential for current and future toxics use reduction and hazardous waste reduction; and

30 (c) The toxics related exposures and risks posed to public health, safety and the environment.

31 (2) In providing technical assistance, the department shall give priority to assisting toxics users
32 and conditionally exempt generators in developing and implementing an adequate toxics use re-
33 duction and hazardous waste reduction plan as established under section 7 of this Act. The assist-
34 ance may include but need not be limited to:

35 (a) Information clearinghouse activities;

36 (b) Telephone hotline assistance;

37 (c) Toxics use reduction and hazardous waste reduction training workshops;

38 (d) Establishing a technical publications library;

39 (e) The development of a system to evaluate the effectiveness of toxics use reduction and haz-
40 arduous waste reduction measures;

41 (f) The development of a recognition program to publicly acknowledge toxics users and condi-
42 tionally exempt generators who develop and implement successful toxics use reduction and hazard-
43 ous waste reduction plans; and

44 (g) Direct onsite assistance to toxics users and conditionally exempt generators in developing

1 the plans.

2 (3) The department shall:

3 (a) Coordinate its technical assistance efforts with industry trade associations and local colleges
4 and universities as appropriate.

5 (b) Follow up with toxics users who receive technical assistance to determine whether the user
6 or generator implemented a toxics use reduction and hazardous waste reduction plan.

7 (4) Technical assistance services provided under this section shall not result in inspections or
8 other enforcement actions unless there is reasonable cause to believe there exists a clear and im-
9 mediate danger to the public health and safety or to the environment. The commission may develop
10 rules to carry out the intent of this subsection.

11 **SECTION 6.** The department shall begin providing technical assistance under section 5 of this
12 Act on or before January 1, 1990.

13 **SECTION 7.** (1) Not later than September 1, 1990, the commission shall establish guidelines for
14 toxics use reduction and hazardous waste reduction plans. At a minimum, the guidelines shall in-
15 clude:

16 (a) A written policy articulating upper management and corporate support for the toxics use
17 reduction and hazardous waste reduction plan and a commitment to implement plan goals.

18 (b) Plan scope and objectives, including the evaluation of technologies, procedures and personnel
19 training programs to insure unnecessary toxic substances are not used and unnecessary waste is not
20 generated. In addition to the goals required in subsection (2) of this section, specific goals may be
21 set for toxics use reduction and hazardous waste reduction, based on a realistic assessment of what
22 is technically and economically practicable.

23 (c) Internal analysis of toxic substance usage and hazardous waste streams, with periodic toxics
24 use reduction and hazardous waste reduction assessments, to review individual processes or facili-
25 ties and other activities where toxic substances are used and waste may be generated and identify
26 opportunities to reduce or eliminate toxic substance usage and waste generation. Such assessments
27 shall evaluate data on the types, amount and hazardous constituents of toxic substances used and
28 waste generated, where and why those toxics were used and waste was generated within the pro-
29 duction process or other operations, and potential toxics use reduction and hazardous waste re-
30 duction and recycling techniques applicable to those toxic substances and wastes.

31 (d) Toxics use and hazardous waste accounting systems that identify toxics use and waste man-
32 agement costs and factor in liability, compliance and oversight costs to the extent technically and
33 economically practicable.

34 (e) Employee awareness and training programs, to involve employees in toxics use reduction and
35 hazardous waste reduction planning and implementation to the maximum extent feasible.

36 (f) Institutionalization of the plan to insure an ongoing effort as demonstrated by incorporation
37 of the plan into management practices and procedures.

38 (g) Implementation of technically and economically practicable toxics use reduction and haz-
39 ardous waste reduction options, including a plan for implementation. This shall include a description
40 of options considered and an explanation of why options considered were not implemented. The plan
41 shall distinguish between toxics use reduction options and waste reduction options, and the analysis
42 of options considered shall demonstrate that toxics use reduction options were given priority wher-
43 ever technically and economically practicable.

44 (2) As part of each plan developed under section 8 of this Act, a toxics user shall establish

1 specific performance goals for the reduction of toxics and waste in the following categories:

2 (a) Any toxic substance used in quantities in excess of 10,000 pounds a year;

3 (b) Any toxic substance used in quantities in excess of 1,000 pounds a year that constitutes 10
4 percent or more of the total toxic substances used; and

5 (c) For fully regulated generators, any waste representing 10 percent or more by weight of the
6 cumulative waste stream generated per year.

7 (3) Wherever technically and economically practicable, the specific performance goals estab-
8 lished under subsection (2) of this section shall be expressed in numeric terms. If the establishment
9 of numeric performance goals is not practicable, the performance goals shall include a clearly stated
10 list of objectives designed to lead to the establishment of numeric goals as soon as is practicable.

11 (4) Each toxics user shall explain the rationale for each performance goal. The rationale for a
12 particular performance goal shall address any impediments to toxics use reduction and hazardous
13 waste reduction, including but not limited to the following:

14 (a) The availability of technically practicable toxics use reduction and hazardous waste re-
15 duction methods, including any anticipated changes in the future.

16 (b) The economic practicability of available toxics use reduction and hazardous waste reduction
17 methods, including any anticipated changes in the future. Examples of situations where toxics use
18 reduction or hazardous waste reduction may not be economically practicable include but are not
19 limited to:

20 (A) For valid reasons of prioritization, a particular company has chosen to first address other
21 more serious toxics use reduction or hazardous waste reduction concerns;

22 (B) Necessary steps to reduce toxics use and hazardous waste are likely to have significant ad-
23 verse impacts on product quality; or

24 (C) Legal or contractual obligations interfere with the necessary steps that would lead to toxics
25 use reduction or hazardous waste reduction.

26 (5) All toxics users shall complete annually a toxics use reduction and hazardous waste re-
27 duction progress report.

28 (6) An annual progress report shall:

29 (a) Analyze progress made, if any, in toxics use reduction and hazardous waste reduction, rela-
30 tive to each performance goal established under subsection (2) of this section; and

31 (b) Set forth amendments to the toxics use reduction and hazardous waste reduction plan and
32 explain the need for the amendments.

33 (7) The commission by rule may provide for modifications for small-quantity generators related
34 to the kind of information to be included in the plan.

35 **SECTION 8.** (1) All large users and fully regulated generators shall complete a toxics use re-
36 duction and hazardous waste reduction plan on or before September 1, 1991, and all small-quantity
37 generators shall complete a toxics use reduction and hazardous waste reduction plan on or before
38 September 1, 1992. Upon completion of a plan, the user shall notify the Department of Environ-
39 mental Quality in writing on a form supplied by the department.

40 (2) A facility required to complete a toxics use reduction and hazardous waste reduction plan
41 under subsection (1) of this section may include as a preface to its initial plan:

42 (a) An explanation and documentation regarding toxics use reduction and hazardous waste re-
43 duction efforts completed or in progress before the first reporting date; and

44 (b) An explanation and documentation regarding impediments to toxics use reduction and haz-

1 arduous waste reduction specific to the individual facility.

2 (3) The department shall consider information provided under subsection (2) of this section in
3 any review of a facility plan under section 9 of this Act.

4 (4) Except as provided in section 9 of this Act, a toxics use reduction and hazardous waste re-
5 duction plan developed under this section shall be retained at the facility and is not a public record
6 under ORS 192.410.

7 (5) For the purposes of this section and sections 5 and 9 of this Act, a toxics user shall permit
8 the director or any designated employe of the director to inspect the toxics use reduction and haz-
9 arduous waste reduction plan.

10 (6) A facility shall determine whether it is required to complete a plan under subsection (1) of
11 this section based on whether its toxics use or waste generation results in the facility meeting the
12 definition of toxics user as defined in section 2 of this Act for the calendar year ending December
13 31 of the year immediately preceding the September 1 reporting deadline.

14 **SECTION 9.** (1) The Department of Environmental Quality may review a plan or an annual
15 progress report to determine whether the plan or progress report is adequate according to the
16 guidelines established under section 7 of this Act. If a toxics user fails to complete an adequate plan
17 or annual progress report as required under sections 7 and 8 of this Act, the department may notify
18 the user of the inadequacy, identifying the specific deficiencies. The department also may specify a
19 reasonable time frame, of not less than 90 days, within which the user shall submit a modified plan
20 or progress report addressing the specified deficiencies. The department also may make technical
21 assistance available to aid the user in modifying its plan or progress report.

22 (2) If the department determines that a modified plan or progress report submitted pursuant to
23 subsection (1) of this section is inadequate, the department may, within its discretion, either require
24 further modification or issue an administrative order pursuant to subsection (3) of this section.

25 (3) If after having received a list of specified deficiencies from the department, a toxics user fails
26 to develop an adequate plan or progress report within a time frame specified pursuant to subsection
27 (1) or (2) of this section, the department may order such toxics user to submit an adequate plan or
28 progress report within a reasonable time frame of not less than 90 days. If the toxics user fails to
29 develop an adequate plan or progress report within the time frame specified, the department shall
30 conduct a public hearing on the plan or progress report. Except as provided under section 14 of this
31 Act, in any hearing under this section the relevant plan or progress report shall be considered a
32 public record as defined in ORS 192.410.

33 (4) In reviewing the adequacy of any plan or progress report, the department shall base its de-
34 termination solely on whether the plan or progress report is complete and prepared in accordance
35 with section 7 of this Act.

36 (5) The department shall maintain a log of each plan or progress report it reviews, a list of all
37 plans or progress reports that have been found inadequate under subsection (3) of this section and
38 descriptions of corrective actions taken. This information shall be available to the public at the
39 department's office.

40 **SECTION 10.** (1) From each annual progress report, the toxics user shall report to the De-
41 partment of Environmental Quality the quantities of toxics used that are within the categories set
42 forth in subsection (2) of section 7 of this Act.

43 (2) From each annual progress report, the toxics user shall report to the department the quan-
44 tities of hazardous wastes generated that are within the categories set forth in subsection (2) of

1 section 7 of this Act.

2 (3) The report shall include a narrative summary explaining the data. The narrative summary
3 may include:

4 (a) A description of goals and progress made in reducing the use of the toxic substance or gen-
5 eration of hazardous waste; and

6 (b) A description of any impediments to reducing the use of the toxic substance or generation
7 of hazardous waste.

8 (4) The Environmental Quality Commission, by rule, shall develop uniform reporting require-
9 ments for the data required under subsections (1) and (2) of this section.

10 (5) Except for the information reported to the department under this section, the annual
11 progress report shall be retained at the facility and shall not be considered a public record under
12 ORS 192.410. However, the user shall permit any officer, employe or representative of the depart-
13 ment at all reasonable times to have access to the annual progress report.

14 **SECTION 11.** Large users and fully regulated generators shall complete the first annual
15 progress report required under section 7 of this Act on or before September 1, 1992. Small-quantity
16 generators shall complete the first annual progress report required under section 7 of this Act on
17 or before September 1, 1993.

18 **SECTION 12.** Subject to available funding, the Department of Environmental Quality shall
19 contract with an established institution of higher education to assist the department in carrying out
20 the provisions of sections 2 to 16 of this Act. The assistance shall emphasize strategies to encourage
21 toxics use reduction and hazardous waste reduction and shall provide assistance to facilities under
22 sections 2 to 16 of this Act. The assistance may include but need not be limited to:

- 23 (1) Engineering internships;
24 (2) Engineering curriculum development;
25 (3) Applied toxics use reduction and hazardous waste reduction research; and
26 (4) Engineering assistance to users and generators.

27 **SECTION 13.** (1) In order to assist in establishing rules related to toxics use reduction and
28 hazardous waste reduction, the Department of Environmental Quality shall establish an advisory
29 committee. The advisory committee shall consist of representatives of the public and affected in-
30 dustries.

31 (2) The advisory committee shall act in an advisory capacity to the department in any matter
32 related to toxics use reduction and hazardous waste reduction. The advisory committee may provide
33 comments regarding data collection, plan format and content. In addition, the committee shall iden-
34 tify any additional data necessary to improve the technical assistance process, to develop plans and
35 to aid in enforcement of plans.

36 (3) The committee also may identify specific chemicals that present the greatest hazard to the
37 public health, safety and the environment in order that the department may focus technical assist-
38 ance, research and development efforts to facilitate accelerated reduction in the use of such chemi-
39 cals.

40 (4) The committee shall make recommendations to the department to increase the coordination
41 of requirements of all state and federal toxics use and hazardous waste programs, including but not
42 limited to the Clean Air Act, the Federal Water Pollution Control Act, the Toxic Substances Control
43 Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response,
44 Compensation, and Liability Act, and any amendments thereto, Title III of the Superfund Amend-

1 ments and Reauthorization Act of 1986 and amendments thereto, the Community Right to Know and
2 Protection Act.

3 (5) The committee shall make recommendations under this section on or before January 1, 1991.

4 **SECTION 14.** (1) Upon a showing satisfactory to the director by any person that a plan or an-
5 nual progress report developed under section 7 or 8 of this Act, or any portion thereof, if made
6 public, would divulge methods, processes or other information entitled to protection as trade secrets,
7 as defined under ORS 192.501, of such person, the director shall classify as confidential such plan
8 or annual progress report, or portion thereof.

9 (2) To the extent that any plan or annual progress report under subsection (1) of this section,
10 or any portion thereof, would otherwise qualify as a trade secret under ORS 192.501, no action taken
11 by the director or any authorized employe of the department in inspecting or reviewing such infor-
12 mation shall effect its status as a trade secret.

13 (3) Any information classified by the director as confidential under subsection (1) of this section,
14 shall not be made a part of any public record, used in any public hearing or disclosed to any party
15 outside of the department unless a circuit court determines that evidence is necessary to the de-
16 termination of an issue or issues being decided at the public hearing.

17 **SECTION 15.** On or before January 1, 1991, and January 1, 1993, the Environmental Quality
18 Commission shall report to the Legislative Assembly on the status of implementing sections 2 to 16
19 of this Act. This report shall include information regarding:

20 (1) The status of the technical assistance program;

21 (2) Progress toward reducing the quantities of toxic substances used and hazardous wastes
22 generated in Oregon; and

23 (3) An analysis and recommendations for changes to the program including but not limited to
24 the need for any additional enforcement provisions.

25 **SECTION 16.** Notwithstanding any other provision of sections 2 to 15 of this Act, nothing in
26 this Act shall be considered to apply to any hazardous wastes that become subject to regulation
27 solely as a result of remedial activities taken in response to environmental contamination.

28 **SECTION 17.** As used in sections 17 to 44 of this Act:

29 (1) "Area of ground water concern" means an area of the state subject to a declaration by the
30 Department of Environmental Quality under section 31 of this Act or the Health Division under
31 section 32 of this Act.

32 (2) "Contaminant" means any chemical, ion, radionuclide, synthetic organic compound,
33 microorganism, waste or other substance that does not occur naturally in ground water or that oc-
34 curs naturally but at a lower concentration.

35 (3) "Ground water management area" means an area in which contaminants in the ground water
36 have exceeded the levels established under section 25 of this Act, and the affected area is subject
37 to a declaration under section 36 of this Act.

38 (4) "Fertilizer" has the meaning given that term in ORS 633.310.

39 (5) "Group" means the Strategic Water Management Group.

40 (6) "Pesticide" has the meaning given that term in ORS 634.006.

41 **SECTION 18.** The Legislative Assembly declares that it is the goal of the people of the State
42 of Oregon to prevent contamination of Oregon's ground water resource while striving to conserve
43 and restore this resource and to maintain the high quality of Oregon's ground water resource for
44 present and future uses.

1 **SECTION 19.** In order to achieve the goal set forth in section 18 of this Act, the Legislative
2 Assembly establishes the following policies to control the management and use of the ground water
3 resource of this state and to guide any activity that may affect the ground water resource of
4 Oregon:

5 (1) Public education programs and research and demonstration projects shall be established in
6 order to increase the awareness of the citizens of this state of the vulnerability of ground water to
7 contamination and ways to protect this important resource.

8 (2) All state agencies' rules and programs affecting ground water shall be consistent with the
9 overall intent of the goal set forth in section 2 of this Act.

10 (3) State-wide programs to identify and characterize ground water quality shall be conducted.

11 (4) Programs to prevent ground water quality degradation through the use of the best practica-
12 ble management practices shall be established.

13 (5) Ground water contamination levels shall be used to trigger specific governmental actions
14 designed to prevent those levels from being exceeded or to restore ground water quality to at least
15 those levels.

16 (6) All ground water of the state shall be protected for both existing and future beneficial uses
17 so that the state may continue to provide for whatever beneficial uses the natural water quality
18 allows.

19 **SECTION 20.** (1) The Strategic Water Management Group shall implement the following ground
20 water resource protection strategy:

21 (a) Coordinate projects approved by the group with activities of other agencies.

22 (b) Develop programs designed to reduce impacts on ground water from:

23 (A) Commercial and industrial activities;

24 (B) Commercial and residential use of fertilizers and pesticides;

25 (C) Residential and sewage treatment activities; and

26 (D) Any other activity that may result in contaminants entering the ground water.

27 (c) Provide educational and informational materials to promote public awareness and involve-
28 ment in the protection, conservation and restoration of Oregon's ground water resource. Public
29 information materials shall be designed to inform the general public about the nature and extent of
30 ground water contamination, alternatives to practices that contaminate ground water and the effects
31 of human activities on ground water quality. In addition, educational programs shall be designed
32 for specific segments of the population that may have specific impacts on the ground water resource.

33 (d) Coordinate the development of local ground water protection programs, including but not
34 limited to local well head protection programs.

35 (e) Award grants for the implementation of projects approved under the criteria established
36 under section 22 of this 1989 Act.

37 (f) Develop and maintain a centralized repository for information about ground water, including
38 but not limited to:

39 (A) Hydrogeologic characterizations;

40 (B) Results of local and state-wide monitoring or testing of ground water;

41 (C) Data obtained from ground water quality protection research or development projects; and

42 (D) Alternative residential, industrial and agricultural practices that are considered best prac-
43 ticable management practices for ground water quality protection.

44 (g) Identify research or information about ground water that needs to be conducted or made

1 available.

2 (h) Cooperate with appropriate federal entities to identify the needs and interests of the State
3 of Oregon so that federal plans and project schedules relating to the protection the ground water
4 resource incorporate the state's intent to the fullest extent practicable.

5 (i) Aid in the development of voluntary programs to reduce the quantity of hazardous or toxic
6 waste generated in order to reduce the risk of ground water contamination from hazardous or toxic
7 waste.

8 (2) To aid and advise the Strategic Water Management Group in the performance of its func-
9 tions, the group may establish such advisory and technical committees as the group considers nec-
10 essary. These committees may be continuing or temporary. The Strategic Water Management Group
11 shall determine the representation, membership, terms and organization of the committees and shall
12 appoint their members. The chairperson of the Strategic Water Management Group shall be an ex
13 officio member of each committee.

14 **SECTION 21.** (1) Any person, state agency, political subdivision of this state or ground water
15 management committee organized under section 35 or 40 of this 1989 Act may submit to the Stra-
16 tegic Water Management Group a request for funding, advice or assistance for a research or de-
17 velopment project related to ground water quality as it relates to Oregon's ground water resource.

18 (2) The request under subsection (1) of this section shall be filed in the manner, be in the form
19 and contain the information required by the Strategic Water Management Group. The requester may
20 submit the request either to the group or to a ground water management committee organized under
21 section 35 or 40 of this 1989 Act.

22 (3) The Strategic Water Management Group shall approve only those requests that meet the
23 criteria established by the group under section 22 of this 1989 Act.

24 **SECTION 22.** (1) Of the moneys available to the Strategic Water Management Group to award
25 as grants under section 21 of this 1989 Act, not more than one-third shall be awarded for funding
26 of projects directly related to issues pertaining to a ground water management area.

27 (2) The Strategic Water Management Group may award grants for the following purposes:

28 (a) Research in areas related to ground water including but not limited to hydrogeology, ground
29 water quality, alternative residential, industrial and agricultural practices;

30 (b) Demonstration projects related to ground water including but not limited to hydrogeology,
31 ground water quality, alternative residential, industrial and agricultural practices;

32 (c) Educational programs that help attain the goal set forth in section 18 of this 1989 Act; and

33 (d) Incentives to persons who implement innovative alternative practices that demonstrate in-
34 creased protection of the ground water resource of Oregon.

35 (3) Funding priority shall be given to proposals that show promise of preventing or reducing
36 ground water contamination caused by nonpoint source activities.

37 (4) In awarding grants for research under subsection (2) of this section, the Strategic Water
38 Management Group shall specify that not more than 10 percent of the grant may be used to pay
39 indirect costs. The exact amount of a grant that may be used by an institution for such costs may
40 be determined by the group.

41 (5) In accordance with the applicable provisions of ORS 183.310 to 183.550, the Strategic Water
42 Management Group shall adopt by rule guidelines and criteria for awarding grants under this sec-
43 tion.

44 **SECTION 23.** Sections 20, 21, 22 and 24 of this Act are added to and made a part of ORS

1 536.100 to 536.150.

2 **SECTION 24.** (1) Not later than 60 days after the effective date of this 1989 Act, the Strategic
3 Water Management Group shall appoint a nine-member technical advisory committee to develop
4 criteria and a method for the Environmental Quality Commission to apply in adopting by rule max-
5 imum measurable levels of contaminants in ground water. The technical advisory committee shall
6 recommend criteria and a method for the development of standards that are protective of public
7 health and the environment. If a federal standard exists, the method shall provide that the commis-
8 sion shall first consider the federal standard, and if the commission does not adopt the federal
9 standard, the method shall require the commission to give a scientifically valid reason for not con-
10 curring with the federal standard. As used in this subsection, "federal standard" means a maximum
11 contaminant level, a national primary drinking water regulation or an interim drinking water regu-
12 lation adopted by the Administrator of the U.S. Environmental Protection Agency pursuant to the
13 federal Safe Drinking Water Act, as amended, 42 U.S.C. 300g-1.

14 (2) The technical advisory committee appointed under subsection (1) of this section shall be
15 comprised of:

- 16 (a) A toxicologist;
- 17 (b) A health professional;
- 18 (c) A water purveyor;
- 19 (d) A biologist; and
- 20 (e) Technically capable members of the public representing the following groups:
 - 21 (A) Citizens;
 - 22 (B) Local governments;
 - 23 (C) Environmental organizations;
 - 24 (D) Industrial organizations; and
 - 25 (E) Agricultural organizations.

26 (3) The technical advisory committee may appoint individuals or committees to assist in devel-
27 opment of the criteria and maximum measurable levels of contaminants in ground water. An indi-
28 vidual or committee appointed by the committee under this subsection shall serve in an advisory
29 capacity only.

30 (4) The technical advisory committee shall complete its initial development of criteria and
31 methods within one year after the effective date of this 1989 Act.

32 **SECTION 25.** (1) Within 90 days after receiving the recommendations of the technical advisory
33 committee under section 24 of this Act, the Environmental Quality Commission shall begin
34 rulemaking to first adopt final rules establishing maximum measurable levels for contaminants in
35 ground water. The commission shall adopt the final rules not later than 180 days after the commis-
36 sion provides notice under ORS 183.335.

37 (2) The adoption or failure to adopt a rule establishing a maximum measurable level for a con-
38 taminant under subsection (1) of this section shall not alone be construed to require the imposition
39 of restrictions on the use of fertilizers under ORS 633.310 to 633.495 or the use of pesticides under
40 ORS chapter 634.

41 **SECTION 26.** (1) Within 90 days after the effective date of this Act, the Environmental Quality
42 Commission shall establish by rule interim numerical standards for maximum measurable levels of
43 contaminants in ground water. The interim numerical standards shall be applied in lieu of maximum
44 measurable levels for contaminants in ground water under section 25 of this Act until the commis-

1 sion by rule adopts such levels under section 25 of this Act. The process for establishing interim
2 numerical standards shall be as follows:

3 (a) If a federal standard for a substance has been adopted by federal regulation, the commission
4 shall adopt the federal standard.

5 (b) If a federal standard for a substance has not been adopted by federal regulation, but one or
6 more federal standards have been established by methods other than by adoption of a federal regu-
7 lation, the commission shall adopt the most recently established federal standard as the numerical
8 standard.

9 (c) If a federal regulation has not been established either by adoption of a federal regulation or
10 by any other method, the commission shall request the U. S. Environmental Protection Agency to
11 establish a federal standard for the substance, either by adoption of a federal regulation, or by other
12 method.

13 (2) As used in this section "federal standard" means a maximum contaminant level, a national
14 primary drinking water regulation or an interim drinking water regulation adopted by the Admin-
15 istrator of the U.S. Environmental Protection Agency pursuant to the federal Safe Drinking Water
16 Act, as amended, 42 U.S.C. 300g-1.

17 **SECTION 27.** The Department of Environmental Quality shall provide staff for project oversight
18 and the day-to-day operation of the Strategic Water Management Group for those activities author-
19 ized under sections 20 to 25, 34, 35 and 39 to 44 of this Act, including scheduling meetings, providing
20 public notice of meetings and other group activities and keeping records of group activities.

21 **SECTION 28.** Section 29 of this Act is added to and made a part of ORS 468.700 to 468.777.

22 **SECTION 29.** (1) In cooperation with the Water Resources Department, the Department of En-
23 vironmental Quality and the Oregon State University Agricultural Experiment Station shall conduct
24 an ongoing state-wide monitoring and assessment program of the quality of the ground water re-
25 source of this state. The program shall be designed to identify:

26 (a) Areas of the state that are especially vulnerable to ground water contamination;

27 (b) Long-term trends in ground water quality;

28 (c) Ambient quality of the ground water resource of Oregon; and

29 (d) Any emerging ground water quality problems.

30 (2) The department and Oregon State University Agricultural Experiment Station shall forward
31 copies of all information acquired from the state-wide monitoring and assessment program conducted
32 under this section to the Strategic Water Management Group for inclusion in the central repository
33 of information about Oregon's ground water resource established pursuant to section 20 of this 1989
34 Act.

35 **SECTION 30.** (1) In any transaction for the sale or exchange of real estate that includes a well
36 that supplies ground water for domestic purposes, the seller of the real estate shall, upon accepting
37 an offer to purchase that real estate, have the well tested for nitrates and total coliform bacteria.
38 The Health Division also may require additional tests for specific contaminants in an area of ground
39 water concern or ground water management area. The seller shall submit the results of the test
40 required under this section to the Health Division.

41 (2) The failure of a seller to comply with the provisions of this section does not invalidate an
42 instrument of conveyance executed in the transaction.

43 **SECTION 31.** If, as a result of its state-wide monitoring and assessment activities under section
44 29 of this Act, the Department of Environmental Quality confirms the presence in ground water of

1 contaminants suspected to be the result, at least in part, of nonpoint source activities, the depart-
2 ment shall declare an area of ground water concern. The declaration shall identify the substances
3 confirmed to be in the ground water and all ground water aquifers that may be affected.

4 **SECTION 32.** If, as a result of its activities under ORS 448.150, the Health Division confirms
5 the presence in ground water drinking water supplies of contaminants resulting at least in part from
6 suspected nonpoint source activities, the division shall declare an area of ground water concern.
7 The declaration shall identify the substances confirmed in the ground water and all ground water
8 aquifers that may be affected.

9 **SECTION 33.** Before declaring an area of ground water concern, the agency making the dec-
10 laration shall have a laboratory confirm the results that would cause the agency to make the dec-
11 laration.

12 **SECTION 34.** After a declaration of an area of ground water concern, the Strategic Water
13 Management Group shall:

14 (1) Within 90 days, appoint a ground water management committee in the geographic area
15 overlying the ground water aquifer;

16 (2) Focus research and public education activities on the area of ground water concern;

17 (3) Provide for necessary monitoring in the area of ground water concern;

18 (4) Assist the ground water management committee in developing, in a timely manner, a draft
19 and final local action plan for addressing the issues raised by the declaration of an area of ground
20 water concern; and

21 (5) If not developed by the ground water management committee, develop a draft and final local
22 action plan.

23 **SECTION 35.** (1) Upon the request of a local government, or as required under section 34 or
24 40 of this Act, the Strategic Water Management Group shall appoint a ground water management
25 committee. The ground water management committee shall be composed of at least seven members
26 representing a balance of interests in the area affected by the declaration.

27 (2) After a declaration of an area of ground water concern, the ground water management
28 committee shall develop and promote a local action plan for the area of ground water concern. The
29 local action plan shall include but need not be limited to:

30 (a) Identification of local residential, industrial and agricultural practices that may be contrib-
31 uting to a deterioration of ground water quality in the area;

32 (b) An evaluation of the threat to ground water from the potential nonpoint sources identified;

33 (c) Evaluation and recommendations of alternative practices;

34 (d) Recommendations regarding demonstration projects needed in the area;

35 (e) Recommendations of public education and research specific to that area that would assist in
36 addressing the issues related to the area of ground water concern; and

37 (f) Methods of implementing best practicable management practices to improve ground water
38 quality in the area.

39 (3) The availability of the draft local action plan and announcement of a 30-day public comment
40 period shall be publicized in a newspaper of general circulation in the area designated as an area
41 of ground water concern. Suggestions provided to the ground water management committee during
42 the public comment period shall be considered by the ground water management committee in de-
43 termining the final action plan.

44 (4) The ground water management committee may request the Strategic Water Management

1 Group to arrange for technical advice and assistance from appropriate state agencies and higher
2 education institutions.

3 (5) A ground water management committee preparing or carrying out an action plan in an area
4 of ground water concern or in a ground water management area may apply for a grant under section
5 21 of this Act for limited funding for staff or for expenses of the ground water management com-
6 mittee.

7 **SECTION 36.** (1) The Department of Environmental Quality shall declare a ground water man-
8 agement area if, as a result of information provided to the department or from its state-wide moni-
9 toring and assessment activities under section 29 of this Act, the department confirms that, as a
10 result of suspected nonpoint source activities, there is present in the ground water:

11 (a) Nitrate contaminants at levels greater than 70 percent of the levels established pursuant to
12 section 25 of this Act; or

13 (b) Any other contaminants at levels greater than 50 percent of the levels established pursuant
14 to section 25 of this Act.

15 (2) A declaration under subsection (1) of this section shall identify the substances detected in
16 the ground water and all ground water aquifers that may be affected.

17 **SECTION 37.** Before declaring a ground water management area under section 36 of this Act,
18 the agency shall have a second laboratory confirm the results that cause the agency to make the
19 declaration.

20 **SECTION 38.** Notwithstanding the requirements of section 36 of this Act, for two years after
21 the effective date of this Act, a ground water management area shall not be established on the basis
22 of excessive nitrate levels unless levels of nitrates in ground water are determined to exceed 100
23 percent of the levels established pursuant to section 25 of this Act.

24 **SECTION 39.** After the declaration of a ground water management area, a ground water man-
25 agement committee created under section 35 of this Act shall:

26 (1) Evaluate those portions of the local action plan, if any, that achieved a reduction in con-
27 taminant level;

28 (2) Advise the state agencies developing an action plan under sections 41 to 43 of this Act re-
29 garding local elements of the plan; and

30 (3) Analyze the local action plan, if any, developed pursuant to section 35 of this Act to deter-
31 mine why the plan failed to improve or prevent further deterioration of the ground water in the
32 ground water management area designated in the declaration.

33 **SECTION 40.** After the declaration of a ground water management area, the Strategic Water
34 Management Group shall appoint a ground water management committee for the affected area if a
35 ground water management committee has not already been appointed under section 34 of this Act.
36 If the affected area had previously been designated an area of ground water concern, the same
37 ground water management committee appointed under section 34 of this Act shall continue to ad-
38 dress the ground water issues raised as a result of the declaration of a ground water management
39 area.

40 **SECTION 41.** After the Strategic Water Management Group is notified that a ground water
41 management area has been declared, the Strategic Water Management Group shall designate a lead
42 agency responsible for developing an action plan and assign other agencies appropriate responsibil-
43 ities for preparation of a draft action plan within 90 days after the declaration. The agencies shall
44 develop an action plan to reduce existing contamination and to prevent further contamination of the

1 affected ground water aquifer. The action plan shall include, but need not be limited to:

2 (1) Identification of practices that may be contributing to the contamination of ground water in
3 the area;

4 (2) Consideration of all reasonable alternatives for reducing the contamination of the ground
5 water to a level below that level requiring the declaration of a ground water management area;

6 (3) Recommendations of mandatory actions that, when implemented, will reduce the contam-
7 ination to a level below that level requiring the declaration of ground water management area;

8 (4) A proposed time schedule for:

9 (a) Implementing the group's recommendations;

10 (b) Achieving estimated reductions in concentrations of the ground water contaminants; and

11 (c) Public review of the action plan;

12 (5) Any applicable provisions of a local action plan developed for the area under a declaration
13 of an area of ground water concern; and

14 (6) Required amendments of affected city or county comprehensive plans and land use regu-
15 lations in accordance with the schedule and requirements in ORS 197.640 to 197.647 to address the
16 identified ground water protection and management concerns.

17 **SECTION 42.** (1) After completion and distribution of the draft action plan under section 41 of
18 this Act, the lead agency shall provide a 60-day period of public comment on the draft action plan
19 and the manner by which members of the public may review the plan or obtain copies of the plan.
20 A notice of the comment period shall be published in two issues of one or more newspapers having
21 general circulation in the counties in which the designated area of the ground water emergency is
22 located, and in two issues of one or more newspapers having general circulation in the state.

23 (2) Within 60 days after the close of the public comment period, the lead agency shall complete
24 a final action plan. All suggestions and information provided to the lead agency during the public
25 comment period shall be considered by the lead agency and when appropriate shall be acknowledged
26 in the final action plan.

27 **SECTION 43.** (1) The Strategic Water Management Group shall, within 30 days after completion
28 of the final action plan, accept the final action plan or remand the plan to the lead agency for re-
29 vision in accordance with recommendations of the Strategic Water Management Group. If the plan
30 is remanded for revision, the lead agency shall return the revised final action plan to the Strategic
31 Water Management Group within 30 days.

32 (2) Within 120 days after the Strategic Water Management Group accepts the final action plan,
33 each agency of the group that is responsible for implementing all or part of the plan shall adopt
34 rules necessary to carry out the agency's duties under the action plan. If two or more agencies are
35 required to initiate rulemaking proceedings under this section, the agencies shall consult with one
36 another to coordinate the rules. The agencies may consolidate the rulemaking proceedings.

37 **SECTION 44.** (1) If, after implementation of the action plan developed by affected agencies un-
38 der sections 41 to 43 of this Act, the ground water improves so that the levels of contaminants no
39 longer exceed the levels established under section 36 of this Act, the Strategic Water Management
40 Group shall request the Department of Environmental Quality to repeal the ground water manage-
41 ment area declaration and to establish an area of ground water concern.

42 (2) Before the declaration of a ground water management area is repealed under subsection (1)
43 of this section, the Strategic Water Management Group must find that, according to the best infor-
44 mation available, a new or revised local action plan exists that will continue to improve the ground

1 water in the area and that the Strategic Water Management Group finds can be implemented at the
2 local level without the necessity of state enforcement authority.

3 (3) Before the Strategic Water Management Group terminates any mandatory controls imposed
4 under the action plan created under sections 41 to 43 of this Act, the ground water management
5 committee must produce a local action plan that includes provisions necessary to improve ground
6 water in the area and that the Strategic Water Management Group finds can be implemented at the
7 local level without the necessity of state enforcement authority.

8 **SECTION 45.** Section 46 of this Act is added to and made a part of ORS chapter 516.

9 **SECTION 46.** (1) In carrying out its duties related to mineral resources, mineral industries and
10 geology, the State Department of Geology and Mineral Industries shall act in a manner that is
11 consistent with the goal set forth in section 18 of this 1989 Act.

12 (2) In order to assist in the development of a state-wide repository of information about Oregon's
13 ground water resource, the department shall provide any information, acquired by the department
14 in carrying out its statutory duties, that is related to ground water quality to the centralized re-
15 pository established pursuant to section 20 of this 1989 Act.

16 **SECTION 47.** Section 48 of this Act is added to and made a part of ORS chapter 197.

17 **SECTION 48.** (1) The commission shall take actions it considers necessary to assure that city
18 and county comprehensive plans and land use regulations and state agency coordination programs
19 are consistent with the goal set forth in section 18 of this 1989 Act.

20 (2) The commission shall direct the Department of Land Conservation and Development to take
21 actions the department considers appropriate to assure that any information contained in a city or
22 county comprehensive plan that pertains to the ground water resource of Oregon shall be forwarded
23 to the centralized repository established under section 20 of this 1989 Act.

24 **SECTION 49.** ORS 366.155 is amended to read:

25 366.155. (1) The State Highway Engineer, under the direction of the director, among other
26 things, shall:

27 (a) So far as practicable, compile statistics relative to the public highways of the state and
28 collect all information in regard thereto which the State Highway Engineer may deem important or
29 of value in connection with highway location, construction, maintenance, improvement or operation.

30 (b) Keep on file in the office of the department copies of all plans, specifications and estimates
31 prepared by the State Highway Engineer's office.

32 (c) Make all necessary surveys for the location or relocation of highways and cause to be made
33 and kept in the State Highway Engineer's office a general highway plan of the state.

34 (d) Collect and compile information and statistics relative to the mileage, character and condi-
35 tion of highways and bridges in the different counties in the state, both with respect to state and
36 county highways.

37 (e) Investigate and determine the methods of road construction best adapted in the various
38 counties or sections of the state, giving due regard to the topography, natural character and avail-
39 ability of road-building materials and the cost of building and maintaining roads under this Act.

40 (f) Prepare surveys, plans, specifications and estimates for the construction, reconstruction, im-
41 provement, maintenance and repair of any bridge, street, road and highway. In advertising for bids
42 on any such project the director shall invite bids in conformity with such plans and specifications.

43 (g) Keep an accurate and detailed account of all moneys expended in the location, survey, con-
44 struction, reconstruction, improvement, maintenance or operation of highways, roads and streets,

1 including costs for rights of way, under this Act, and keep a record of the number of miles so lo-
2 cated, constructed, maintained or operated in each county, the date of construction, the width of
3 such highways and the cost per mile for the construction and maintenance of the highways.

4 (h) Install and operate a simple but adequate accounting system in order that all expenditures
5 and costs may be classified and that a proper record may be maintained.

6 (i) Prepare proper and correct statements or vouchers to make possible partial payments on all
7 contracts for highway projects based upon estimates prepared by the State Highway Engineer or
8 under the State Highway Engineer's direction, and submit them to the director for approval.

9 (j) Prepare proper vouchers covering claims for all salaries and expenses of the State Highway
10 Engineer's office and other expenditures authorized by the director. Such claims as may be approved
11 by the director shall be indorsed by the director and be presented for payment.

12 (k) Upon request of a county governing body, assist the county on matters relating to road lo-
13 cation, construction or maintenance. Plans and specifications for bridges or culverts and standard
14 specifications for road projects that are provided under this paragraph shall be provided without
15 cost. The Department of Transportation shall determine an amount to be charged for assistance
16 under this paragraph in establishing specifications and standards for roads under ORS 368.036. The
17 costs of assistance not specifically provided for under this paragraph shall be paid as provided by
18 agreement between the county governing body and the State Highway Engineer.

19 (L) Prepare and submit to the commission on or about December 31 of each year an annual re-
20 port in which the State Highway Engineer shall set forth all that has been done by the Highway
21 Division of the Department of Transportation during the year just ending, which report shall include
22 all funds received, the source or sources from which received, the expenditure and disbursement of
23 all funds and the purposes for which they were expended. The report shall contain a statement of
24 the roads, highways or streets constructed, reconstructed and improved during the period, together
25 with a statement showing in a general way the status of the highway system.

26 (2) The director may, in the director's discretion, relieve the State Highway Engineer of such
27 portions of the State Highway Engineer's duties and responsibilities with respect to audits, ac-
28 counting procedures and other like duties and responsibilities provided for in ORS 366.155 to 366.165
29 as the director considers advisable. The director may require such portion of such duties to be
30 performed and such responsibilities to be assumed by the fiscal officer of the department appointed
31 under ORS 184.637.

32 (3) In carrying out the duties set forth in this section, the State Highway Engineer shall
33 act in a manner that is consistent with the goal set forth in section 18 of this 1989 Act.

34 SECTION 50. ORS 448.123 is amended to read:

35 448.123. (1) It is the purpose of ORS 448.119 to 448.285, 454.235, 454.255 and 757.005 to:

36 [(1)] (a) Assure all Oregonians safe drinking water.

37 [(2)] (b) Provide a simple and effective regulatory program for drinking water systems.

38 [(3)] (c) Provide a means to improve inadequate drinking water systems.

39 (2) In carrying out the purpose set forth in subsection (1) of this section, the Health Di-
40 vision shall act in accordance with the goal set forth in section 18 of this 1989 Act.

41 (3) If, in carrying out any duty prescribed by law, the Health Division acquires informa-
42 tion related to ground water quality in Oregon, the Health Division shall forward a copy of
43 the information to the centralized repository established pursuant to section 20 of this 1989
44 Act.

1 SECTION 51. ORS 448.150 is amended to read:

2 448.150. (1) The division shall:

3 [(1)] (a) Conduct periodic sanitary surveys of drinking water systems and sources, take water
4 samples and inspect records to insure the system is not creating an unreasonable risk to health.
5 The division shall provide written reports of such examinations to the local health administrator and
6 to the water supplier.

7 [(2)] (b) Require regular water sampling by water suppliers. These samples shall be analyzed
8 in a laboratory approved by the division. The results of the laboratory analysis shall be reported to
9 the division, the local health department and to the water supplier.

10 [(3)] (c) Investigate any water system that fails to meet the water quality standards established
11 by the division.

12 [(4)] (d) Require every water supplier that provides drinking water that is from a surface water
13 source to conduct sanitary surveys of the watershed as may be considered necessary by the division
14 for the protection of public health. The water supplier shall make written reports of such sanitary
15 surveys of watersheds promptly to the division and to the local health department.

16 [(5)] (e) Investigate reports of waterborne disease pursuant to its authority under ORS 431.110
17 and take necessary actions as provided for in ORS 446.310, 448.030, 448.115 to 448.285, 454.235,
18 454.255, 455.680 and 757.005 to protect the public health and safety.

19 (f) Notify the Department of Environmental Quality of a potential ground water man-
20 agement area if, as a result of its water sampling under paragraphs (a) to (e) of this sub-
21 section, the division detects the presence in ground water of:

22 (A) Nitrate contaminants at levels greater than 70 percent of the levels established pur-
23 suant to section 25 of this 1989 Act; or

24 (B) Any other contaminants at levels greater than 50 percent of the levels established
25 pursuant to section 25 of this 1989 Act.

26 (2) The notification required under paragraph (f) of subsection (1) of this section shall
27 identify the substances detected in the ground water and all ground water aquifers that may
28 be affected.

29 SECTION 52. ORS 536.120 is amended to read:

30 536.120. (1) The Strategic Water Management Group shall coordinate all of the following:

31 [(1)] (a) Agency activities insofar as those activities affect the water resources of this state.
32 Such activities include the periodic review and updating by the agencies of the agencies' water re-
33 lated data, policies and management plans.

34 [(2)] (b) The responses of state agencies to problems and issues affecting the water resources
35 of this state when such responses require the participation of numerous state agencies.

36 (c) Interagency management of ground water as necessary to achieve the goal set forth
37 in section 18 of this 1989 Act.

38 (d) The regulatory activities of any affected state agency responding to the declaration
39 of a ground water management area under section 36 of this 1989 Act. As used in this sub-
40 section "affected state agency" means any agency having management responsibility for, or
41 regulatory control over the ground water resource of this state or any substance that may
42 contaminate the ground water resource of this state.

43 [(3)] (e) The development of the water related portions of each member agency's biennial budget
44 as submitted to the Governor that affect the water related activities of other state agencies.

1 (2) In addition to its duties under subsection (1) of this section, the Strategic Water
2 Management Group shall, on or before January 1 of each odd-numbered year, prepare a re-
3 port to the Legislative Assembly. The report shall include the status of ground water in
4 Oregon, efforts made in the immediately preceding year to protect, conserve and restore
5 Oregon's ground water resources, grants awarded under section 21 of this 1989 Act and any
6 proposed legislation the group finds necessary to accomplish the goal set forth in section 18
7 of this 1989 Act.

8 **SECTION 53.** ORS 536.220 is amended to read:

9 536.220. (1) The Legislative Assembly recognizes and declares that:

10 (a) The maintenance of the present level of the economic and general welfare of the people of
11 this state and the future growth and development of this state for the increased economic and gen-
12 eral welfare of the people thereof are in large part dependent upon a proper utilization and control
13 of the water resources of this state, and such use and control is therefore a matter of greatest
14 concern and highest priority.

15 (b) A proper utilization and control of the water resources of this state can be achieved only
16 through a coordinated, integrated state water resources policy, through plans and programs for the
17 development of such water resources and through other activities designed to encourage, promote
18 and secure the maximum beneficial use and control of such water resources, all carried out by a
19 single state agency.

20 (c) The economic and general welfare of the people of this state have been seriously impaired
21 and are in danger of further impairment by the exercise of some single-purpose power or influence
22 over the water resources of this state or portions thereof by each of a large number of public au-
23 thorities, and by an equally large number of legislative declarations by statute of single-purpose
24 policies with regard to such water resources, resulting in friction and duplication of activity among
25 such public authorities, in confusion as to what is primary and what is secondary beneficial use or
26 control of such water resources and in a consequent failure to utilize and control such water re-
27 sources for multiple purposes for the maximum beneficial use and control possible and necessary.

28 (2) The Legislative Assembly, therefore, finds that:

29 (a) It is in the interest of the public welfare that a coordinated, integrated state water resources
30 policy be formulated and means provided for its enforcement, that plans and programs for the de-
31 velopment and enlargement of the water resources of this state be devised and promoted and that
32 other activities designed to encourage, promote and secure the maximum beneficial use and control
33 of such water resources and the development of additional water supplies be carried out by a single
34 state agency which, in carrying out its functions, shall give proper and adequate consideration to
35 the multiple aspects of the beneficial use and control of such water resources with an impartiality
36 of interest except that designed to best protect and promote the public welfare generally.

37 (b) The state water resources policy shall be consistent with the goal set forth in section
38 18 of this 1989 Act.

39 **SECTION 54.** ORS 536.340 is amended to read:

40 536.340. Subject at all times to existing rights and priorities to use waters of this state, the
41 commission:

42 (1) May, by a water resources statement referred to in ORS 536.300 (2), classify and reclassify
43 the lakes, streams, underground reservoirs or other sources of water supply in this state as to the
44 highest and best use and quantities of use thereof for the future in aid of an integrated and balanced

1 program for the benefit of the state as a whole. The commission may so classify and reclassify
2 portions of any such sources of water supply separately. Classification or reclassification of sources
3 of water supply as provided in the subsection has the effect of restricting the use and quantities of
4 use thereof to the uses and quantities of uses specified in the classification or reclassification, and
5 no other uses or quantities of uses except as approved by the commission under ORS 536.370 to
6 536.390. **Restrictions on use and quantities of use of a source of water supply resulting from**
7 **a classification or reclassification under this section shall apply to the use of all waters of**
8 **this state affected by the classification or reclassification, and shall apply to uses listed in**
9 **ORS 537.545 that are initiated after the classification or reclassification that imposes the**
10 **restriction.**

11 (2) Shall diligently enforce laws concerning cancellation, release and discharge of excessive un-
12 used claims to waters of this state to the end that such excessive and unused amounts may be made
13 available for appropriation and beneficial use by the public.

14 (3) May, by a water resources statement referred to in ORS 536.300 (2) and subject to the pref-
15 erential uses named in ORS 536.310 (12), prescribe preferences for the future for particular uses and
16 quantities of uses of the waters of any lake, stream or other source of water supply in this state in
17 aid of the highest and best beneficial use and quantities of use thereof. In prescribing such prefer-
18 ences the commission shall give effect and due regard to the natural characteristics of such sources
19 of water supply, the adjacent topography, the economy of such sources of water supply, the economy
20 of the affected area, seasonal requirements of various users of such waters, the type of proposed use
21 as between consumptive and nonconsumptive uses and other pertinent data.

22 **SECTION 55. ORS 536.410 is amended to read:**

23 536.410. (1) When the Water Resources Commission determines that it is necessary to insure
24 compliance with the state water resources policy or that it is otherwise necessary in the public in-
25 terest to conserve the water resources of this state for the maximum beneficial use and control
26 thereof that any unappropriated waters of this state, including unappropriated waters released from
27 storage or impoundment into the natural flow of a stream for specified purposes, be withdrawn from
28 appropriation for all or any uses **including exempt uses under ORS 537.545**, the commission, on
29 behalf of the state, may issue an order of withdrawal.

30 (2) Prior to the issuance of the order of withdrawal the commission shall hold a public hearing
31 on the necessity for the withdrawal. Notice of the hearing shall be published in at least one issue
32 each week for at least two consecutive weeks prior to the hearing in a newspaper of general cir-
33 culation published in each county in which are located the waters proposed to be withdrawn.

34 (3) The order of withdrawal shall specify with particularity the waters withdrawn from appro-
35 priation, the uses for which the waters are withdrawn, the reason for the withdrawal and the du-
36 ration of the withdrawal. The commission may modify or revoke the order at any time.

37 (4) Copies of the order of withdrawal and notices of any modification or revocation of the order
38 of withdrawal shall be filed in the Water Resources Department.

39 (5) While the order of withdrawal is in effect, no application for a permit to appropriate the
40 waters withdrawn for the uses specified in the order and no application for a preliminary permit or
41 license involving appropriations of such waters shall be received for filing by the Water Resources
42 Commission.

43 **SECTION 56. ORS 537.525 is amended to read:**

44 537.525. The Legislative Assembly recognizes, declares and finds that the right to reasonable

1 control of all water within this state from all sources of water supply belongs to the public, and that
2 in order to insure the preservation of the public welfare, safety and health it is necessary that:

3 (1) Provision be made for the final determination of relative rights to appropriate ground water
4 everywhere within this state and of other matters with regard thereto through a system of regis-
5 tration, permits and adjudication.

6 (2) Rights to appropriate ground water and priority thereof be acknowledged and protected, ex-
7 cept when, under certain conditions, the public welfare, safety and health require otherwise.

8 (3) Beneficial use without waste, within the capacity of available sources, be the basis, measure
9 and extent of the right to appropriate ground water.

10 (4) All claims to rights to appropriate ground water be made a matter of public record.

11 (5) Adequate and safe supplies of ground water for human consumption be assured, while con-
12 serving maximum supplies of ground water for agricultural, commercial, industrial, recreational and
13 other beneficial uses.

14 (6) The location, extent, capacity, quality and other characteristics of particular sources of
15 ground water be determined.

16 (7) Reasonably stable ground water levels be determined and maintained.

17 (8) Depletion of ground water supplies below economic levels, impairment of natural quality of
18 ground water by pollution and wasteful practices in connection with ground water be prevented or
19 controlled within practicable limits.

20 (9) Whenever wasteful use of ground water, impairment of or interference with existing rights
21 to appropriate surface water, declining ground water levels, interference among wells, overdraw-
22 ing of ground water supplies or pollution of ground water exists or impends, controlled use of the
23 ground water concerned be authorized and imposed under voluntary joint action by the Water Re-
24 sources Commission and the ground water users concerned whenever possible, but by the commis-
25 sion under the police power of the state when such voluntary joint action is not taken or is
26 ineffective.

27 (10) Location, construction, depth, capacity, yield and other characteristics of and matters in
28 connection with wells be controlled in accordance with the purposes set forth in this section.

29 (11) All activities in the state that affect the quality or quantity of ground water shall
30 be consistent with the goal set forth in section 18 of this 1989 Act.

31 **SECTION 57. ORS 537.545 is amended to read:**

32 **537.545. (1) Except as provided in subsection (3) of this section, no registration, certificate**
33 **of registration, application for a permit, permit, certificate of completion or ground water right**
34 **certificate under ORS 537.505 to 537.795 is required for the use of ground water for:**

35 (a) Stockwatering purposes;

36 (b) Watering any lawn or noncommercial garden not exceeding one-half acre in area;

37 (c) Watering the grounds, three acres in size or less, of schools that have less than 100 students
38 and that are located in cities with a population of less than 10,000;

39 (d) Single or group domestic purposes in an amount not exceeding 15,000 gallons a day;

40 (e) Down-hole heat exchange purposes; or

41 (f) Any single industrial or commercial purpose in an amount not exceeding 5,000 gallons a day.

42 (2) The use of ground water for *[any such purpose]* a use exempt under subsection (1) of this
43 section, to the extent that it is beneficial, constitutes a right to appropriate ground water equal to
44 that established by a ground water right certificate issued under ORS 537.700. The Water Resources

1 Commission may require any person or public agency using ground water for any such purpose to
2 furnish information with regard to such ground water and the use thereof.

3 **(3) After declaration of a ground water management area, any person intending to make**
4 **a new use of ground water that is exempt under subsection (1) of this section shall apply for**
5 **a ground water permit under ORS 537.505 to 537.795 to use the water. Any person applying**
6 **for a permit for an otherwise exempt use shall not be required to pay a fee for the permit.**

7 **SECTION 58. ORS 537.665 is amended to read:**

8 **537.665. (1) Upon its own motion, or upon the request of another state agency or local**
9 **government, the Water Resources Commission, within the limitations of available resources,**
10 **shall proceed as rapidly as possible to identify and define tentatively the location, extent, depth and**
11 **other characteristics of each ground water reservoir in this state, and shall assign to each a dis-**
12 **tinctive name or number or both as a means of identification. The commission may make any in-**
13 **vestigation and gather all data and information essential to a proper understanding of the**
14 **characteristics of each ground water reservoir and the relative rights to appropriate ground water**
15 **from each ground water reservoir.**

16 **(2) In identifying the characteristics of each ground water reservoir under subsection (1)**
17 **of this section, the commission shall coordinate its activities with activities of the Depart-**
18 **ment of Environmental Quality under section 29 of this 1989 Act in order that the final**
19 **characterization may include an assessment of both ground water quality and ground water**
20 **quantity.**

21 **(3) Before the commission makes a final determination of boundaries and depth of any ground**
22 **water reservoir, the director shall proceed to make a final determination of the rights to appropriate**
23 **the ground water of the ground water reservoir under ORS 537.670 to 537.695.**

24 **(4) The commission shall forward copies of all information acquired from an assessment**
25 **conducted under this section to the central repository of information about Oregon's ground**
26 **water resource established pursuant to section 20 of this 1989 Act.**

27 **SECTION 59. ORS 537.775 is amended to read:**

28 **537.775. (1) Whenever the Water Resources Commission finds that any well, including any well**
29 **exempt under ORS 537.545, is by the nature of its construction, operation or otherwise causing**
30 **wasteful use of ground water, is unduly interfering with other wells or surface water supply is a**
31 **threat to health or is polluting ground water or surface water supplies contrary to ORS 537.505**
32 **to 537.795, the commission may order discontinuance of the use of the well, [or] impose conditions**
33 **upon the use of such well to such extent as may be necessary to remedy the defect or order per-**
34 **manent abandonment of the well according to specifications of the commission.**

35 **(2) In the absence of a determination of a critical ground water area, any order issued under this**
36 **section imposing conditions upon interfering wells shall provide to each party all water to which the**
37 **party is entitled, in accordance with the date of priority of the water right.**

38 **SECTION 60. ORS 537.780 is amended to read:**

39 **537.780. In the administration of ORS 537.505 to 537.795, the Water Resources Commission may:**

40 **(1) Require that all flowing wells be capped or equipped with valves so that the flow of ground**
41 **water may be completely stopped when the ground water is not actually being applied to a beneficial**
42 **use.**

43 **(2) Enforce:**

44 **(a) General standards for the construction and maintenance of wells and their casings, fittings,**

1 valves, [and] pumps[,] and back-siphoning prevention devices; and

2 (b) Special standards for the construction and maintenance of particular wells and their casings,
3 fittings, valves and pumps.

4 (3)(a) Adopt by rule and enforce when necessary to protect the ground water resource,
5 standards for the construction, maintenance, abandonment or use of any hole through which
6 ground water may be contaminated; or [.]

7 (b) Enter into an agreement with, or advise, other state agencies that are responsible for
8 holes other than wells through which ground water may be contaminated in order to protect
9 the ground water resource from contamination.

10 [(3)] (4) Enforce uniform standards for the scientific measurement of water levels and of ground
11 water flowing or withdrawn from wells.

12 [(4)] (5) Enter upon any lands for the purpose of inspecting wells, including wells exempt under
13 ORS 537.545, casings, fittings, valves, pipes, pumps [and], measuring devices and back-siphoning
14 prevention devices.

15 [(5)] (6) Prosecute actions and suits to enjoin violations of ORS 537.505 to 537.795, and appear
16 and become a party to any action, suit or proceeding in any court or before any administrative body
17 when it appears to the satisfaction of the commission that the determination of the action, suit or
18 proceeding might be in conflict with the public policy expressed in ORS 537.525.

19 [(6)] (7) Call upon and receive advice and assistance from the Environmental Quality Commis-
20 sion or any other public agency or any person, and enter into cooperative agreements with a public
21 agency or person.

22 [(7)] (8) Adopt and enforce rules necessary to carry out the provisions of ORS 537.505 to 537.795
23 including but not limited to rules governing:

24 (a) The form and content of registration statements, certificates of registration, applications for
25 permits, permits, certificates of completion, ground water right certificates, notices, proofs, maps,
26 drawings, logs and licenses;

27 (b) Procedure in hearings held by the commission; and

28 (c) The circumstances under which the helpers of persons operating well drilling machinery may
29 be exempt from the requirement of direct supervision by a licensed water well constructor.

30 [(8)] (9) In accordance with applicable law regarding search and seizure, apply to any court of
31 competent jurisdiction for a warrant to seize any well drilling machine used in violation of ORS
32 537.747 or 537.753.

33 **SECTION 61.** ORS 540.610 is amended to read:

34 540.610. (1) Beneficial use shall be the basis, the measure and the limit of all rights to the use
35 of water in this state. Whenever the owner of a perfected and developed water right ceases or fails
36 to use the water appropriated for a period of five successive years, the right to use shall cease, and
37 the failure to use shall be conclusively presumed to be an abandonment of water right. Thereafter
38 the water which was the subject of use under such water right shall revert to the public and become
39 again the subject of appropriation in the manner provided by law, subject to existing priorities.

40 (2) Subsection (1) of this section shall not:

41 (a) Apply to, or affect, the use of water, or rights of use, acquired by cities and towns in this
42 state, by appropriation or by purchase, for all reasonable and usual municipal purposes.

43 (b) Be so construed as to impair any of the rights of such cities and towns to the use of water,
44 whether acquired by appropriation or purchase, or heretofore recognized by act of the legislature,

1 or which may hereafter be acquired.

2 (c) Apply to, or affect, the use of water, or rights of use, appurtenant to property obtained by
3 the Department of Veterans' Affairs under ORS 407.135 or 407.145 for three years after the expira-
4 tion of redemptions as provided in ORS 23.530 to 23.600 while the land is held by the Director of
5 Veterans' Affairs, even if during such time the water is not used for a period of more than five
6 successive years.

7 (d) Apply to, or affect the use of water, or rights of use, under a water right, if the owner of the
8 property to which the right is appurtenant is unable to use the water due to economic hardship as
9 defined by rule by the commission.

10 (e) Apply to, or affect, the use of water, or rights of use, under a water right, if the use
11 of water under the right is discontinued under an order of the commission under ORS
12 537.775.

13 (3) The right of all cities and towns in this state to acquire rights to the use of the water of
14 natural streams and lakes, not otherwise appropriated, and subject to existing rights, for all rea-
15 sonable and usual municipal purposes, and for such future reasonable and usual municipal purposes
16 as may reasonably be anticipated by reason of growth of population, or to secure sufficient water
17 supply in cases of emergency, is expressly confirmed.

18 **SECTION 61a.** If Senate Bill 153 becomes law, section 61 of this Act is repealed and ORS
19 540.610, as amended by section 1, chapter _____, Oregon Laws 1989 (Enrolled Senate Bill 153), is
20 further amended to read:

21 540.610. (1) Beneficial use shall be the basis, the measure and the limit of all rights to the use
22 of water in this state. Whenever the owner of a perfected and developed water right ceases or fails
23 to use all or part of the water appropriated for a period of five successive years, the failure to use
24 shall establish a rebuttable presumption of forfeiture of all or part of the water right. Thereafter the
25 water which was the subject of use under such water right shall revert to the public and become
26 again the subject of appropriation in the manner provided by law, subject to existing priorities.

27 (2) Upon a showing of failure to use beneficially for five successive years, the appropriator has
28 the burden of rebutting the presumption of forfeiture by showing one or more of the following:

29 (a) The water right is for use of water, or rights of use, acquired by cities and towns in this
30 state, by appropriation or by purchase, for all reasonable and usual municipal purposes.

31 (b) A finding of forfeiture would impair the rights of such cities and towns to the use of water,
32 whether acquired by appropriation or purchase, or heretofore recognized by act of the legislature,
33 or which may hereafter be acquired.

34 (c) The use of water, or rights of use, are appurtenant to property obtained by the Department
35 of Veterans' Affairs under ORS 407.135 or 407.145 for three years after the expiration of redemptions
36 as provided in ORS 23.530 to 23.600 while the land is held by the Director of Veterans' Affairs, even
37 if during such time the water is not used for a period of more than five successive years.

38 (d) The use of water, or rights of use, under a water right, if the owner of the property to which
39 the right is appurtenant is unable to use the water due to economic hardship as defined by rule by
40 the commission.

41 (e) The period of nonuse occurred during a period of time within which land was withdrawn
42 from use in accordance with the Act of Congress of May 28, 1956, chapter 327 (7 U.S.C. 1801-1814;
43 1821-1824; 1831-1837), or the Federal Conservation Reserve Program, Act of Congress of December
44 23, 1985, chapter 198 (16 U.S.C. 3831-3836, 3841-3845). If necessary, in a cancellation proceeding un-

1 der this section, the water right holder rebutting the presumption under this paragraph shall provide
2 documentation that the water right holder's land was withdrawn from use under a federal reserve
3 program.

4 (f) The end of the alleged period of nonuse occurred more than 15 years before the date upon
5 which evidence of nonuse was submitted to the commission or the commission initiated cancellation
6 proceedings under ORS 540.631, whichever occurs first.

7 (g) **The owner of the property to which the water right was appurtenant is unable to use**
8 **the water because the use of water under the right is discontinued under an order of the**
9 **commission under ORS 537.775.**

10 (3) The right of all cities and towns in this state to acquire rights to the use of the water of
11 natural streams and lakes, not otherwise appropriated, and subject to existing rights, for all rea-
12 sonable and usual municipal purposes, and for such future reasonable and usual municipal purposes
13 as may reasonably be anticipated by reason of growth of population, or to secure sufficient water
14 supply in cases of emergency, is expressly confirmed.

15 **SECTION 62.** ORS 561.020 is amended to read:

16 561.020. (1) The department shall have full responsibility and authority for all the inspectional,
17 regulatory and market development work provided for under the provisions of all statutes which the
18 department is empowered and directed to enforce.

19 (2) The department shall encourage and work toward long-range planning to develop and pro-
20 mote the agricultural resources of Oregon that they may contribute as greatly as possible to the
21 future economy of the state.

22 (3) The Director of Agriculture shall coordinate any activities of the department related to a
23 watershed enhancement project approved by the Governor's Watershed Enhancement Board under
24 ORS 541.375 with activities of other cooperating state and federal agencies participating in the
25 project.

26 (4) **The Director of Agriculture shall conduct any activities of the department in a man-**
27 **ner consistent with the goal set forth in section 18 of this 1989 Act.**

28 **SECTION 63.** ORS 568.225 is amended to read:

29 568.225. (1) In recognition of the ever-increasing demands on the renewable natural resources
30 of the state and of the need to conserve, protect and develop such resources, it is hereby declared
31 to be the policy of the Legislative Assembly to provide for the conservation of the renewable natural
32 resources of the state and thereby to conserve and develop natural resources, control and prevent
33 soil erosion, control floods, conserve and develop water resources and water quality, prevent
34 impairment of dams and reservoirs, assist in maintaining the navigability of rivers and harbors,
35 preserve wildlife, conserve natural beauty, promote recreational development, protect the tax base,
36 protect public lands and protect and promote the health, safety and general welfare of the people
37 of this state.

38 (2) It is further the policy of the Legislative Assembly to authorize soil and water conservation
39 *[local advisory committees]* ~~districts~~ established under ORS 568.210 to 568.805 to participate in
40 effectuating the *[above]* policy set forth in subsection (1) of this section and for such purposes
41 to cooperate with landowners, land occupiers, other natural resource users, other local govern-
42 mental units, and with agencies of the government of this state and of the United States, in projects,
43 programs and activities calculated to accelerate such policies. **In effectuating the policy set forth**
44 **in subsection (1) of this section, the soil and water conservation districts also shall strive to**

1 achieve the goal set forth in section 18 of this 1989 Act.

2 SECTION 64. ORS 633.440 is amended to read:

3 633.440. (1) The department shall administer and enforce ORS 633.310 to 633.495, and for that
4 purpose may make rules and regulations not inconsistent with law.

5 (2) The department shall prosecute any violations of those sections.

6 (3) Upon the declaration of a ground water management area under section 36 of this 1989
7 Act, or when the department has reasonable cause to believe any quantity or lot of fertilizer, ag-
8 ricultural mineral, agricultural amendment or lime is being sold or distributed in violation of ORS
9 633.310 to 633.495 or rules promulgated thereunder [it] the department may, in accordance with
10 ORS 561.605 to 561.620, issue and enforce a written "withdrawal from distribution" order directing
11 the distributor thereof not to dispose of the quantity or lot of fertilizer, agricultural minerals, agri-
12 cultural amendments or lime in any manner until written permission is first given by the depart-
13 ment. The department shall release the quantity or lot of fertilizer, agricultural minerals,
14 agricultural amendments or lime so withdrawn when said law or rules have been complied with.

15 (4) Any quantity or lot of fertilizer, agricultural minerals, agricultural amendments or lime found
16 by the department not to be in compliance with ORS 633.310 to 633.495 or rules promulgated
17 thereunder may be seized by the department in accordance with the provisions of ORS 561.605 to
18 561.620.

19 SECTION 65. ORS 633.460 is amended to read:

20 633.460. (1) Each person who as set forth in subsection (3) of this section is a first purchaser
21 of fertilizers, agricultural minerals, agricultural amendments or lime in this state shall pay to the
22 department an inspection fee established by the department by rule of:

23 (a) Not to exceed [20] 45 cents for each ton of fertilizer, agricultural minerals, or agricultural
24 amendments purchased by such person during each calendar year, 25 cents of which shall be
25 continuously appropriated to the State Department of Agriculture for the purpose of funding
26 grants for research and development related to the interaction of pesticides or fertilizers and
27 ground water.

28 (b) Not to exceed five cents for each ton of gypsum, land plaster and every agricultural mineral
29 the principal constituent of which is calcium sulphate ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$), purchased by such person
30 during each calendar year.

31 (c) Not to exceed five cents for each ton of lime purchased by such first purchaser during each
32 calendar year.

33 (2) In computing the tonnage on which the inspection fee must be paid as required in subsection
34 (1) of this section, sales or purchases of fertilizers, agricultural minerals, agricultural amendments
35 and lime in individual packages weighing five pounds net or less, and sales of fertilizers, agricultural
36 minerals, agricultural amendments and lime for shipment to points outside this state, may be ex-
37 cluded.

38 (3) "First purchaser" or "purchased" for the purpose of this section, except as otherwise pre-
39 scribed by the department, means the first person in Oregon who buys or purchases, or who takes
40 title to, or who handles, receives or obtains possession of, fertilizer, agricultural minerals, agricul-
41 tural amendments or lime. The department after public hearing and as authorized under ORS 183.310
42 to 183.550, may further define and may prescribe "first purchaser" for practical and reasonable rules
43 necessary to effectuate the provisions of this section.

44 (4) The provisions of ORS 561.450 also apply to any person who refuses to pay inspection fees

1 due the department.

2 **SECTION 66.** ORS 634.016 is amended to read:

3 634.016. (1) Every pesticide, including each formula or formulation, manufactured, compounded,
4 delivered, distributed, sold, offered or exposed for sale in this state shall be registered each year
5 with the department.

6 (2) Every device, manufactured, delivered, distributed, sold, offered or exposed for sale in this
7 state, shall be registered each year with the department.

8 (3) The registration shall be made by the manufacturer or a distributor of the pesticide.

9 (4) The application for registration shall include:

10 (a) The name and address of the registrant.

11 (b) The name and address of the manufacturer if different than the registrant.

12 (c) The brand name or trade-mark of the pesticide.

13 (d) A specimen or facsimile of the label of each pesticide, and each formula or formulation, for
14 which registration is sought, except for annual renewals of the registration when the label remains
15 unchanged.

16 (e) The correct name and total percentage of each active ingredient.

17 (f) The total percentage of inert ingredients.

18 (5) The application for registration shall be accompanied by a registration fee to be established
19 by the department for each pesticide, and each formula or formulation, which shall not exceed \$40
20 for each such pesticide, or each formula or formulation.

21 (6) The department, at the time of application for registration of any pesticide or after a dec-
22 laration of a ground water management area under section 36 of this 1989 Act may:

23 (a) Restrict or limit the manufacture, delivery, distribution, sale or use of any pesticide in this
24 state.

25 (b) Refuse to register any pesticide which is highly toxic for which there is no effective antidote
26 under the conditions of use for which such pesticide is intended or recommended.

27 (c) Refuse to register any pesticide for use on a crop for which no finite tolerances for residues
28 of such pesticide have been established by either the department or the Federal Government.

29 (d) In restricting the purposes for which pesticides may be manufactured, delivered, distributed,
30 sold or used, or in refusing to register any pesticide, give consideration to:

31 (A) The damage to health or life of humans or animals, or detriment to the environment, which
32 might result from the distribution and use of such pesticide.

33 (B) Authoritative findings and recommendations of agencies of the Federal Government and of
34 any advisory committee or group established under ORS 634.306 (10).

35 (C) The existence of an effective antidote under known conditions of use for which the material
36 is intended or recommended.

37 (D) Residual or delayed toxicity of the material.

38 (E) The extent to which a pesticide or its carrying agent simulates by appearance and may be
39 mistaken for human food or animal feed.

40 (7) The provisions of this section shall not, except as provided herein, apply to:

41 (a) The use and purchase of pesticides by the Federal Government or its agencies.

42 (b) The sale or exchange of pesticides between manufacturers and distributors.

43 (c) Drugs, chemicals or other preparations sold or intended for medicinal or toilet purposes or
44 for use in the arts or sciences.

1 (d) Common carriers, contract carriers or public warehousemen delivering or storing pesticides,
2 except as provided in ORS 634.322.

3 **SECTION 67.** ORS 459.005 is amended to read:

4 459.005. As used in ORS 275.275, 459.005 to 459.385, unless the context requires otherwise:

5 (1) "Affected person" means a person or entity involved in the solid waste collection service
6 process including but not limited to a recycling collection service, disposal site permittee or owner,
7 city, county and metropolitan service district.

8 (2) "Area of the state" means any city or county or combination or portion thereof or other
9 geographical area of the state as may be designated by the commission.

10 (3) "Board of county commissioners" or "board" includes county court.

11 (4) "Collection franchise" means a franchise, certificate, contract or license issued by a city or
12 county authorizing a person to provide collection service.

13 (5) "Collection service" means a service that provides for collection of solid waste or recyclable
14 material or both.

15 (6) "Commission" means the Environmental Quality Commission.

16 (7) "Conditionally exempt small quantity generator" means a person that generates a
17 hazardous waste but is conditionally exempt from substantive regulation because the waste
18 is generated in quantities below the threshold for regulation adopted by the commission
19 pursuant to ORS 466.020.

20 [(7)] (8) "Department" means the Department of Environmental Quality.

21 [(8)] (9) "Disposal site" means land and facilities used for the disposal, handling or transfer of
22 or resource recovery from solid wastes, including but not limited to dumps, landfills, sludge lagoons,
23 sludge treatment facilities, disposal sites for septic tank pumping or cesspool cleaning service,
24 transfer stations, resource recovery facilities, incinerators for solid waste delivered by the public
25 or by a solid waste collection service, composting plants and land and facilities previously used for
26 solid waste disposal at a land disposal site; but the term does not include a facility subject to the
27 permit requirements of ORS 468.740; a landfill site which is used by the owner or person in control
28 of the premises to dispose of soil, rock, concrete or other similar nondecomposable material, unless
29 the site is used by the public either directly or through a solid waste collection service; or a site
30 operated by a wrecker issued a certificate under ORS 822.110.

31 (10) "Hazardous waste" has the meaning given that term in ORS 466.005.

32 (11) "Hazardous waste collection service" means a service that collects hazardous waste
33 from exempt small quantity generators and from households.

34 (12) "Household hazardous waste" means any discarded, useless or unwanted chemical,
35 material, substance or product that is or may be hazardous or toxic to the public or the
36 environment and is commonly used in or around households which may include, but is not
37 limited to, some cleaners, solvents, pesticides, and automotive and paint products.

38 [(9)] (13) "Land disposal site" means a disposal site in which the method of disposing of solid
39 waste is by landfill, dump, pit, pond or lagoon.

40 [(10)] (14) "Land reclamation" means the restoration of land to a better or more useful state.

41 [(11)] (15) "Local government unit" means a city, county, metropolitan service district formed
42 under ORS chapter 268, sanitary district or sanitary authority formed under ORS chapter 450,
43 county service district formed under ORS chapter 451, regional air quality control authority formed
44 under ORS 468.500 to 468.530 and 468.540 to 468.575 or any other local government unit responsible

1 for solid waste management.

2 ~~[(12)]~~ (16) "Metropolitan service district" means a district organized under ORS chapter 268 and
3 exercising solid waste authority granted to such district under this chapter and ORS chapter 268.

4 (17) "Periodic collection event" means the collection of household hazardous waste or
5 conditionally exempt small quantity generator hazardous waste at a temporary facility.

6 ~~[(13)]~~ (18) "Permit" includes, but is not limited to, a conditional permit.

7 ~~[(14)]~~ (19) "Person" means the state or a public or private corporation, local government unit,
8 public agency, individual, partnership, association, firm, trust, estate or any other legal entity.

9 ~~[(15)]~~ (20) "Recyclable material" means any material or group of materials that can be collected
10 and sold for recycling at a net cost equal to or less than the cost of collection and disposal of the
11 same material.

12 ~~[(16)]~~ (21) "Regional disposal site" means:

13 (a) A disposal site selected pursuant to chapter 679, Oregon Laws 1985; or

14 (b) A disposal site that receives, or a proposed disposal site that is designed to receive more
15 than 75,000 tons of solid waste a year from commercial haulers from outside the immediate service
16 area in which the disposal site is located. As used in this paragraph, "immediate service area"
17 means the county boundary of all counties except a county that is within the boundary of the met-
18 ropolitan service district. For a county within the metropolitan service district, "immediate service
19 area" means the metropolitan service district boundary.

20 ~~[(17)]~~ (22) "Resource recovery" means the process of obtaining useful material or energy re-
21 sources from solid waste and includes:

22 (a) "Energy recovery," which means recovery in which all or a part of the solid waste materials
23 are processed to utilize the heat content, or other forms of energy, of or from the material.

24 (b) "Material recovery," which means any process of obtaining from solid waste, by presegre-
25 gation or otherwise, materials which still have useful physical or chemical properties after serving
26 a specific purpose and can, therefore, be reused or recycled for the same or other purpose.

27 (c) "Recycling," which means any process by which solid waste materials are transformed into
28 new products in such a manner that the original products may lose their identity.

29 (d) "Reuse," which means the return of a commodity into the economic stream for use in the
30 same kind of application as before without change in its identity.

31 ~~[(18)]~~ (23) "Solid waste collection service" or "service" means the collection, transportation or
32 disposal of or resource recovery from solid wastes but does not include that part of a business op-
33 erated under a certificate issued under ORS 822.110.

34 ~~[(19)]~~ (24) "Solid waste" means all putrescible and nonputrescible wastes, including but not
35 limited to garbage, rubbish, refuse, ashes, waste paper and cardboard; sewage sludge, septic tank
36 and cesspool pumpings or other sludge; commercial, industrial, demolition and construction wastes;
37 discarded or abandoned vehicles or parts thereof; discarded home and industrial appliances; manure,
38 vegetable or animal solid and semisolid wastes, dead animals and other wastes; but the term does
39 not include:

40 (a) Hazardous wastes as defined in ORS 466.005.

41 (b) Materials used for fertilizer or for other productive purposes or which are salvageable as
42 such materials are used on land in agricultural operations and the growing or harvesting of crops
43 and the raising of fowls or animals.

44 ~~[(20)]~~ (25) "Solid waste management" means prevention or reduction of solid waste; management

1 of the storage, collection, transportation, treatment, utilization, processing and final disposal of solid
2 waste; or resource recovery from solid waste; and facilities necessary or convenient to such activ-
3 ities.

4 [(21)] (26) "Source separate" means that the person who last uses recyclable material separates
5 the recyclable material from solid waste.

6 [(22)] (27) "Transfer station" means a fixed or mobile facility normally used, as an adjunct of a
7 solid waste collection and disposal system or resource recovery system, between a collection route
8 and a disposal site, including but not limited to a large hopper, railroad gondola or barge.

9 [(23)] (28) "Waste" means useless or discarded materials.

10 [(24)] (29) "Wasteshed" means an area of the state having a common solid waste disposal system
11 or designated by the commission as an appropriate area of the state within which to develop a
12 common recycling program.

13 **SECTION 68.** Sections 69 to 76 and 155 and 156 of this Act are added to and made a part of
14 ORS 459.005 to 459.385.

15 **SECTION 69.** (1) The Legislative Assembly finds:

16 (a) Persons have limited opportunities to properly manage household hazardous waste;

17 (b) Businesses that are conditionally exempt small quantity generators of hazardous waste do
18 not have feasible options for the management of hazardous waste; and

19 (c) The disposal of household hazardous waste and exempt small quantity generator hazardous
20 waste in solid waste disposal sites and sewage facilities presents a potential hazard to the public
21 health and the environment because these sites and facilities may not be designed for the disposal
22 of hazardous waste.

23 (2) Therefore, the Legislative Assembly declares that it is in the interest of public health, safety
24 and the environment to provide:

25 (a) Alternatives to disposal of hazardous waste and household hazardous waste at solid waste
26 disposal sites and sewage facilities; and

27 (b) Information and education programs about:

28 (A) Alternatives for the management of hazardous waste and household hazardous waste;

29 (B) Methods of reusing and recycling hazardous waste and household hazardous waste; and

30 (C) Alternatives to the use of products that lead to the generation of hazardous waste and
31 household hazardous waste.

32 **SECTION 70.** (1) The department shall conduct, for a period not to exceed three years, a pilot
33 project to operate periodic household hazardous waste collection events in local government units
34 outside the boundaries of the metropolitan service district. The pilot project may include periodic
35 collection of conditionally exempt small quantity generator waste.

36 (2) In determining which local government units are to be involved in the pilot project, the de-
37 partment shall consider:

38 (a) The amount of money available for the pilot project;

39 (b) The order in which the department receives requests from local government units to partic-
40 ipate;

41 (c) The population of each local government unit requesting to be part of the pilot project, and
42 the area served by the proposed collection event so that the most people and the widest areas can
43 be served;

44 (d) Geographic coverage throughout the state that allows as many areas of the state as possible

1 to have some kind of reasonable access to the pilot project; and

2 (e) The information provided by each local government unit requesting to be part of the pilot
3 project.

4 (3) In addition to conducting the pilot project, the department shall assist local government units
5 to promote an effective household hazardous waste collection program.

6 (4) The department shall report to the Sixty-seventh Legislative Assembly on the implementation
7 of the pilot project and the results of the pilot project.

8 **SECTION 71.** In order to participate in the pilot project under section 70 of this 1989 Act, a
9 local government unit shall:

10 (1) Submit a written request to the department describing the local government's proposed pe-
11 riodic collection events, including a detailed description of the work to be provided by the local
12 government unit;

13 (2) Agree to promote the project at a level acceptable to the department;

14 (3) Select sites suitable for holding the collection events;

15 (4) Recruit and train volunteers to assist with the collection events; and

16 (5) Otherwise assist with local coordination of the periodic collection event.

17 **SECTION 72.** As a part of the pilot project described in section 70 of this 1989 Act, and at the
18 request of a local government unit, the department may contract for administration of all or part
19 of a periodic household hazardous waste collection event, including the management, recycling and
20 disposal of waste collected by the local government unit in its program.

21 **SECTION 73.** (1) The Department of Environmental Quality shall study management options
22 and funding alternatives for hazardous waste generated by conditionally exempt generators. The
23 department shall report its findings and recommendations to the Sixty-sixth Legislative Assembly.

24 (2) The department shall contract for a pilot project, for a period not to exceed three years,
25 within the boundaries of the metropolitan service district, to provide for the collection or receipt
26 of hazardous waste from conditionally exempt small quantity generators. The pilot project may also
27 collect or receive household hazardous waste.

28 (3) The pilot project under this section may include a collection service or receiving stations for
29 conditionally exempt small quantity generator hazardous waste or other management alternatives
30 identified in the study conducted under subsection (1) of this section.

31 (4) Any fees charged to conditionally exempt generators involved in the pilot project shall be
32 reasonable and balance the need to promote waste reduction through fees on disposal and the need
33 to encourage the public to use the service.

34 (5) The department may contract with the metropolitan service district to carry out the re-
35 quirements of subsections (2) to (4) of this section.

36 (6) To the extent funds are available, the department may conduct similar pilot projects in other
37 local government units outside the boundaries of the metropolitan service district.

38 (7) The department shall report to the Sixty-seventh Legislative Assembly on the implementation
39 of the pilot project and the results of the pilot project.

40 **SECTION 74.** (1) On or before January 1, 1991, the metropolitan service district shall establish
41 permanent depots to receive household hazardous waste. The depots shall be:

42 (a) Developed at geographically diverse locations throughout the district; and

43 (b) Located and operationally designed to conveniently receive household hazardous waste from
44 the general public on an ongoing basis.

1 (2) In conjunction with establishing permanent depots under subsection (1) of this section, the
2 metropolitan service district also shall develop and implement a promotion program to encourage
3 citizens to use the depots for household hazardous waste disposal.

4 **SECTION 75.** (1) Before any local government operates a permanent collection depot or peri-
5 odic collection events for household hazardous waste or conditionally exempt small quantity gener-
6 ator hazardous waste, the local government shall receive written approval from the department.

7 (2) In requesting written approval from the department, a local government unit proposing to
8 operate a permanent collection depot or periodic collection events shall submit a detailed proposal.
9 The proposal shall include at least the following information:

10 (a) Measures to be taken to insure safety of the public and employes or volunteers working at
11 the collection site;

12 (b) Measures to be taken to prevent spills or releases of hazardous waste and a plan to respond
13 to a spill or release if one occurs;

14 (c) A copy of the request for proposals for a contractor to properly manage and recycle or dis-
15 pose of the waste collected in a manner consistent with the commission's rules for hazardous waste
16 collection, storage, transportation and disposal; and

17 (d) Measures to be implemented to insure no waste is accepted from generators of hazardous
18 waste subject to regulation under ORS 466.005 to 466.385 and 466.890 unless the intent is to specif-
19 ically collect such waste.

20 (3) The department may request additional information about the proposed program from the
21 local government unit. The department shall not approve a program unless the program provides
22 adequate provisions to protect the public health, safety and the environment.

23 **SECTION 76.** The department shall implement a state-wide household hazardous waste public
24 education program. The program shall include but need not be limited to providing information
25 about:

26 (1) Alternatives to disposal of household hazardous waste at solid waste disposal sites;

27 (2) Methods of reusing or recycling household hazardous waste; and

28 (3) Alternatives to the use of products that lead to the generation of household hazardous waste.

29 **SECTION 77.** ORS 468.065 is amended to read:

30 468.065. Subject to any specific requirements imposed by ORS 448.305, 454.010 to 454.040, 454.205
31 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter:

32 (1) Applications for all permits authorized or required by ORS 448.305, 454.010 to 454.040,
33 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter shall be
34 made in a form prescribed by the department. Any permit issued by the department shall specify its
35 duration, and the conditions for compliance with the rules and standards, if any, adopted by the
36 commission pursuant to ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505
37 to 454.535, 454.605 to 454.745 and this chapter.

38 (2) By rule and after hearing, the commission may establish a schedule of permit fees for permits
39 issued pursuant to ORS [459.205,] 468.310, 468.315, 468.555 and 468.740. The permit fees contained in
40 the schedule shall be based upon the anticipated cost of filing and investigating the application, of
41 issuing or denying the requested permit, and of an inspection program to determine compliance or
42 noncompliance with the permit. The permit fee shall accompany the application for the permit.

43 (3) The department may require the submission of plans, specifications and corrections and re-
44 visions thereto and such other reasonable information as it considers necessary to determine the

1 eligibility of the applicant for the permit.

2 (4) The department may require periodic reports from persons who hold permits under ORS
3 448.305, 454.010 to 454.040, 454.205 to 454.225, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745
4 and this chapter. The report shall be in a form prescribed by the department and shall contain such
5 information as to the amount and nature or common description of the pollutant, contaminant or
6 waste and such other information as the department may require.

7 (5) Any fee collected under this section shall be deposited in the State Treasury to the credit
8 of an account of the department. Such fees are continuously appropriated to meet the administrative
9 expenses of the program for which they are collected. The fees accompanying an application to a
10 regional air pollution control authority pursuant to a permit program authorized by the commission
11 shall be retained by and shall be income to the regional authority. Such fees shall be accounted for
12 and expended in the same manner as are other funds of the regional authority. However, if the de-
13 partment finds after hearing that the permit program administered by the regional authority does
14 not conform to the requirements of the permit program approved by the commission pursuant to
15 ORS 468.555, such fees shall be deposited and expended as are permit fees submitted to the depart-
16 ment.

17 **SECTION 78. ORS 275.275 is amended to read:**

18 275.275. (1)(a) The proceeds arising under ORS 275.090 to 275.290 and 275.296 to 275.310 first
19 shall be applied to refund the county general fund for the full amount advanced by the county to
20 pay the state tax upon all properties upon which the county has foreclosed liens for delinquent
21 taxes, and second, shall be applied to refund the county general fund for all the costs and expenses
22 incurred by the county in the maintenance and supervision of such properties and in any suits by
23 it to quiet its title to property sold. The proceeds so applied as refunds shall not amount to more
24 than the tax actually paid and the costs and expenses actually incurred by the county.

25 (b) After the refunds authorized under paragraph (a) of this subsection are made, the county
26 treasurer shall credit to the general fund of the county proceeds arising under ORS 275.090 to
27 275.290 and 275.296 to 275.310 from the sale of real property acquired by the county in any manner
28 other than by foreclosure of delinquent tax liens or by exchange for land originally acquired by
29 foreclosure of delinquent tax liens and proceeds arising under ORS 275.294 from any lease or
30 conveyance granting rights to explore, prospect for or remove biogas that is produced by decom-
31 position of solid waste at any land disposal site or former land disposal site owned by the county.
32 The proceeds described in this paragraph include payments for such real property sold under con-
33 tract pursuant to ORS 275.190 or 275.200. As used in this paragraph, "land disposal site" has the
34 meaning given that term in ORS 459.005 (9).

35 (2)(a) Except for the proceeds arising under ORS 275.294 that are described in subsection (1) of
36 this section, all proceeds arising under ORS 275.294 shall be segregated from the proceeds described
37 in subsection (1) of this section and shall be deposited in a separate account maintained by the
38 county. Only moneys obtained under ORS 275.294, and interest earned thereon, shall be credited to
39 the account established under this paragraph.

40 (b) Not more than 10 percent of the proceeds arising under ORS 275.294 may be applied to re-
41 imburse any taxing district within the county for costs and expenses necessarily incurred by the
42 district in providing improved, additional or extraordinary services required on lands in the county
43 as a result of exploration, drilling, mining, logging or other activities authorized under a lease or
44 conveyance under ORS 275.294. Such services include, but are not limited to, fire protection and

1 road construction and maintenance.

2 (c) Ten percent of the proceeds arising under ORS 275.294 may be applied to reimburse the
3 county for administrative expenses incurred under ORS 275.294 and this subsection. If, in any year,
4 such expenses exceed 10 percent of the proceeds arising under ORS 275.294, the amount of expenses
5 not reimbursed may be carried forward into succeeding years until the county is fully reimbursed.
6 However, not more than 10 percent of the proceeds arising under ORS 275.294 in any one year may
7 be used for such reimbursement.

8 (d) Costs and expenses sought to be reimbursed under this subsection shall be verified by the
9 county treasurer or auditor.

10 (e) Moneys applied as reimbursement under this subsection shall be distributed by the county
11 treasurer in accordance with an order of the county governing body.

12 (3) After a portion of the proceeds is applied as provided in subsections (1) and (2) of this sec-
13 tion, the balance of the proceeds arising under ORS 275.090 to 275.310, including the payments for
14 land sold under contract pursuant to ORS 275.190 or 275.200, shall be distributed by the county
15 treasurer in accordance with an order of the county governing body in accordance with the formula
16 provided in ORS 311.390 which is currently being used for the distribution of tax collections.
17 Notwithstanding ORS 294.080, as used in this subsection, "balance of the proceeds arising under
18 ORS 275.090 to 275.310" includes all accumulated interest earned on the proceeds arising under ORS
19 275.294, unless a court of competent jurisdiction rules otherwise.

20 (4) Distribution of moneys under subsections (2) and (3) of this section shall be made on or be-
21 fore June 30 and December 31 in each year.

22 **SECTION 79.** ORS 284.310 is amended to read:

23 284.310. As used in ORS 284.310 to 284.530, unless the context requires otherwise:

24 (1) "Department" means the Economic Development Department.

25 (2) "Municipality" means a city, a county, a port incorporated under ORS 777.010 and 777.050,
26 the Port of Portland created by ORS 778.010, a metropolitan service district organized under ORS
27 chapter 268 or a domestic water supply district organized under ORS chapter 264.

28 (3) "Infrastructure project" means:

29 (a) A project for the construction of sewage treatment works, solid waste disposal sites, water
30 supply works, roads, public transportation, railroad industrial spurs or sidings or other facilities that
31 comprise the physical foundation for industrial and commercial activity.

32 (b) A project, in consultation with the Department of Transportation, the Public Utility Com-
33 mission and other affected agencies, for the acquisition, reconstruction, rehabilitation, operation and
34 maintenance of an abandoned railroad line or railroad line that has been designated by the owner
35 and operator thereof as subject to abandonment within a three-year period pursuant to federal law
36 and regulations governing abandonment of common carrier railroad lines. The project may include
37 reconstruction or rehabilitation necessary to begin operation of the line.

38 (4) "Public transportation" includes public depots, public parking, public docks, public wharves,
39 railroads and airport facilities.

40 (5) "Roads" includes:

41 (a) Ways described as streets, highways, throughways or alleys;

42 (b) Road related structures that are in the right of way such as tunnels, culverts or similar
43 structures; and

44 (c) Structures that provide for continuity of the right of way such as bridges.

1 (6) "Sewage treatment works" includes all facilities necessary for collecting, pumping, treating
2 and disposing of sanitary or storm sewage.

3 (7) "Solid waste disposal site" has the meaning given to the term "disposal site" by ORS 459.005
4 [(8)].

5 (8) "Water supply works" includes all facilities necessary for tapping natural sources of domes-
6 tic and industrial water, treating and protecting the quality of the water and transmitting it to the
7 point of sale to any public or private agency for domestic, municipal and industrial water supply
8 service.

9 (9) "Urban infrastructure projects" includes all those projects located in whole or in part within
10 the acknowledged Portland Metropolitan Area Regional Urban Growth Boundary, and the acknowl-
11 edged urban growth boundaries of the cities of Eugene, Springfield, Salem, Keizer or Medford or
12 projects that will principally benefit these areas. The Director of the Economic Development De-
13 partment is authorized to resolve situations left in question by this definition.

14 (10) "Nonurban infrastructure projects" includes all those projects which do not meet the defi-
15 nition of urban infrastructure projects.

16 **SECTION 80.** Sections 81 to 91 of this Act are added to and made a part of ORS 453.307 to
17 453.372.

18 **SECTION 81.** In order to protect life and property against the dangers of emergencies involving
19 a hazardous substance as defined in ORS 453.307, the State Fire Marshal may assign and make
20 available for use and duty in any county, city or district, under the direction and command of a
21 person designated by the State Fire Marshal, any part of a regional hazardous material response
22 team and specialized equipment that may be necessary to respond to the emergency.

23 **SECTION 82.** The State Fire Marshal shall establish by rule a plan for the effective imple-
24 mentation of a state-wide hazardous material emergency response system, which, to the extent
25 practicable, shall be consistent with the emergency response plan adopted under ORS 466.620. The
26 state-wide hazardous material emergency response system shall include, but need not be limited to:

27 (1) Provisions for coordinating the duties and responsibilities of regional hazardous material
28 response teams, including related procedures for 24-hour dispatching and emergency communi-
29 cations;

30 (2) A schedule of fees for computing the reimbursement for extraordinary response costs in-
31 curred by a regional hazardous material response team as authorized by sections 81 to 91 of this
32 1989 Act; and

33 (3) Provisions for ongoing training programs for local government and state agency employes
34 involved in response to spills or releases of oil and hazardous material. The State Fire Marshal may
35 coordinate its training programs with emergency response training programs offered by local, state
36 and federal agencies, community colleges and institutes of higher education and private industry in
37 order to reach the maximum number of employes, avoid unnecessary duplication and conserve lim-
38 ited training funds.

39 **SECTION 83.** (1) In order to determine the need for response to a spill or release or threatened
40 spill or release under ORS 453.307 to 453.372, or enforcing the provisions of ORS 453.307 to 453.372,
41 any person who prepares, manufactures, processes, packages, stores, transports, handles, uses, ap-
42 plies, treats or disposes of oil or hazardous material shall, upon the request of the State Fire Mar-
43 shal:

44 (a) Furnish information relating to the oil or hazardous material; and

1 (b) Permit the State Fire Marshal at all reasonable times to have access to and copy, records
2 relating to the type, quantity, storage locations and hazards of the oil or hazardous material.

3 (2) In order to carry out subsection (1) of this section, the State Fire Marshal may enter to in-
4 spect at reasonable times any establishment or other place where oil or hazardous material is
5 present.

6 **SECTION 84.** (1) In order to determine the need for response to a spill or release or threatened
7 spill or release under ORS 453.307 to 453.372, any person who prepares, manufactures, processes,
8 packages, stores, transports, handles, uses, applies, treats or disposes of oil or hazardous material
9 shall, upon the request of any authorized local government official, permit the official at all rea-
10 sonable times to have access to and copy, records relating to the type, quantity, storage locations
11 and hazards of the oil or hazardous material.

12 (2) In order to carry out subsection (1) of this section a local government official may enter to
13 inspect at reasonable times any establishment or other place where oil or hazardous material is
14 present.

15 (3) As used in this section, "local government official" includes but is not limited to an officer,
16 employe or representative of a county, city, fire department, fire district or police agency.

17 **SECTION 85.** During operations authorized under sections 81 to 91 this 1989 Act, members of
18 regional hazardous materials response teams shall be protected and defended from liability under
19 ORS 30.260 to 30.300.

20 **SECTION 86.** (1) In order to accomplish the purposes of sections 81 to 91 of this 1989 Act, the
21 State Fire Marshal may lend equipment and make grants, as funds are available, to any local gov-
22 ernment participating in the state-wide hazardous material emergency response system.

23 (2) In allocating state equipment grants under sections 81 to 91 of this 1989 Act, the State Fire
24 Marshal may provide up to 90 percent of the financing for the equipment. A local government re-
25 ceiving grant moneys shall contribute at least 10 percent to the equipment costs. Such contribution
26 may be in a form agreed upon by the local government and the State Fire Marshal and may include,
27 but need not be limited to, providing emergency response to areas outside the local jurisdiction,
28 paying of insurance costs of the equipment or providing maintenance for the equipment.

29 **SECTION 87.** (1) The State Fire Marshal and any local government may enter into contracts
30 with each other concerning eligible equipment loans or purchases. The contract may include any
31 provisions agreed upon by the parties thereto, and for grants shall include the following provisions:

32 (a) An estimate of the reasonable cost of the eligible equipment purchases, as determined by the
33 State Fire Marshal.

34 (b) An agreement by the local government:

35 (A) To proceed expeditiously with, and complete, the equipment purchases in accordance with
36 plans approved by the State Fire Marshal; and

37 (B) To provide for the payment of the local government's share of the cost of the equipment
38 purchases.

39 (2) The State Fire Marshal may adopt rules necessary for making and enforcing contracts under
40 this section and establishing procedures to be followed in applying for state equipment loans or
41 grants authorized by section 86 of this 1989 Act.

42 (3) All contracts entered into pursuant to this section shall be subject to approval by the At-
43 torney General as to form. All payments by the state pursuant to such contracts shall be made after
44 audit and upon warrant on vouchers approved by the State Fire Marshal.

1 **SECTION 88.** (1) When requested in writing by the State Fire Marshal, the Executive Department shall draw a warrant on the State Fire Marshal Fund in favor of the State Fire Marshal for use as a revolving fund. The State Treasurer shall hold the revolving fund in a special account against which the State Fire Marshal may draw checks.

5 (2) The State Fire Marshal may use the revolving fund for the purposes specified in sections 86 and 87 of this 1989 Act.

7 (3) All claims by the State Fire Marshal for reimbursement of advances paid from the revolving fund are subject to approval by the Executive Department. When such claims have been approved, a warrant covering them shall be drawn in favor of the State Fire Marshal, charged against the appropriate funds and accounts and used to reimburse the revolving fund.

11 **SECTION 89.** (1) Whenever the State Fire Marshal dispatches a regional hazardous material response team to an emergency involving a hazardous material or hazardous substance, the State Fire Marshal may bill the person responsible for causing the emergency for the cost of responding to the emergency. The billing shall be on forms established by the State Fire Marshal for such purposes.

16 (2) If the person fails to pay the cost set forth in a billing within 30 days after the second billing, the State Fire Marshal may either:

18 (a) Bring an action for the recovery of such unpaid cost from the person responsible for causing the hazardous material or hazardous substance emergency; or

20 (b) Initiate a contested case hearing according to the applicable provisions of ORS 183.310 to 183.550.

22 (3) Notwithstanding any provision of ORS 183.310 to 183.550, nothing in subsection (2) of this section shall be considered to require the State Fire Marshal to conduct a contested case hearing as a prerequisite to bringing an action under paragraph (a) of subsection (2) of this section.

25 **SECTION 90.** The State Fire Marshal may disburse moneys from the revolving fund established under section 88 of this 1989 Act to any local government unable to pay the expenses incurred by a regional hazardous material response team that responds to an emergency within the jurisdiction of the local government or to defray any extraordinary costs of a local response team responding to the emergency.

30 **SECTION 91.** Before initial adoption of rules to carry out the provisions of sections 81 to 91 of this 1989 Act, the State Fire Marshal shall report to the President of the Senate and the Speaker of the House of Representatives and to the appropriate legislative committee.

33 **SECTION 92.** ORS 466.620 is amended to read:

34 466.620. *[(1)]* In accordance with the applicable provisions of ORS 183.310 to 183.550, the Environmental Quality Commission shall adopt an oil and hazardous material emergency response master plan consistent with the plan adopted by the Interagency Hazard Communications Council pursuant to the provisions of ORS 453.317 (1) to (6), 453.510, 453.825 and 453.835, and after consultation with the Interagency Hazard Communications Council, the Oregon State Police, the Oregon Fire Chiefs Association and any other appropriate agency or organization.

40 *[(2)]* The master plan adopted under subsection (1) of this section shall include but need not be limited to provisions for ongoing training programs for local government and state agency employees involved in response to spills or releases of oil and hazardous material. The department may coordinate its training programs with emergency response training programs offered by local, state and federal agencies, community colleges and institutes of higher education and private industry in order to reach

1 *the maximum number of employees, avoid unnecessary duplication and conserve limited training*
2 *funds.)*

3 **SECTION 93.** ORS 466.670 is amended to read:

4 466.670. (1) The Oil and Hazardous Material Emergency Response and Remedial Action Fund is
5 established separate and distinct from the General Fund in the State Treasury. *[As permitted by*
6 *federal court decisions, federal statutory requirements and administrative decisions, after payment of*
7 *associated legal expenses, moneys not to exceed \$2.5 million received by the State of Oregon from the*
8 *Petroleum Violation Escrow Fund of the United States Department of Energy that is not obligated by*
9 *federal requirements to existing energy programs shall be paid into the State Treasury and credited to*
10 *the fund.]* **Moneys received by the Department of Environmental Quality for the purpose of**
11 **oil or hazardous material emergency response or remedial action shall be paid into the State**
12 **Treasury and credited to the fund.**

13 (2) The State Treasurer shall invest and reinvest moneys in the Oil and Hazardous Material
14 Emergency Response and Remedial Action Fund in the manner provided by law.

15 (3) The moneys in the Oil and Hazardous Material Emergency Response and Remedial Action
16 Fund are appropriated continuously to the Department of Environmental Quality to be used in the
17 manner described in ORS 466.675.

18 **SECTION 94.** ORS 466.675 is amended to read:

19 466.675. Moneys in the Oil and Hazardous Material Emergency Response and Remedial Action
20 Fund may be used by the Department of Environmental Quality for the following purposes:

21 *[(1) Training local government employes involved in response to spills or releases of oil and haz-*
22 *ardous material.]*

23 *[(2) Training of state agency employes involved in response to spills or releases of oil and haz-*
24 *ardous material.]*

25 *[(3)]* (1) Funding actions and activities authorized by ORS 466.645, 466.205, 468.800 and 468.805.

26 *[(4)]* (2) Providing for the general administration of ORS 466.605 to 466.680 including the *[pur-*
27 *chase of equipment and]* payment of personnel costs of the department or any other state agency
28 related to the enforcement of ORS 466.605 to 466.680.

29 **SECTION 95.** ORS 466.010 is amended to read:

30 466.010. (1)(a) The Legislative Assembly finds that it is in the interest of public health and safety
31 and environment to protect Oregon citizens from the potential harmful effects of the transportation
32 and treatment or disposal of hazardous waste and PCB within Oregon.

33 (b) Therefore, the Legislative Assembly declares that it is the purpose of ORS 466.005 to 466.385
34 and 466.890 to:

35 (A) Protect the public health and safety and environment of Oregon to the maximum extent
36 possible;

37 (B) Exercise the maximum amount of control over actions within Oregon relating to hazardous
38 waste and PCB transportation and treatment or disposal;

39 (C) Limit to the extent possible the treatment or disposal of hazardous waste and PCB in Oregon
40 to materials originating in the states that are parties to the Northwest Interstate Compact on
41 Low-Level Radioactive Waste Management under ORS 469.930; and

42 (D) Limit to the extent possible the size of any hazardous waste or PCB treatment or disposal
43 facility in Oregon to a size *[that is appropriate to treat or dispose of waste or PCB originating in*
44 *Oregon and, if capacity permits, to waste or PCB originating in those states that are parties to the*

1 Northwest Interstate Compact on Low-Level Radioactive Waste Management under ORS 469.930 equal
2 to the amount of waste and PCB originating in Oregon, Washington, Idaho and Alaska of the
3 type handled by such a treatment or disposal facility.

4 (2) The Legislative Assembly further finds and declares that in the interest of public health and
5 safety and to protect the environment, it is the policy of the State of Oregon to give priority in
6 managing hazardous waste in Oregon to methods that reduce the quantity and toxicity of hazardous
7 waste generated before using methods that reuse hazardous waste, recycle hazardous waste that
8 cannot be reused, treat hazardous waste or dispose of hazardous waste by landfilling.

9 **SECTION 96.** ORS 466.055 is amended to read:

10 466.055. Before issuing a permit for a new facility designed to dispose of or treat hazardous
11 waste or PCB, the commission must find, on the basis of information submitted by the applicant, the
12 department or any other interested party, that the proposed facility meets the following criteria:

13 (1) The proposed facility location:

14 (a) Is suitable for the type and amount of hazardous waste or PCB intended for treatment or
15 disposal at the facility;

16 (b) Provides the maximum protection possible to the public health and safety and environment
17 of Oregon from release of the hazardous waste or PCB stored, treated or disposed of at the facility;
18 and

19 (c) Is situated sufficient distance from urban growth boundaries, as defined in ORS 197.295, to
20 protect the public health and safety, accessible by transportation routes that minimize the threat to
21 the public health and safety and to the environment and sufficient distance from parks, wilderness
22 and recreation areas to prevent adverse impacts on the public use and enjoyment of those areas.

23 (2) Subject to any applicable standards adopted under ORS 466.035, the design of the proposed
24 facility:

25 (a) Allows for treatment or disposal of the range of hazardous waste or PCB as required by the
26 commission; and

27 (b) Significantly adds to:

28 (A) The range of hazardous waste or PCB handled at a treatment or disposal facility currently
29 permitted under ORS 466.005 to 466.385; or

30 (B) The type of technology employed at a treatment or disposal facility currently permitted un-
31 der ORS 466.005 to 466.385.

32 (3) The proposed facility uses the best available technology for treating or disposing of hazard-
33 ous waste or PCB as determined by the department or the United States Environmental Protection
34 Agency.

35 (4) The need for the facility is demonstrated by:

36 (a) Lack of adequate current treatment or disposal capacity in Oregon, Washington, Idaho
37 and Alaska to handle hazardous waste or PCB generated by Oregon companies;

38 (b) A finding that operation of the proposed facility would result in a higher level of protection
39 of the public health and safety or environment; or

40 (c) Significantly lower treatment or disposal costs to Oregon companies.

41 (5) The proposed hazardous waste or PCB treatment or disposal facility has no major adverse
42 effect on either:

43 (a) Public health and safety; or

44 (b) Environment of adjacent lands.

1 **SECTION 97.** ORS 466.060 is amended to read:

2 466.060. (1) Before issuing a permit for a facility designed to treat or dispose of hazardous waste
3 or PCB, the permit applicant must demonstrate, and the commission must find, that the owner and
4 operator meet the following criteria:

5 [(1)] (a) The owner, any parent company of the owner and the operator have adequate financial
6 and technical capability to properly construct and operate the facility; and

7 [(2)] (b) The compliance history of the owner including any parent company of the owner and
8 the operator in owning and operating other similar facilities, if any, indicates an ability and will-
9 ingness to operate the proposed facility in compliance with the provisions of ORS 466.005 to 466.385
10 and 466.890 or any condition imposed on the permittee by the commission.

11 (2) If requested by the permit applicant, information submitted as confidential under
12 paragraph (a) of subsection (1) of this section shall be maintained confidential and exempt
13 from public disclosure to the extent provided by Oregon law.

14 **SECTION 98.** Sections 99 and 100 of this Act are added to and made a part of ORS 466.005 to
15 466.385.

16 **SECTION 99.** Any person operating a hazardous waste or PCB disposal facility pursuant to a
17 permit issued under ORS 466.005 to 466.385 shall not accept hazardous waste or PCB from an
18 Oregon generator unless the generator first certifies that the generator has implemented a toxics
19 use reduction and hazardous waste reduction program as required under Oregon law, or with re-
20 spect to an out-of-state generator, the generator has certified compliance with the waste minimiza-
21 tion requirements of section 224(a) of the Hazardous and Solid Waste Amendments of 1984, P.L.
22 98-616.

23 **SECTION 100.** (1) The Department of Environmental Quality shall work with representatives
24 of the States of Washington, Idaho and Alaska to establish provisions in each state to assure that
25 any generator disposing of hazardous waste or PCB at an Oregon hazardous waste or PCB disposal
26 facility has implemented a toxics use reduction and hazardous waste reduction program substantially
27 equivalent to any toxics use reduction and hazardous waste reduction program required of Oregon
28 generators.

29 (2) The department shall report to the appropriate legislative interim committee on the depart-
30 ment's progress in carrying out the purpose of subsection (1) of this section.

31 **SECTION 101.** Sections 102 to 111 of this Act are added to and made a part of ORS 466.540 to
32 466.590.

33 **SECTION 102.** (1) The Legislative Assembly finds that:

34 (a) The costs of cleanup may result in economic hardship or bankruptcy for individuals and
35 businesses that are otherwise financially viable;

36 (b) These persons may be willing to clean up their sites and pay the associated costs; however,
37 financial assistance from private lenders may not be available to pay for the cleanup; and

38 (c) It is in the interest of the public health, safety, welfare and the environment to establish a
39 program of financial assistance for cleanups, to help individuals and businesses maintain financial
40 viability, increasing the share of cleanup costs paid by responsible persons and ultimately decreasing
41 amounts paid from state funds.

42 (2) Therefore, the Legislative Assembly declares that it is the intent of sections 102 to 111 of
43 this 1989 Act:

44 (a) To assure that moneys for financial assistance are available on a continuing basis consistent

1 with the length and terms provided by the financial assistance agreements; and

2 (b) To provide authority to the Department of Environmental Quality to develop and implement
3 innovative approaches to financial assistance for cleanups conducted under ORS 466.540 to 466.590
4 or, at the discretion of the department, under other applicable authorities.

5 **SECTION 103.** As used in sections 102 to 111 of this 1989 Act, "person" includes but need not
6 be limited to a person liable under ORS 466.567. Except as provided in subsection (2) of section 104
7 of this 1989 Act, "person" does not include the state or any state agency or the Federal Government
8 or any agency of the Federal Government.

9 **SECTION 104.** (1) The Department of Environmental Quality may conduct:

10 (a) A financial assistance program, including but not limited to loan guarantees, to assist per-
11 sons in financing the cost of remedial action.

12 (b) Activities necessary to carry out the purpose of ORS 466.590, 468.220 and 468.230 and
13 sections 102 to 111 of this 1989 Act, including but not limited to entering into contracts or agree-
14 ments, making and guaranteeing loans, taking security and instituting appropriate actions to enforce
15 agreements made under section 106 of this 1989 Act.

16 (2) The department may enter into a contract or agreement for services to implement a financial
17 assistance program with any person, including but not limited to a financial institution or a unit of
18 local, state or federal government. The services may include but need not be limited to evaluating
19 creditworthiness of applicants, preparing and marketing financial assistance packages and adminis-
20 tering and servicing financial assistance agreements.

21 **SECTION 105.** In accordance with the applicable provisions of ORS 183.310 to 183.550, the
22 Environmental Quality Commission may adopt rules necessary to carry out the provisions of ORS
23 466.590, 468.220 and 468.230 and sections 102 to 111 of this 1989 Act and to insure that interest on
24 bonds issued under ORS 468.195 to be used for removal or remedial action of hazardous substances
25 is not includable in gross income under the United States Internal Revenue Code.

26 **SECTION 106.** (1) The department may provide financial assistance only to persons who meet
27 all of the following eligibility requirements:

28 (a) The department has determined that removal or remedial action proposed by the applicant
29 is necessary to protect the public health, safety and welfare or the environment.

30 (b) The applicant demonstrates to the department's satisfaction that the applicant either is un-
31 able to obtain financing for the removal or remedial action from other sources or that financing for
32 the removal or remedial action is not available to the applicant at reasonable rates and terms.

33 (c) The applicant demonstrates to the department's satisfaction that there is a reasonable like-
34 lihood the applicant has the ability to repay.

35 (d) The applicant agrees to conduct the removal or remedial action according to an agreement
36 with the department.

37 (e) Any other requirement the department considers necessary or appropriate.

38 (2) A financial assistance agreement shall include any provision the department considers nec-
39 essary, but shall at least include the following provisions:

40 (a) Terms of the financial assistance; and

41 (b) A statement that moneys obligated by the department under the agreement are limited to
42 moneys in the Hazardous Substance Remedial Action Fund expressly designated by the department
43 for financial assistance purposes.

44 **SECTION 107.** (1) The obligation of the department to provide financial assistance or to ad-

1 vance money under a financial assistance agreement made under section 106 of this 1989 Act shall
2 not constitute an obligation against the General Fund or any other state fund except against the
3 Hazardous Substance Remedial Action Fund to the extent moneys in the Hazardous Substance Re-
4 medial Action Fund are expressly designated by the department for such financial assistance pur-
5 poses.

6 (2) The department may provide a remedial action cost estimate for use by the department, a
7 lender or a guarantor in determining the amount of financial assistance, evaluating the
8 creditworthiness of a borrower, providing loan guarantees or as the department considers appropri-
9 ate.

10 (3) When financial assistance is provided to a local governmental unit, the agreement may be
11 secured as the department requires for adequate security.

12 (4) The department may take any action under ORS 466.570, 466.580 or 466.583 or other appli-
13 cable authority to recover costs incurred or moneys advanced under a financial assistance agree-
14 ment. Costs incurred or money advanced under a financial assistance agreement entered into under
15 section 106 of this 1989 Act shall be remedial action costs. At the department's discretion, the de-
16 partment may file a claim of lien for such remedial action costs in accordance with the procedures
17 set forth in ORS 466.583 (1), (2)(a) to (c), (3) and (4).

18 (5) The department may settle, compromise or release all or part of any obligation arising under
19 a financial assistance agreement so long as the department's action is consistent with the purposes
20 of sections 102 to 111 of this 1989 Act.

21 **SECTION 108.** Notwithstanding any provision of ORS 183.310 to 183.550, the department's de-
22 cision to approve or deny financial assistance under sections 102 to 111 of this 1989 Act or the de-
23 partment's determination of the amount or use of a remedial action cost estimate under section 107
24 of this 1989 Act shall not be subject to appeal to the Environmental Quality Commission or subject
25 to judicial review.

26 **SECTION 109.** Financial records and other information that are submitted to the department
27 as part of an application for financial assistance under sections 102 to 111 of this 1989 Act shall be
28 exempt from disclosure under ORS 192.410 to 192.505, unless the public interest requires disclosure
29 in a particular instance.

30 **SECTION 110.** The Environmental Quality Commission may establish by rule reasonable fees
31 for applicants for financial assistance sufficient to pay for the department's costs of carrying out the
32 provisions of sections 102 to 111 of this 1989 Act.

33 **SECTION 111.** For the purposes of sections 102 to 111 of this 1989 Act, the department may
34 place moneys for the purpose of providing financial assistance in reserve status or subaccounts
35 within the Hazardous Substance Remedial Action Fund. Moneys placed in reserve status or subac-
36 counts under this section in connection with a financial assistance agreement shall not be subject
37 to claims under ORS 466.570 or otherwise except as provided in the financial assistance agreement.

38 **SECTION 112.** ORS 466.020 is amended to read:

39 466.020. In accordance with applicable provisions of ORS 183.310 to 183.550, the commission
40 shall:

41 (1) Adopt rules and issue orders thereon, including but not limited to establishing minimum re-
42 quirements for the treatment, storage and disposal of hazardous wastes, minimum requirements for
43 operation, maintenance, monitoring, reporting and supervision of treatment, storage or disposal
44 sites, and requirements and procedures for selection of such sites.

1 (2) Adopt rules and issue orders thereon relating to the procedures of the department with re-
2 spect to hearings, filing of reports, submission of plans and the issuance, revocation and modification
3 of permits issued under ORS 466.005 to 466.385 and 466.890.

4 (3) Adopt rules and issue orders thereon to classify as hazardous waste those residues defined
5 in ORS 466.005 (7)(b).

6 (4) Adopt rules and issue orders thereon relating to reporting by generators of hazardous waste
7 concerning type, amount and disposition of such hazardous waste and waste minimization activities.
8 Rules may be adopted exempting certain classes of generators from such requirements.

9 (5) Adopt rules and issue orders relating to the transportation of hazardous waste by air or
10 water.

11 (6) Adopt rules and issue orders relating to the production, marketing, distribution, transporta-
12 tion and burning of fuels containing or derived from hazardous waste.

13 (7) Adopt rules and issue orders relating to corrective action, including corrective action within
14 the facility or beyond the facility boundary if necessary to protect public health or the environment,
15 for all releases of hazardous waste or constituents of hazardous waste occurring from locations
16 within the facility or originating within the facility and releasing beyond the facility boundary, from
17 any hazardous waste treatment, storage or disposal facility, regardless of the time the hazardous
18 waste was placed in the facility.

19 (8) Adopt rules and issue orders relating to the restriction or prohibition of nonhazardous liquid
20 waste in a hazardous waste disposal site.

21 (9) Adopt rules necessary to implement the certification requirements of section 99 of
22 this 1989 Act.

23 **SECTION 113.** ORS 466.590 is amended to read:

24 466.590. (1) The Hazardous Substance Remedial Action Fund is established separate and distinct
25 from the General Fund in the State Treasury.

26 (2) The following shall be deposited into the State Treasury and credited to the Hazardous
27 Substance Remedial Action Fund:

28 (a) Fees received by the department under ORS 466.587.

29 (b) Moneys recovered or otherwise received from responsible parties for remedial action costs.
30 **Moneys recovered from responsible parties for costs paid by the department from the Or-**
31 **phan Site Account established under subsection (6) of this section shall be credited to the**
32 **Orphan Site Account.**

33 (c) Moneys received under the schedule of fees established under paragraph (c) of sub-
34 section (2) of section 124 of this 1989 Act, under section 138 of this 1989 Act and under
35 sections 139 to 148 of this 1989 Act for the purpose of providing funds for the Orphan Site
36 Account which shall be credited to the Orphan Site Account established under subsection (6)
37 of this section.

38 [(c)] (d) Any penalty, fine or punitive damages recovered under ORS 466.567, 466.570, 466.583
39 or 466.900.

40 (e) Fees received by the department under section 110 of this 1989 Act.

41 (f) Moneys and interest, that are paid, recovered or otherwise received under financial
42 assistance agreements.

43 (g) Moneys appropriated to the fund by the Legislative Assembly.

44 (h) Moneys from any grant made to the fund by a federal agency.

1 (3) The State Treasurer may invest and reinvest moneys in the Hazardous Substance Remedial
2 Action Fund in the manner provided by law.

3 (4) The moneys in the Hazardous Substance Remedial Action Fund are appropriated contin-
4 uously to the department to be used as provided in subsection (5) of this section.

5 (5) Moneys in the Hazardous Substance Remedial Action Fund may be used for the following
6 purposes:

7 (a) Payment of the [state's] department's remedial action costs;

8 (b) Funding any action or activity authorized by ORS 466.540 to 466.590 and 466.900, including
9 but not limited to providing financial assistance pursuant to an agreement entered into un-
10 der section 106 of this 1989 Act; and

11 (c) Providing the state cost share for a removal or remedial action, as required by section
12 104(c)(3) of the federal Comprehensive Environmental Response, Compensation and Liability Act,
13 P.L. 96-510 and as amended by P.L. 99-499.

14 (6)(a) The Orphan Site Account is established in the Hazardous Substance Remedial
15 Action Fund in the State Treasury. All moneys credited to the Orphan Site Account are
16 continuously appropriated to the department for:

17 (A) Expenses of the department related to facilities or activities associated with the re-
18 moval or remedial action where the department determines the responsible party is un-
19 known, unwilling or unable to undertake all required removal or remedial action; and

20 (B) Grants and loans to local government units for facilities or activities associated with
21 the removal or remedial action of a hazardous substance.

22 (b) The Orphan Site Account may not be used to pay the state's remedial action costs
23 at facilities owned by the state.

24 (c) The Orphan Site Account may be used to pay claims for reimbursement filed and
25 approved under ORS 466.570 (7).

26 (d) If bonds have been issued under ORS 468.195 to provide funds for removal or remedial
27 action, the department shall first transfer from the Orphan Site Account to the Pollution
28 Control Sinking Fund, solely from the fees collected pursuant to paragraph (c) of subsection
29 (2) of section 124 of this 1989 Act, under section 138 of this 1989 Act and from sections 139
30 to 148 of this 1989 Act for such purposes, any amount necessary to provide for the payment
31 of the principal and interest upon such bonds. Moneys from repayment of financial assistance
32 or recovered from a responsible party shall not be used to provide for the payment of the
33 principal and interest upon such bonds.

34 (7)(a) Of the funds in the Orphan Site Account derived from the fees collected pursuant
35 to paragraph (c) of subsection (2) of section 124 of this 1989 Act, under section 138 of this
36 1989 Act and sections 139 to 148 of this 1989 Act for the purpose of providing funds for the
37 Orphan Site Account, and the proceeds of any bond sale under ORS 468.195 supported by the
38 fees collected pursuant to paragraph (c) of subsection (2) of section 124 of this 1989 Act,
39 under section 138 of this 1989 Act and sections 139 to 148 of this 1989 Act for the purpose of
40 providing funds for the Orphan Site Account, no more than 25 percent may be obligated in
41 any biennium by the department to pay for removal or remedial action at facilities deter-
42 mined by the department to have an unwilling responsible party, unless the department first
43 receives approval from the Legislative Assembly or the Emergency Board.

44 (b) Before the department obligates money from the Orphan Site Account derived from

1 the fees collected pursuant to paragraph (c) of subsection (2) of section 124 of this 1989 Act,
2 under section 138 of this 1989 Act and sections 139 to 148 of this 1989 Act for the purpose of
3 providing funds for the Orphan Site Account, and the proceeds from any bond sale under
4 ORS 468.195 supported by fees collected pursuant to paragraph (c) of subsection (2) of section
5 124 of this 1989 Act, under section 138 of this 1989 Act and sections 139 to 148 of this 1989
6 Act for the purpose of providing funds for the Orphan Site Account, for removal or remedial
7 action at a facility determined by the department to have an unwilling responsible party, the
8 department must first determine whether there is a need for immediate removal or remedial
9 action at the facility to protect public health, safety, welfare or the environment. The de-
10 partment shall determine the need for immediate removal or remedial action in accordance
11 with rules adopted by the Environmental Quality Commission.

12 **SECTION 114.** ORS 468.220 is amended to read:

13 468.220. (1) The department shall be the agency for the State of Oregon for the administration
14 of the Pollution Control Fund. The department is hereby authorized to use the Pollution Control
15 Fund for one or more of the following purposes:

16 (a) To grant funds not to exceed 30 percent of total project costs for eligible projects as defined
17 in ORS 454.505 or sewerage systems as defined in ORS 468.700.

18 (b) To acquire, by purchase, or otherwise, general obligation bonds or other obligations of any
19 municipal corporation, city, county, or agency of the State of Oregon, or combinations thereof, is-
20 sued or made for the purpose of paragraph (a) of this subsection in an amount not to exceed 100
21 percent of the total project costs for eligible projects.

22 (c) To acquire, by purchase, or otherwise, other obligations of any city that are authorized by
23 its charter in an amount not to exceed 100 percent of the total project costs for eligible projects.

24 (d) To grant funds not to exceed 30 percent of the total project costs for facilities for the dis-
25 posal of solid waste, including without being limited to, transfer and resource recovery facilities.

26 (e) To make loans or grants to any municipal corporation, city, county, or agency of the State
27 of Oregon, or combinations thereof, for planning of eligible projects as defined in ORS 454.505,
28 sewerage systems as defined by ORS 468.700 or facilities for the disposal of solid waste, including
29 without being limited to, transfer and resource recovery facilities. Grants made under this paragraph
30 shall be considered a part of any grant authorized by paragraph (a) or (d) of this subsection if the
31 project is approved.

32 (f) To acquire, by purchase, or otherwise, general obligation bonds or other obligations of any
33 municipal corporation, city, county, or agency of the State of Oregon, or combinations thereof, is-
34 sued or made for the purpose of paragraph (d) of this subsection in an amount not to exceed 100
35 percent of the total project costs.

36 (g) To advance funds by contract, loan or otherwise, to any municipal corporation, city, county
37 or agency of the State of Oregon, or combination thereof, for the purpose of paragraphs (a) and (d)
38 of this subsection in an amount not to exceed 100 percent of the total project costs.

39 (h) To pay compensation required by law to be paid by the state for the acquisition of real
40 property for the disposal by storage of environmentally hazardous wastes.

41 (i) To dispose of environmentally hazardous wastes by the Department of Environmental Quality
42 whenever the department finds that an emergency exists requiring such disposal.

43 (j) To acquire for the state real property and facilities for the disposal by landfill, storage or
44 otherwise of solid waste, including but not limited to, transfer and resource recovery facilities.

1 (k) To acquire for the state real property and facilities for the disposal by incineration or oth-
2 erwise of hazardous waste or PCB.

3 (L) To provide funding for the Assessment Deferral Loan Program Revolving Fund established
4 in ORS 468.975.

5 (m) To provide funding for the Orphan Site Account established in ORS 466.590 but only
6 to the extent that the department reasonably estimates that debt service from bonds issued
7 to finance such facilities or activities shall be fully paid from fees collected pursuant to
8 paragraph (c) of subsection (2) of section 124 of this 1989 Act, under section 138 of this 1989
9 Act, under sections 139 to 148 of this 1989 Act for the purpose of providing funds for the
10 Orphan Site Account and other available funds, but not from repayments of financial as-
11 sistance under sections 102 to 111 of this 1989 Act or from moneys recovered from respon-
12 sible parties.

13 (n) To advance funds by contract, loan or otherwise, to any municipal corporation, city,
14 county or agency of this state, or combination thereof, for facilities or activities related to
15 removal or remedial action of hazardous substances.

16 (2) The facilities referred to in paragraphs (a) to (c) of subsection (1) of this section shall be only
17 such as conservatively appear to the department to be not less than 70 percent self-supporting and
18 self-liquidating from revenues, gifts, grants from the Federal Government, user charges, assessments
19 and other fees.

20 (3) The facilities referred to in paragraphs (d), (f) and (g) of subsection (1) of this section shall
21 be only such as conservatively appear to the department to be not less than 70 percent self-
22 supporting and self-liquidating from revenues, gifts, grants from the Federal Government, user
23 charges, assessments and other fees.

24 (4) The real property and facilities referred to in paragraphs (j) and (k) of subsection (1) of this
25 section shall be only such as conservatively appear to the department to be not less than 70 percent
26 self-supporting and self-liquidating from revenues, gifts, grants from the Federal Government, user
27 charges, assessments and other fees.

28 (5) The department may sell or pledge any bonds, notes or other obligations acquired under
29 paragraph (b) of subsection (1) of this section.

30 (6) Before making a loan or grant to or acquiring general obligation bonds or other obligations
31 of a municipal corporation, city, county or agency for facilities for the disposal of solid waste or
32 planning for such facilities, the department shall require the applicant to demonstrate that it has
33 adopted a solid waste management plan that has been approved by the department. The plan must
34 include a waste reduction program.

35 (7) Any grant authorized by this section shall be made only with the prior approval of the Joint
36 Committee on Ways and Means during the legislative sessions or the Emergency Board during the
37 interim period between sessions.

38 (8) The department may assess those entities to whom grants and loans are made under this
39 section to recover expenses incurred in administering this section.

40 **SECTION 115.** ORS 468.230 is amended to read:

41 468.230. (1) The commission shall maintain, with the State Treasurer, a Pollution Control Sink-
42 ing Fund, separate and distinct from the General Fund. The Pollution Control Sinking Fund shall
43 provide for the payment of the principal and interest upon bonds issued under authority of Article
44 XI-H of the Constitution of Oregon and ORS 468.195 to 468.260 and administrative expenses incurred

1 in issuing the bonds. Moneys of the sinking fund are hereby appropriated for such purpose. With the
2 approval of the commission, the moneys in the Pollution Control Sinking Fund may be invested as
3 provided by ORS 293.701 to 293.776, 293.810 and 293.820, and earnings from such investment shall
4 be credited to the Pollution Control Sinking Fund.

5 (2) The Pollution Control Sinking Fund shall consist of all moneys received from ad valorem
6 taxes levied pursuant to ORS 468.195 to 468.260 and assessments collected under ORS 468.220 (8),
7 **moneys transferred from the Orphan Site Account under ORS 466.590 (6)**, all moneys that the
8 Legislative Assembly may provide in lieu of such taxes, all earnings on the Pollution Control Fund,
9 Pollution Control Sinking Fund, and all other revenues derived from contracts, bonds, notes or other
10 obligations, acquired, by the commission by purchase, loan or otherwise, as provided by Article XI-H
11 of the Constitution of Oregon and by ORS 468.195 to 468.260.

12 (3) The Pollution Control Sinking Fund shall not be used for any purpose other than that for
13 which the fund was created. Should a balance remain therein after the purposes for which the fund
14 was created have been fulfilled or after a reserve sufficient to meet all existing obligations and li-
15 abilities of the fund has been set aside, the surplus remaining may be transferred to the Pollution
16 Control Fund at the direction of the commission.

17 **SECTION 116.** Sections 117, 132 and 133 of this Act are added to and made a part of ORS
18 466.540 to 466.590.

19 **SECTION 117.** (1) A potentially responsible party shall be considered unwilling under ORS
20 466.590 if:

21 (a) The department requests the potentially responsible party to enter into negotiations for an
22 agreement to perform removal or remedial action, and the potentially responsible party refuses to
23 enter into negotiations within 60 days after receipt of the department's written request; or

24 (b) After entering into negotiations for an agreement to perform removal or remedial action, the
25 potentially responsible party and the department are unable to reach agreement and the potentially
26 responsible party refuses to agree, within 60 days after receipt of a written request from the de-
27 partment, to nonbinding review under subsection (2) of this section, or to agree to an independent
28 expert's decision under subsection (2) of this section.

29 (2) If the department and a potentially responsible party enter into negotiations for an agree-
30 ment to perform removal or remedial action, and the parties to the negotiations are unable to reach
31 agreement on one or more issues, any party to the negotiations may request that the issues in dis-
32 pute be submitted to nonbinding review under this section. Within 15 days after the request, the
33 parties may select a mutually acceptable independent expert, each party to bear the party's own
34 costs. A request for nonbinding review shall be in writing and served upon each of the other parties
35 to the negotiations and shall state with reasonable specificity the issues in dispute. If the parties
36 are unable to agree upon an expert, the department shall petition the circuit court for the county
37 in which the facility is located for the appointment of an independent expert. Each party to the
38 negotiations may submit to the court a list of acceptable experts. Within 30 days after receipt of
39 the petition, the circuit court shall appoint an independent expert from the names submitted by the
40 parties. Within 15 days after the selection of the independent expert, each of the parties shall submit
41 to the independent expert a written statement of the party's position and the factual, legal and eq-
42 uitable arguments in support of the party's position. Upon request of any party, or on the inde-
43 pendent expert's own motion, the independent expert shall allow oral argument regarding the issues
44 in dispute. Within 60 days after selection of the independent expert, the independent expert shall

1 issue an advisory decision in settlement of the issues in dispute. No portion of the independent ex-
2 pert's decision shall be binding upon any party to the negotiations or the nonbinding review until
3 that portion of the decision is incorporated into a final agreement between the parties. The depart-
4 ment or any potentially responsible party may refuse to agree with the independent expert's decision
5 without prejudicing or affecting in any way any right, remedy or obligation of the department or the
6 party or any other person. Neither the independent expert's decision nor the department's decision
7 not to agree to the independent expert's decision shall be appealable to the Environmental Quality
8 Commission or subject to judicial review.

9 (3) The Environmental Quality Commission shall establish by rule the subjects that may be re-
10 solved by nonbinding review under this section.

11 **SECTION 118.** Section 117 of this Act is repealed July 1, 1993.

12 **SECTION 119.** Section 99 of this Act does not become operative until January 1, 1993. Pursuant
13 to ORS 466.020 as amended by section 112 of this Act, the Environmental Quality Commission shall
14 adopt rules necessary to implement the certification requirements of section 99 of this Act on or
15 before January 1, 1993.

16 **SECTION 120.** Sections 121 to 131, 134 and 135 of this Act are added to and made a part of
17 ORS 453.307 to 453.372.

18 **SECTION 121.** As used in sections 121 to 131, 134 and 135 of this 1989 Act:

19 (1) "Department" means the Department of Revenue.

20 (2) "Facility" means all buildings, equipment, structures and other stationary items that are lo-
21 cated on a single site or on contiguous or adjacent sites and that are owned or operated by the same
22 person or by any person who controls, is controlled by or under common control with such person.

23 (3) "Hazardous substance" means any chemical substance or waste for which a material safety
24 data sheet is required by the Accident Prevention Division of the Department of Insurance and Fi-
25 nance.

26 (4) "Material safety data sheet" means written or printed material concerning a hazardous
27 chemical which is prepared in accordance with rules of the Accident Prevention Division of the
28 Department of Insurance and Finance.

29 (5) "Person" includes any entity operating a facility that is included in one or more of the
30 standard industrial classification categories identified by the State Fire Marshal or added by the
31 State Fire Marshal under section 131 of this 1989 Act. "Entity" includes any individual, trust, firm,
32 association, corporation, partnership, joint stock company, joint venture, public or municipal corpo-
33 ration, commission, political subdivision, the state or any agency or commission thereof, interstate
34 body, and the Federal Government and any agency thereof.

35 (6) "Possess" or "possession" means the physical possession of a hazardous substance within this
36 state.

37 **SECTION 122.** It is the intent of sections 121 to 131, 134 and 135 of this 1989 Act to impose a
38 fee on the possession of hazardous substances at facilities in this state. These provisions are not
39 intended to relieve any person from any other duty or responsibility imposed by law.

40 **SECTION 123.** (1) Beginning January 1, 1990, and annually thereafter, any person possessing
41 a hazardous substance at a facility in this state in aggregate amounts at or above the threshold
42 quantities designated by rule by the State Fire Marshal shall pay a fee for each facility in accord-
43 ance with the fee schedules established under section 124 of this 1989 Act.

44 (2) If any person fails to pay the fee imposed under subsection (1) of this section within 60 days,

1 there shall be added to the fee a penalty of five percent of the amount of the fee. Any payment made
2 after 60 days shall bear interest at the rate prescribed under ORS 305.220.

3 **SECTION 124.** (1) Not later than November 15, 1989, and annually thereafter, the State Fire
4 Marshal shall send a statement to each person subject to the fee imposed under section 123 of this
5 1989 Act, indicating the amount of the fee due. The amount of the fee shall be in accordance with
6 the fee schedules established under subsection (2) of this section.

7 (2) On or before November 1, 1989, by rule and after hearing, the State Fire Marshal shall es-
8 tablish three schedules of fees to be submitted annually by each employer returning a hazardous
9 substance survey under ORS 453.317, except as otherwise provided in subsection (4) of this section.
10 In each case the fee shall be based upon the aggregate amount of the single largest annual aggre-
11 gate substance reported that is manufactured, stored or used at the facility. The programs to be
12 funded from fees collected under sections 121 to 131, 134 and 135 of this 1989 Act and the maximum
13 range of the fees that may be considered, beginning July 1, 1989, are as follows:

14 (a) For funding the Community Right to Know and Protection Act, not less than \$25 and not
15 more than \$2,000.

16 (b) For funding the Toxics Use Reduction and Hazardous Waste Reduction Act, not less than
17 \$25 and not more than \$2,000.

18 (c) For each employer's share of a total of up to \$1 million to be deposited into the Orphan Site
19 Account established under ORS 466.590, not less than zero and not more than \$9,000. This schedule
20 shall not require an employer to pay more than \$25,000.

21 (3) The Department of Revenue shall collect fees established under this section. The department
22 shall determine the amounts to be distributed under subsection (2) of this section and shall transfer
23 the appropriate amounts to the State Fire Marshal, the Department of Environmental Quality and
24 the Orphan Site Account in accordance with expenditures approved by the Legislative Assembly for
25 the State Fire Marshal and the Department of Environmental Quality. The remaining moneys are
26 continuously appropriated to the State Fire Marshal to pay the expenses of the State Fire Marshal
27 in administering and enforcing the provisions of sections 121 to 131, 134 and 135 of this 1989 Act.

28 (4) The following are exempt from the fee imposed under this section:

29 (a) Crude oil and petroleum products derived from the refining of crude oil, including plant
30 condensate, gasoline, diesel motor fuel, aviation fuel, lubrication oil, crankcase motor oil, kerosene,
31 benzol, fuel oil, residual fuel, petroleum coke, asphalt base, liquified or liquifiable gases such as
32 butane, ethane and propane and other products described during petroleum processing, but not in-
33 cluding derivatives, such as petroleum jellies, cleaning solvents or asphalt paving.

34 (b) Solid waste as defined in ORS 459.005.

35 (c) Hazardous waste as defined in ORS 466.005.

36 (d) Any substance or activity which the Constitution or laws of the United States prohibit the
37 state from taxing.

38 (e) From the fee imposed under the schedule established under paragraph (c) of subsection (2)
39 of this section, any person whose property is exempt from taxation under ORS 307.090.

40 **SECTION 125.** (1) The State Fire Marshal for good cause may extend, for not to exceed one
41 month, the time for payment of the fee due under sections 121 to 131, 134 and 135 of this 1989 Act.
42 The extension may be granted at any time if a written request is filed with the State Fire Marshal
43 within or prior to the period for which the extension may be granted. If the time for payment is
44 extended at the request of a person, interest at the rate established under ORS 305.220, for each

1 month, or fraction of a month, from the time the payment was originally due to the time payment
2 is actually made, shall be added and paid.

3 (2) If the person fails to pay the amount due, the State Fire Marshal may either:

4 (a) Bring an action for the recovery of the fee due; or

5 (b) Initiate a contested case hearing according to the applicable provisions of ORS 183.310 to
6 183.550.

7 (3) Notwithstanding any provision of ORS 183.310 to 183.550, nothing in subsection (2) of this
8 section shall be considered to require the State Fire Marshal to conduct a contested case hearing
9 as a prerequisite to bringing an action under paragraph (a) of subsection (2) of this section.

10 **SECTION 126.** (1) Every person who possesses a hazardous substance shall keep at its regis-
11 tered place of business complete and accurate records for each facility of any hazardous substance
12 purchased by, or brought in or caused to be brought in to the facility, or stored, used or manufac-
13 tured at the facility.

14 (2) The State Fire Marshal or an authorized representative of the State Fire Marshal, upon oral
15 or written reasonable notice, may make such examinations of the books, papers, records and equip-
16 ment required to be kept under this section as it may deem necessary in carrying out the provisions
17 of sections 121 to 131, 134 and 135 of this 1989 Act.

18 **SECTION 127.** The department, in consultation with the State Fire Marshal, is authorized to
19 establish those rules and procedures for the implementation and enforcement of sections 121 to 131,
20 134 and 135 of this 1989 Act that are consistent with its provisions and are considered necessary
21 and appropriate.

22 **SECTION 128.** The provisions of ORS chapters 305 and 314 as to liens, delinquencies, claims
23 for refund, issuance of refunds, conferences, appeals to the director of the department, appeals to
24 the Oregon Tax Court, stay of collection pending appeal, cancellation, waiver, reduction or com-
25 promise of fees, penalties or interest, subpoenaing and examining witnesses and books and papers,
26 and the issuance of warrants and the procedures relating thereto, shall apply to the collection of
27 fees, penalties and interest by the department under sections 121 to 131, 134 and 135 of this 1989
28 Act, except where the context requires otherwise.

29 **SECTION 129.** All moneys received by the Department of Revenue under sections 121 to 131,
30 134 and 135 of this 1989 Act shall be deposited in the State Treasury and credited to a suspense
31 account established under ORS 293.445. After payment of administration expenses incurred by the
32 department in the administration of sections 121 to 131, 134 and 135 of this 1989 Act and of refunds
33 or credits arising from erroneous overpayments, the balance of the money shall be distributed ac-
34 cording to the provisions of section 124 of this 1989 Act. Moneys collected under sections 121 to 131,
35 134 and 135 of this 1989 Act and credited to the Orphan Site Account shall not be used for removal
36 or remedial action costs at solid waste disposal sites for which a fee is collected under section 137
37 or 138 of this 1989 Act.

38 **SECTION 130.** The fee imposed by section 123 of this 1989 Act is in addition to all other state,
39 county or municipal fees on a hazardous substance.

40 **SECTION 131.** The State Fire Marshal by rule may add persons or substances to or exempt
41 persons or substances from liability for the fee imposed under sections 121 to 131, 134 and 135 of
42 this 1989 Act to conform to the reporting requirements established by the State Fire Marshal under
43 the Community Right to Know and Protection Act.

44 **SECTION 132.** (1) Notwithstanding the totals established in sections 123, 138 and 140 of this

1 1989 Act, after July 1, 1991, the Environmental Quality Commission by rule may increase the total
2 amount to be collected annually as a fee and deposited into the Orphan Site Account under sections
3 123, 138 and 140 of this 1989 Act. The commission shall approve an increase if the commission de-
4 termines:

5 (a) Existing fees being deposited into the Orphan Site Account are not sufficient to pay debt
6 service on bonds sold to pay for removal or remedial actions at sites where the department deter-
7 mines the responsible party is unknown, unwilling or unable to undertake all required removal or
8 remedial action; or

9 (b) Revenues from the sale of bonds cannot be used to pay for activities related to removal or
10 remedial action, and existing fees being deposited into the Orphan Site Account are not sufficient
11 to pay for these activities.

12 (2) The increased amount approved by the commission under subsection (1) of this section:

13 (a) Shall be no greater than the amount needed to pay anticipated costs specifically identified
14 by the Department of Environmental Quality at sites where the department determines the respon-
15 sible party is unknown, unwilling or unable to undertake all required removal or remedial action;
16 and

17 (b) Shall be specifically approved by the Joint Committee on Ways and Means during the legis-
18 lative sessions or the Emergency Board during the interim period between sessions.

19 **SECTION 133.** Nothing in sections 117, 121 to 131, 132, 134, 135, 137, 138 and 139 to 148 of this
20 1989 Act, including the limitation on the amount a local government unit must contribute under
21 sections 137 and 138 of this 1989 Act, shall be construed to affect or limit the liability of any person.

22 **SECTION 134.** Before final adoption of initial rules to carry out the provisions of sections 121
23 to 131, 134 and 135 of this 1989 Act or subsequent amendment of the initial fee schedules established
24 under section 122 of this 1989 Act, the State Fire Marshal shall obtain specific approval of the fees
25 by the Joint Committee on Ways and Means during the legislative sessions or the Emergency Board
26 during the interim period between sessions.

27 **SECTION 135.** Nothing in sections 121 to 131 of this 1989 Act shall require units of local gov-
28 ernment to pay a fee imposed under the schedules established under paragraphs (a) and (b) of sub-
29 section (2) of section 124 of this 1989 Act because of the use of material which would otherwise be
30 subject to a fee under sections 121 to 131, 134 and 135 of this 1989 Act, if the use of such material
31 by the unit of local government is specifically required by a state or federal law or rule or if the
32 use of such material is reasonably necessary to enable the unit of local government to meet a
33 standard imposed by state or federal law or rule, or is the by-product of processes employed to meet
34 a standard imposed by state or federal rule or law.

35 **SECTION 136.** Sections 137 and 138 of this Act are added to and made a part of ORS 459.005
36 to 459.385.

37 **SECTION 137.** A local government unit that is responsible for conducting a remedial action or
38 removal or related activities under ORS 466.570 at a solid waste disposal site, or a local government
39 unit that contributed solid waste to a solid waste disposal site for which the local government is
40 liable under ORS 466.567 or other applicable law, shall impose a charge to be added to all billings
41 for solid waste collection services rendered within the boundaries of that local government unit
42 unless the local government unit provides an equivalent amount of funding through another source.
43 A charge imposed under this section shall be subject to the following requirements:

44 (1) The charge shall be:

1 (a) An amount equal to a maximum amount of \$12 per capita per year and \$60 per capita per
2 local government unit;

3 (b) Collected for each volumetric or weight unit of solid waste collected;

4 (c) Imposed equitably on all persons who dispose of solid waste; and

5 (d) For a local government unit imposing and collecting a charge on behalf of another local
6 government unit responsible for remedial action or related activities at a disposal site, an amount
7 that, as a proportion of the total cost, equals the proportion of solid waste the local government unit
8 contributed to such disposal site.

9 (2) The charge shall be collected on behalf of the local government unit by solid waste collectors
10 who are subject to franchising, licensing or permitting requirements adopted by the local govern-
11 ment unit. Notwithstanding any restriction on rates contained in a franchise or other local regu-
12 lations, a solid waste collector may add the charge to bills for solid waste collection. The local
13 government unit may enter into an intergovernmental agreement with any other unit of local gov-
14 ernment to provide for imposition and collection of the charge on behalf of the local government
15 unit.

16 (3) The solid waste collector shall remit the proceeds of the charge to the local government unit
17 according to procedures adopted by the local government unit by ordinance. However, solid waste
18 collectors shall not be responsible for covering any shortage caused by failure of a customer to pay
19 charges for solid waste collection.

20 (4) A local government unit imposing a charge under this subsection may require solid waste
21 collectors to submit reports or other documentation necessary to establish compliance with the re-
22 quirements of this section or the ordinance adopted by the local government unit. All information
23 contained in such reports relating to the number of accounts served by the solid waste collector or
24 the revenue produced from such accounts shall be exempt from public disclosure.

25 (5) A solid waste collector required to collect charges under this subsection may retain five
26 percent of the charge in order to defray the costs of collecting and accounting for the proceeds of
27 the charge.

28 (6) If a person disposes of solid waste at a disposal site within the boundaries of a local gov-
29 ernment unit imposing a fee under this section without using the services of a commercial solid
30 waste collector, the person shall pay the fee established by this section at the time the person dis-
31 poses of solid waste at the disposal site. That portion of the charge attributable to administrative
32 costs as provided in subsection (5) of this section shall be retained by the operator of the solid waste
33 disposal site. The operator of the solid waste disposal site shall remit the balance of the charge
34 according to procedures established by ordinance by the local government unit imposing the charge.

35 (7) Except for the amount allocated to defray the administrative expenses of a solid waste col-
36 lector or disposal site operator under subsections (5) and (6) of this section, proceeds of the charge
37 shall be placed into a dedicated local government remedial action fund established by the local
38 government unit and may be used only to pay for remedial action costs. As used in this subsection,
39 "remedial action costs" also includes the cost of retiring debt incurred in connection with a reme-
40 dial action.

41 (8) The amount collected through the charge shall be the amount necessary to fund the local
42 government unit's remedial action costs at one or more solid waste disposal sites for which a local
43 government unit is responsible for conducting a remedial action or removal or related activities
44 under ORS 466.570, or is liable under ORS 466.567 or other applicable law and necessary adminis-

1 trative expenses incurred under this section, and may include an increment to cover any delin-
2 quencies in collections. The amount of the charge may be adjusted from time to time as necessary
3 to maintain the remedial action fund at the level necessary to accommodate the local government
4 unit's remedial action responsibilities, but shall not exceed the maximum amounts provided in par-
5 agraph (a) of subsection (1) of this section.

6 (9) Any local government unit located within the boundaries of a metropolitan service district
7 may enter into an intergovernmental agreement with the district to transfer to the district the
8 funding authority granted under this subsection and the responsibility for performing all remedial
9 action obligations for which the local government unit may be responsible.

10 (10) As used in this section, "remedial action," "remedial action costs" and "removal" have the
11 meaning given those terms in ORS 466.540.

12 **SECTION 138.** (1) In addition to the permit fees provided in ORS 459.235, upon approval by the
13 Emergency Board of the sale of bonds to provide funds for the Orphan Site Account, and annually
14 on January 1 thereafter, there is imposed a fee on all disposal sites that receive domestic solid waste
15 except transfer stations. The amount raised shall be up to \$1 million per year, based on the esti-
16 mated tonnage or the actual tonnage, if known, received at the site and any other similar or related
17 factors the commission finds appropriate.

18 (2) For solid waste generated within the boundaries of a metropolitan service district, the fee
19 imposed under subsection (1) of this section, but not the permit fees provided in ORS 459.235, shall
20 be levied on the district, not the disposal site.

21 (3)(a) A local government unit that franchises or licenses a domestic solid waste site shall allow
22 the disposal site to pass through the amount of the fees established by the commission in subsection
23 (1) of this section to the users of the site.

24 (b) If a disposal site that receives domestic solid waste passes through all or a portion of the
25 fees established by the commission in subsection (1) of this section to a solid waste collector who
26 uses the site, a local government unit that franchises or licenses the collection of solid waste shall
27 allow the franchisee or licensee to include the amount of the fee in the solid waste collection service
28 rate.

29 (4) Except as provided in subsection (5) of this section, moneys collected under this section shall
30 be deposited in the Orphan Site Account created under ORS 466.590 to be used to pay the costs of
31 removal or remedial action of hazardous substances, in excess of the maximum amount collected
32 under section 137 of this 1989 Act at:

33 (a) Solid waste disposal sites owned or operated by a local government unit; or

34 (b) Privately owned or operated solid waste disposal sites that receive or received domestic solid
35 waste for which the department determines the responsible party is unknown, unwilling or unable
36 to undertake any portion or phase of a removal or remedial action.

37 (5) The moneys collected under this section, or proceeds of any bond sale under ORS 468.195 for
38 which moneys collected under this section are pledged for repayment shall be made available to a
39 local government unit to pay removal or remedial action costs at a site if:

40 (a) The local government unit is responsible for conducting removal or remedial action under
41 ORS 466.570; and

42 (b) The local government unit repays any moneys equal to the amount that may be raised by the
43 charge imposed under section 137 of this 1989 Act and interest on such moneys, in accordance with
44 an agreement between the local government unit and the department. A local government unit is

1 not required to repay the first \$100,000 the local government unit expends on removal or remedial
2 action.

3 (6) As used in this section, "removal" and "remedial action" have the meaning given those terms
4 in ORS 466.540.

5 **SECTION 139.** As used in sections 139 to 148 of this Act:

6 (1) "Bulk facility" means a facility, including pipeline terminals, refinery terminals, rail and
7 barge terminals and associated underground and aboveground tanks, connected or separate, from
8 which petroleum products are withdrawn from bulk and delivered into a cargo tank or barge used
9 to transport those products.

10 (2) "Cargo tank" means an assembly used for transporting, hauling or delivering petroleum
11 products and consisting of a tank having one or more compartments mounted on a wagon, truck,
12 trailer, truck-trailer, railcar or wheels. "Cargo tank" does not include any assembly used for trans-
13 porting, hauling or delivering petroleum products that holds less than 100 gallons in individual,
14 separable containers.

15 (3) "Department" means the Department of Revenue.

16 (4) "Person" means an individual, trust, firm, joint stock company, corporation, partnership, joint
17 venture, consortium, association, state, municipality, commission, political subdivision of a state or
18 any interstate body, any commercial entity and the Federal Government or any agency of the Fed-
19 eral Government.

20 (5) "Petroleum product" means a petroleum product that is obtained from distilling and proc-
21 essing crude oil and that is capable of being used as a fuel for the propulsion of a motor vehicle or
22 aircraft, including motor gasoline, gasohol, other alcohol-blended fuels, aviation gasoline, kerosene,
23 distillate fuel oil and number 1 and number 2 diesel. The term does not include naphtha-type jet fuel,
24 kerosene-type jet fuel, or a petroleum product destined for use in chemical manufacturing or
25 feedstock of that manufacturing or fuel sold to vessels engaged in interstate or foreign commerce.

26 (6) "Withdrawal from bulk" means the removal of a petroleum product from a bulk facility for
27 delivery directly into a cargo tank or a barge to be transported to another location other than an-
28 other bulk facility for use or sale in this state.

29 **SECTION 140.** (1) Beginning September 1, 1989, the seller of a petroleum product withdrawn
30 from a bulk facility, on withdrawal from bulk of the petroleum product, shall collect from the person
31 who orders the withdrawal a petroleum products withdrawal delivery fee in the maximum amount
32 of \$10.

33 (2) Beginning September 1, 1989, any person who imports petroleum products in a cargo tank
34 or a barge for delivery into a storage tank, other than a tank connected to a bulk facility, shall pay
35 a petroleum products import delivery fee in the maximum amount of \$10 to the Department of Re-
36 venue for each such delivery of petroleum products into a storage tank located in the state.

37 (3) Subsections (1) and (2) of this section do not apply to a delivery or import of petroleum
38 products destined for export from this state if the petroleum products are in continuous movement
39 to a destination outside the state.

40 (4) The seller of petroleum products withdrawn from a bulk facility and each person importing
41 petroleum products shall remit the first payment on October 1, 1989. Beginning January 1, 1990,
42 payment of the fee due shall be on a quarterly basis.

43 (5) Each operator of a bulk facility and each person who imports petroleum products shall reg-
44 ister with the Department of Revenue by August 1, 1989, or 30 days prior to operating a bulk facility

1 or importing a cargo tank of petroleum products, whichever comes first.

2 **SECTION 141.** On or before September 1, 1989, the State Fire Marshal shall report to the
3 Emergency Board the amount of the petroleum products withdrawal fee and petroleum products
4 import delivery fee necessary to provide funding for operation of the state-wide hazardous material
5 emergency response system under sections 81 to 91 of this Act. Upon approval of the Emergency
6 Board, the State Fire Marshal immediately shall adopt by rule the fee amounts.

7 **SECTION 142.** (1) The Department of Revenue shall collect the fee imposed under section 140
8 of this Act.

9 (2) Any petroleum product which the Constitution or laws of the United States prohibit the state
10 from taxing is exempt from the fee imposed under section 140 of this Act.

11 **SECTION 143.** The Department of Revenue for good cause may extend, for not to exceed one
12 month, the time for payment of the fee due under sections 139 to 148 of this Act. The extension may
13 be granted at any time if a written request is filed with the department within or prior to the period
14 for which the extension may be granted. If the time for payment is extended at the request of a
15 person, interest at the rate established under ORS 305.220, for each month, or fraction of a month,
16 from the time the payment was originally due to the time payment is actually made, shall be added
17 and paid.

18 **SECTION 144.** (1) Each operator of a bulk facility and each person who imports petroleum
19 products into this state shall keep at the person's registered place of business complete and accurate
20 records of any petroleum products sold, purchased by or brought in or caused to be brought in to
21 the place of business.

22 (2) The Department of Revenue, upon oral or written reasonable notice, may make such exam-
23 inations of the books, papers, records and equipment required to be kept under this section as it
24 may deem necessary in carrying out the provisions of sections 139 to 148 of this Act.

25 **SECTION 145.** The department is authorized to establish those rules and procedures for the
26 implementation and enforcement of sections 139 to 148 of this Act that are consistent with its pro-
27 visions and are considered necessary and appropriate.

28 **SECTION 146.** The provisions of ORS chapters 305 and 314 as to liens, delinquencies, claims
29 for refund, issuance of refunds, conferences, appeals to the director of the department, appeals to
30 the Oregon Tax Court, stay of collection pending appeal, cancellation, waiver, reduction or com-
31 promise of fees, penalties or interest, subpoenaing and examining witnesses and books and papers,
32 and the issuance of warrants and the procedures relating thereto, shall apply to the collection of
33 fees, penalties and interest by the department under sections 139 to 148 of this Act, except where
34 the context requires otherwise.

35 **SECTION 147.** All moneys received by the Department of Revenue under sections 139 to 148
36 of this Act shall be deposited in the State Treasury and credited to a suspense account established
37 under ORS 293.445. After payment of administration expenses incurred by the department in the
38 administration of sections 139 to 148 of this Act and of refunds or credits arising from erroneous
39 overpayments, the balance of the money shall be credited to the appropriate accounts as approved
40 by the Legislative Assembly to carry out the state's oil, hazardous material and hazardous substance
41 emergency response program and to provide up to \$1 million each year to fund the Orphan Site
42 Account. If the balance of the money is less than that approved by the Legislative Assembly, the
43 department shall distribute the money to the accounts in a ratio equal to the ratio of the amounts
44 approved by the Legislative Assembly.

1 **SECTION 148.** The fee imposed by section 140 of this Act is in addition to all other state,
2 county or municipal fees on a petroleum product.

3 **SECTION 149.** Sections 150 to 153 of this Act are added to and made a part of ORS 459.205 to
4 459.355.

5 **SECTION 150.** As used in sections 150 to 153 of this 1989 Act:

6 (1) "Domestic solid waste" includes but is not limited to residential, commercial and institutional
7 wastes generated within this state.

8 (2) "Domestic solid waste" does not include:

9 (a) Sewage sludge or septic tank and cesspool pumpings;

10 (b) Building demolition or construction wastes and land clearing debris, if delivered to a disposal
11 site that is limited to those purposes;

12 (c) Source separated recyclable material, or material recovered at the disposal site;

13 (d) Waste going to an industrial waste facility;

14 (e) Waste received at an ash monofill from a resource recovery facility; or

15 (f) Other material excluded by the commission in order to support the purposes of ORS 459.015.

16 **SECTION 151.** The Legislative Assembly finds and declares that:

17 (1) Domestic solid waste disposal capacity is a matter of state-wide concern;

18 (2) The disposal in Oregon of domestic solid waste generated both outside and within Oregon
19 will reduce the total capacity available for disposal of domestic solid waste generated in this state;

20 (3) The disposal in Oregon of domestic solid waste generated outside Oregon and within Oregon
21 will add to the level of environmental risk associated with the transportation and disposal of those
22 wastes; and

23 (4) It is in the best interest of the public health, safety and welfare of the people of Oregon to
24 reduce the amount of domestic solid waste being generated in Oregon in order to extend the useful
25 life of existing domestic solid waste disposal sites and to reduce the environmental risks associated
26 with receiving waste generated outside Oregon at those sites.

27 **SECTION 152.** (1) In addition to the permit fees provided in ORS 459.235, the commission shall
28 establish a schedule of fees to begin July 1, 1990, for all disposal sites that receive domestic solid
29 waste except transfer stations. The schedule shall be based on the estimated tonnage or the actual
30 tonnage, if known, received at the site and any other similar or related factors the commission finds
31 appropriate. The fees collected pursuant to the schedule shall be sufficient to assist in the funding
32 of programs to reduce the amount of domestic solid waste generated in Oregon and to reduce envi-
33 ronmental risks at domestic waste disposal sites.

34 (2) For solid waste generated within the boundaries of a metropolitan service district, the
35 schedule of fees, but not the permit fees provided in ORS 459.235, established by the commission in
36 subsection (1) of this section shall be levied on the district, not the disposal site.

37 (3) The commission also may require submittal of information related to volumes and sources
38 of waste or recycled material if necessary to carry out the activities in section 153 of this 1989 Act.

39 (4)(a) A local government that franchises or licenses a domestic solid waste site shall allow the
40 disposal site to pass through the amount of the fees established by the commission in subsection (1)
41 of this section to the users of the site.

42 (b) If a disposal site that receives domestic solid waste passes through all or a portion of the
43 fees established by the commission in subsection (1) of this section to a solid waste collector who
44 uses the site, a local government that franchises or licenses the collection of solid waste shall allow

1 the franchisee or licensee to include the amount of the fee in the solid waste collection service rate.

2 (5) The fees generated under subsection (1) of this section shall be sufficient to accomplish the
3 purposes set forth in section 153 of this 1989 Act but shall be no more than 50 cents per ton.

4 **SECTION 153.** (1) The fees established by the commission under section 152 of this 1989 Act
5 shall be deposited in the General Fund and credited to an account of the department. Such moneys
6 are continuously appropriated to the department to carry out the purposes set forth in subsection
7 (2) of this section.

8 (2) The fees collected under section 152 of this 1989 Act shall be used only for the following
9 purposes:

10 (a) To implement the provisions of sections 69 to 76 of this 1989 Act.

11 (b) Department of Environmental Quality programs to promote and enhance waste reduction and
12 recycling state wide, including data collection, performance measurement, education and promotion,
13 market development and demonstration projects.

14 (c) Department of Environmental Quality activities for ground water monitoring and enforce-
15 ment of ground water protection standards at domestic solid waste landfills.

16 (d) Solid waste planning activities by counties and the metropolitan service district, as approved
17 by the department, including planning for special waste disposal, planning for closure of solid waste
18 disposal sites, capacity planning for domestic solid waste and regional solid waste planning.

19 (e) Grants to local government units for recycling and solid waste planning activities.

20 (f) To pay administrative costs incurred by the department in accomplishing the purposes set
21 forth in this section, the amount allocated under this subsection shall not exceed 10 percent of the
22 fees generated under section 152 of this 1989 Act.

23 **SECTION 154.** ORS 459.235 is amended to read:

24 459.235. (1) Applications for permits shall be on forms prescribed by the department. An appli-
25 cation shall contain a description of the existing and proposed operation and the existing and pro-
26 posed facilities at the site, with detailed plans and specifications for any facilities to be constructed.
27 The application shall include a recommendation by the local government unit or units having juris-
28 diction and such other information the department deems necessary in order to determine whether
29 the site and solid waste disposal facilities located thereon and the operation will comply with ap-
30 plicable requirements.

31 (2) Subject to the review of the Executive Department, and the prior approval of the appropriate
32 legislative review agency, *[permit fees may be charged in accordance with ORS 468.065 (2)]* the
33 **commission may establish a schedule of fees for disposal site permits. The permit fees con-**
34 **tained in the schedule shall be based on the anticipated cost of filing and investigating the**
35 **application, of issuing or denying the requested permit and of an inspection program to de-**
36 **termine compliance or noncompliance with the permit. The permit fee shall accompany the**
37 **application for the permit.**

38 (3) If the application is for a regional disposal facility, the applicant shall file with the depart-
39 ment a surety bond in the form and amount established by rule by the commission. The bond or fi-
40 nancial assurance shall be executed in favor of the State of Oregon and shall be in an amount as
41 determined by the department to be reasonably necessary to protect the environment, and the
42 health, safety and welfare of the people of the state. The commission may allow the applicant to
43 substitute other financial assurance for the bond, in the form and amount the commission considers
44 satisfactory.

1 **SECTION 155.** (1) Beginning on January 1, 1991, every person who disposes of solid waste
2 generated out-of-state in a disposal site or regional disposal site shall pay a surcharge as established
3 by the Environmental Quality Commission under section 156 of this 1989 Act. The surcharge shall
4 be in addition to any other fee charged for disposal of solid waste at the site.

5 (2) The surcharge collected under this section shall be deposited in the State Treasury to the
6 credit of an account of the Department of Environmental Quality. Such moneys are continuously
7 appropriated to the department to meet the costs of the department in administering the solid waste
8 program under ORS 459.005 to 459.385.

9 **SECTION 156.** Subject to approval by the Joint Committee on Ways and Means during the
10 legislative sessions or the Emergency Board during the interim between sessions, the Environmental
11 Quality Commission shall establish by rule the amount of the surcharge to be collected under sec-
12 tion 155 of this 1989 Act. The amount of the surcharge shall be based on the costs to the State of
13 Oregon and its political subdivisions of disposing of solid waste generated out-of-state which are not
14 otherwise paid for under the provisions of ORS 459.235 and sections 69 to 76, 150 to 153, 155 and
15 156 of this 1989 Act. These costs may include but need not be limited to costs incurred for:

- 16 (1) Solid waste management;
- 17 (2) Issuing new and renewal permits for solid waste disposal sites;
- 18 (3) Environmental monitoring;
- 19 (4) Ground water monitoring; and
- 20 (5) Site closure and post-closure activities.

21 **SECTION 157.** ORS 466.785, as amended by section 50, chapter 539, Oregon Laws 1987, is fur-
22 ther amended to read:

23 466.785. (1) Fees may be required of every permittee of an underground storage tank. Fees shall
24 be in an amount determined by the commission to be adequate to carry on the duties of the de-
25 partment or the duties of a state agency or local unit of government that has contracted with the
26 department under ORS 466.730. Such fees shall not exceed [~~\$20~~] **\$25** per tank per year.

27 (2) Fees collected by the department under this section shall be deposited in the State Treasury
28 to the credit of an account of the department. All fees paid to the department shall be continuously
29 appropriated to the department to carry out the provisions of ORS 466.705 to 466.835 and 466.895.

30 **SECTION 158.** ORS 466.795 is amended to read:

31 466.795. (1) The Underground Storage Tank Insurance Fund is established separate and distinct
32 from the General Fund in the State Treasury to be used solely for the purpose of satisfying the fi-
33 nancial responsibility requirements of ORS 466.815.

34 (2) Fees received by the department pursuant to subsection (6) of this section, shall be deposited
35 into the State Treasury and credited to the Underground Storage Tank Insurance Fund.

36 (3) The State Treasurer may invest and reinvest moneys in the Underground Storage Tank In-
37 surance Fund in the manner provided by law.

38 (4) The moneys in the Underground Storage Tank Insurance Fund are appropriated continuously
39 to the department to be used as provided for in subsection (5) of this section.

40 (5) Moneys in the Underground Storage Tank Insurance Fund may be used by the department
41 for the following purposes, as they pertain to underground storage tanks:

42 (a) Compensation to the department or any other person, for taking corrective actions; [*and*]

43 (b) Compensation to a third party for bodily injury and property damage caused by a release;

44 **and [.]**

1 (c) Payment of the department's costs in administering the Underground Storage Tank
2 Insurance Fund, which shall be limited to 15 percent of the premium collected.

3 (6) The commission may establish an annual financial responsibility fee to be collected from an
4 owner or permittee of an underground storage tank. The fee shall be in an amount determined by
5 the commission to be adequate to meet the financial responsibility requirements established under
6 ORS 466.815 and any applicable federal law.

7 (7) Before the effective date of any regulations relating to financial responsibility adopted by the
8 United States Environmental Protection Act pursuant to P.L. 98-616 and P.L. 99-499, the department
9 shall formulate a plan of action to be followed if it becomes necessary for the Underground Storage
10 Tank Insurance Fund to become operative in order to satisfy the financial responsibility require-
11 ments of ORS 466.815. In formulating the plan of action, the department shall consult with the Di-
12 rector of the Department of Insurance and Finance, owners and permittees of underground storage
13 tanks and any other interested party. The plan of action must be reviewed by the Legislative As-
14 sembly or the Emergency Board before implementation.

15 **SECTION 159.** (1) It is the intent of the Legislative Assembly that funds assessed pursuant to
16 sections 139 to 148 of this Act are not subject to the provisions of section 2, Article VIII or section
17 3a, Article IX of the Oregon Constitution.

18 (2)(a) Jurisdiction to determine whether sections 139 to 148 of this Act impose a tax or excise
19 levied on, with respect to or measured by the extraction, production, storage, use, sale, distribution
20 or receipt of oil or natural gas or levied on the ownership of oil or natural gas that is subject to
21 the provisions of section 2, Article VIII or section 3a, Article IX of the Oregon Constitution is
22 conferred upon the Supreme Court. A petition for review shall be filed within 60 days only after
23 September 1, 1989. Any person interested in or affected or aggrieved by sections 139 to 148 of this
24 Act may petition for judicial review. The petition shall state the facts showing how the petitioner
25 is interested, affected or aggrieved, and the ground upon which the petition is based. The Supreme
26 Court shall give priority on its docket to a petition for review filed under this subsection. Filing of
27 a petition shall stay the operation of sections 139 to 148 of this Act.

28 (b) Judicial review under paragraph (a) of this subsection shall be limited to:

29 (A) The provisions of this Act authorizing the imposition of the fee; and

30 (B) The legislative history and any supporting documents related to section 2, Article VIII or
31 section 3a, Article IX of the Oregon Constitution.

32 (c) The court may declare the provisions of sections 139 to 148 of this Act invalid if it finds that
33 the provisions violate constitutional provisions.

34 **SECTION 160.** If sections 139 to 148 of this Act or any part thereof are judicially declared to
35 impose a tax or excise levied on, with respect to or measured by the extraction, production, storage,
36 use, sale, distribution or receipt of oil or natural gas or levied on the ownership of oil or natural
37 gas, that is subject to the provisions of section 2, Article VIII or section 3a, Article IX of the Oregon
38 Constitution, sections 139, 140, 141, 142, 143, 144, 145, 146, 147 and 148 of this Act are repealed.

39 **SECTION 161.** Sections 162 to 168 of this Act become operative on the date the Supreme Court
40 declares that sections 139 to 148 of this Act impose a tax or excise levied on, with respect to or
41 measured by the extraction, production, storage, use, sale, distribution or receipt of oil or natural
42 gas or levied on the ownership of oil or natural gas, that is subject to the provisions of section 2,
43 Article VIII or section 3a, Article IX of the Oregon Constitution.

44 **SECTION 162.** (1) In addition to any other fees required by law, each petroleum supplier shall

1. pay to the Department of Revenue annually its share of an assessment to be deposited in accordance
2 with section 165 of this Act. The amount of the total assessment shall be not more than \$1 million
3 each year for that portion of the fee necessary to carry out the state's hazardous material emer-
4 gency response system and up to \$1 million each year for that portion of the fee necessary to pro-
5 vide funding for the Orphan Site Account.

6 (2) Each petroleum supplier shall provide the Department of Revenue, on or before September
7 1, 1989, and by May 1 of each year thereafter, a verified statement showing the petroleum supplier's
8 gross operating revenues derived within the state for the preceding calendar year. The statement
9 shall be in the form prescribed by the Department of Revenue and is subject to audit by the de-
10 partment. The statement shall include an entry showing the total operating revenue derived by pe-
11 troleum suppliers from fuels sold that are subject to the requirements of section 3a, Article IX of
12 the Oregon Constitution, ORS 319.020 and 319.530 with reference to aircraft fuel and motor vehicle
13 fuel or from oil and natural gas extracted within this state subject to section 2, Article VIII of the
14 Oregon Constitution. The department may grant an extension of not more than 15 days for the re-
15 quirements of this subsection if:

16 (a) The petroleum supplier makes a showing of hardship caused by the deadline;

17 (b) The petroleum supplier provides reasonable assurance that the petroleum supplier can com-
18 ply with the revised deadline; and

19 (c) The extension of time does not prevent an affected agency from fulfilling its statutory re-
20 sponsibilities.

21 (3) The amount assessed to a petroleum supplier shall be based on the ratio which that supplier's
22 annual gross operating revenue derived within this state in the preceding calendar year bears to the
23 total gross operating revenue derived within this state during that year by all petroleum suppliers.
24 The Department of Revenue shall exempt from payment of an assessment any individual petroleum
25 supplier whose calculated share of the annual assessment is less than \$250.

26 (4) Based on the formula set forth in subsection (3) of this section, on or before October 1, 1989,
27 and by June 1 of each year thereafter, the Department of Revenue shall send each petroleum sup-
28 plier subject to assessment a fee billing by registered or certified mail. The amount assessed to the
29 petroleum supplier shall be considered to the extent otherwise permitted by law a government-
30 imposed cost and recoverable by the petroleum supplier as a cost included within the price of the
31 service or product supplied.

32 (5) The amounts assessed to individual petroleum suppliers pursuant to subsection (3) of this
33 section shall be paid to the Department of Revenue not later than November 1, 1989, and by July
34 1 of each year thereafter.

35 (6) As used in this section:

36 (a) "Department" means the Department of Revenue.

37 (b) "Gross operating revenue" means gross receipts from sales or service made or provided
38 within this state during the regular course of the petroleum supplier's business, but does not include:

39 (A) Revenue derived from interutility sales within the state; or

40 (B) Revenue received by a petroleum supplier from the sale of fuels that are:

41 (i) Used to operate railroad locomotives; or

42 (ii) Subject to the requirements of section 3a, Article IX of the Oregon Constitution, ORS 319.020
43 or 319.530 or section 2, Article VIII of the Oregon Constitution.

44 (c) "Petroleum supplier" has the meaning given that term in ORS 469.020 but does not include

1 a person supplying natural gas.

2 (7) The amount of revenues that must be derived from any class of petroleum suppliers by as-
3 sessment pursuant to this subsection shall be determined by the department.

4 (8) A fee billing sent by the department under this section shall be subject to appeal under ORS
5 305.275. The filing of an appeal shall not operate to stay the obligation of a petroleum supplier to
6 pay amounts assessed to it on or before the statutory deadline.

7 **SECTION 163.** (1) In addition to any other fee required by law, each railroad company that
8 transports hazardous substance in Oregon shall pay, on or before January 1 of each even-numbered
9 year, a biennial fee to the Department of Revenue. The fee shall be determined by dividing the
10 number of miles of main track, branch line track and yard track in this state, as determined under
11 ORS 308.570, into the sum of up to \$100,000. Each railroad company shall then be billed for its pro
12 rata share based on the number of miles of track owned.

13 (2) The Director of the Department of Revenue shall deposit the fee collected under subsection
14 (1) of this section in accordance with section 165 of this Act.

15 (3) As used in this section:

16 (a) "Hazardous substance" has the meaning given that term in ORS 453.307.

17 (b) "Railroad" means a Class 1 railroad as defined in ORS 760.005.

18 **SECTION 164.** (1) In addition to other fees and taxes imposed by law upon motor carriers, there
19 shall be assessed against and collected, on or before January 1 of each even-numbered year, from
20 every motor carrier a biennial fee.

21 (2) The fee imposed under subsection (1) of this section shall be based upon the estimated inci-
22 dence of hazardous substance spilled or discharged by motor carriers.

23 (3) For the purpose of computing the fee under subsection (1) of this section:

24 (a) Not more than \$100 shall be assessed for any motor carrier transporting hazardous sub-
25 stance; and

26 (b) Not more than \$25 shall be assessed for each motor carrier.

27 (4) The fee imposed under this section shall be paid to the Department of Revenue and deposited
28 in accordance with section 165 of this Act.

29 (5) The Public Utility Commission shall provide the Department of Revenue with a list of all
30 motor carriers registered with the Public Utility Commission. The list shall be current as of January
31 1 of each odd-numbered year and shall identify all motor carriers and those motor carriers who
32 transport any hazardous substance.

33 (6) As used in this section:

34 (a) "Hazardous substance" has the meaning given that term in ORS 767.458.

35 (b) "Motor carrier" has the meaning given that term in ORS 767.005.

36 **SECTION 165.** All moneys received by the Department of Revenue under sections 162 to 164
37 of this Act shall be deposited in the State Treasury and credited to a suspense account established
38 under ORS 293.445. After payment of administration expenses incurred by the department in the
39 administration of sections 162 to 164 of this Act and of refunds or credits arising from erroneous
40 overpayments, the balance of the money shall be credited to the appropriate accounts as approved
41 by the Legislative Assembly to carry out the state's hazardous material emergency response system
42 and to provide funding for the Orphan Site Account. If the balance of the money is less than that
43 approved by the Legislative Assembly, the department shall distribute the money to the accounts in
44 a ratio equal to the ratio of the amounts approved by the Legislative Assembly. Moneys collected

1 under sections 162 to 168 of this Act and credited to the Orphan Site Account shall not be used for
2 removal or remedial action costs at solid waste disposal sites for which a fee is collected under
3 section 137 or 138 of this Act.

4 **SECTION 166.** The provisions of ORS chapters 305 and 314 as to liens, delinquencies, claims
5 for refund, issuance of refunds, conferences, appeals to the Director of the Department of Revenue,
6 appeals to the Oregon Tax Court, stay of collection pending appeal, cancellation, waiver, reduction
7 or compromise of fees, penalties or interest, subpoenaing and examining witnesses and books and
8 papers and the issuance of warrants and the procedures relating thereto, shall apply to the col-
9 lection of fees, penalties and interest by the Department of Revenue under sections 162 to 168 of this
10 Act, except where the context requires otherwise.

11 **SECTION 167.** If any person fails to pay a fee imposed under sections 162 to 168 of this Act,
12 within 60 days after receiving a billing, there shall be added to the fee, a penalty of five percent
13 of the amount of the fee. Any payment made after 60 days shall bear interest at the rate prescribed
14 under ORS 305.220.

15 **SECTION 168.** Before final adoption of initial rules to carry out the provisions of sections 162
16 to 168 of this Act or subsequent amendment of the initial assessments established under sections 162
17 to 168 of this Act, the Department of Revenue shall obtain specific approval of the fees by the Joint
18 Committee on Ways and Means during the legislative sessions or the Emergency Board during the
19 interim period between sessions.

20 **SECTION 169.** If the Supreme Court declares that sections 139 to 148 of this Act impose a tax
21 or excise levied on, with respect to or measured by the extractions, production, storage, use, sale,
22 distribution or receipt of oil or natural gas or levied on the ownership of oil or natural gas, that is
23 subject to the provisions of section 2, Article VIII, or section 3a, Article IX of the Oregon Consti-
24 tution, ORS 466.590, as amended by section 113 of this Act, is further amended to read:

25 466.590. (1) The Hazardous Substance Remedial Action Fund is established separate and distinct
26 from the General Fund in the State Treasury.

27 (2) The following shall be deposited into the State Treasury and credited to the Hazardous
28 Substance Remedial Action Fund:

29 (a) Fees received by the department under ORS 466.587.

30 (b) Moneys recovered or otherwise received from responsible parties for remedial action costs.
31 Moneys recovered from responsible parties for costs paid by the department from the Orphan Site
32 Account established under subsection (6) of this section shall be credited to the Orphan Site Ac-
33 count.

34 (c) Moneys received under the schedule of fees established under paragraph (c) of subsection (2)
35 of section 124 of this 1989 Act, **under section 138 of this 1989 Act and [sections 139 to 148 of this**
36 **1989 Act] under sections 162 to 168 of this 1989 Act** for the purpose *[described in ORS 466.590*
37 *(6)(a)(A)] of providing funds for the Orphan Site Account* which shall be credited to the Orphan
38 Site Account established under subsection (6) of this section.

39 (d) Any penalty, fine or punitive damages recovered under ORS 466.567, 466.570, 466.583 or
40 466.900.

41 (e) Fees received by the department under section 110 of this 1989 Act.

42 (f) Moneys and interest, that are paid, recovered or otherwise received under financial assist-
43 ance agreements.

44 (g) Moneys appropriated to the fund by the Legislative Assembly.

1 (h) Moneys from any grant made to the fund by a federal agency.

2 (3) The State Treasurer may invest and reinvest moneys in the Hazardous Substance Remedial
3 Action Fund in the manner provided by law.

4 (4) The moneys in the Hazardous Substance Remedial Action Fund are appropriated contin-
5 uously to the department to be used as provided in subsection (5) of this section.

6 (5) Moneys in the Hazardous Substance Remedial Action Fund may be used for the following
7 purposes:

8 (a) Payment of the department's remedial action costs;

9 (b) Funding any action or activity authorized by ORS 466.540 to 466.590 and 466.900, including
10 but not limited to providing financial assistance pursuant to an agreement entered into under sec-
11 tion 106 of this 1989 Act; and

12 (c) Providing the state cost share for a removal or remedial action, as required by section
13 104(c)(3) of the federal Comprehensive Environmental Response, Compensation and Liability Act,
14 P.L. 96-510 and as amended by P.L. 99-499.

15 (6)(a) The Orphan Site Account is established in the Hazardous Substance Remedial Action Fund
16 in the State Treasury. All moneys credited to the Orphan Site Account are continuously appropri-
17 ated to the department for:

18 (A) Expenses of the department related to facilities or activities associated with the removal or
19 remedial action where the department determines the responsible party is unknown, unwilling or
20 unable to undertake all required removal or remedial action; and

21 (B) Grants and loans to local government units for facilities or activities associated with the
22 removal or remedial action of a hazardous substance.

23 (b) The Orphan Site Account may not be used to pay the state's remedial action costs at facili-
24 ties owned by the state.

25 (c) The Orphan Site Account may be used to pay claims for reimbursement filed and approved
26 under ORS 466.570 (7).

27 (d) If bonds have been issued under ORS 468.195 to provide funds for removal or remedial action,
28 the department shall first transfer from the Orphan Site Account to the Pollution Control Sinking
29 Fund, solely from the fees collected pursuant to paragraph (c) of subsection (2) of section 124 of this
30 1989 Act, under section 138 of this 1989 Act and from *[sections 139 to 148 of this 1989 Act,]* **sections**
31 **162 to 168 of this 1989 Act** for such purposes, any amount necessary to provide for the payment
32 of the principal and interest upon such bonds. Moneys from repayment of financial assistance or
33 recovered from a responsible party shall not be used to provide for the payment of the principal and
34 interest upon such bonds.

35 (7)(a) Of the funds in the Orphan Site Account derived from the fees collected pursuant to par-
36 agraph (c) of subsection (2) of section 124 of this 1989 under section 138 of this 1989 Act and
37 sections *[139 to 148 of this 1989 Act]* **162 to 168 of this 1989 Act** for the purpose *[described in ORS*
38 *466.590 (6)(a)(A)]* **of providing funds for the Orphan Site Account**, and the proceeds of any bond
39 sale under ORS 468.195 supported by the fees collected pursuant to paragraph (c) of subsection (2)
40 of section 124 of this 1989 Act, under section 138 of this 1989 Act and sections *[139 to 148 of this*
41 *1989 Act]* **162 to 168 of this 1989 Act** for the purpose *[described in ORS 466.590 (6)(a)(A)]* **of pro-**
42 **viding funds for the Orphan Site Account**, no more than 25 percent may be obligated in any
43 biennium by the department to pay for removal or remedial action at facilities determined by the
44 department to have an unwilling responsible party, unless the department first receives approval

1 from the Legislative Assembly or the Emergency Board.

2 (b) Before the department obligates money from the Orphan Site Account derived from the fees
3 collected pursuant to paragraph (c) of subsection (2) of section 124 of this 1989 Act, under section
4 138 of this 1989 Act and sections [139 to 148 of this 1989 Act] 162 to 168 of this 1989 Act for the
5 purpose [described in ORS 466.590 (6)(a)(A)] of providing funds for the Orphan Site Account and
6 the proceeds from any bond sale under ORS 468.195 supported by fees collected pursuant to para-
7 graph (c) of subsection (2) of section 124 of this 1989 Act, under section 138 of this 1989 Act and
8 [sections 139 to 148 of this 1989 Act] for the purpose described in ORS 466.590 (6)(a)(A), for removal
9 or remedial action at a facility determined by the department to have an unwilling responsible party,
10 the department must first determine whether there is a need for immediate removal or remedial
11 action at the facility to protect public health, safety, welfare or the environment. The department
12 shall determine the need for immediate removal or remedial action in accordance with rules adopted
13 by the Environmental Quality Commission.

14 **SECTION 170.** If the Supreme Court declares that sections 139 to 148 of this Act impose a tax
15 or excise levied on, with respect to or measured by the extractions, production, storage, use, sale,
16 distribution or receipt of oil or natural gas or levied on the ownership of oil or natural gas, that is
17 subject to the provisions of section 2, Article VIII or section 3a, Article IX of the Oregon Consti-
18 tution, ORS 468.220, as amended by section 114 of this Act, is further amended to read:

19 468.220. (1) The department shall be the agency for the State of Oregon for the administration
20 of the Pollution Control Fund. The department is hereby authorized to use the Pollution Control
21 Fund for one or more of the following purposes:

22 (a) To grant funds not to exceed 30 percent of total project costs for eligible projects as defined
23 in ORS 454.505 or sewerage systems as defined in ORS 468.700.

24 (b) To acquire, by purchase, or otherwise, general obligation bonds or other obligations of any
25 municipal corporation, city, county, or agency of the State of Oregon, or combinations thereof, is-
26 sued or made for the purpose of paragraph (a) of this subsection in an amount not to exceed 100
27 percent of the total project costs for eligible projects.

28 (c) To acquire, by purchase, or otherwise, other obligations of any city that are authorized by
29 its charter in an amount not to exceed 100 percent of the total project costs for eligible projects.

30 (d) To grant funds not to exceed 30 percent of the total project costs for facilities for the dis-
31 posal of solid waste, including without being limited to, transfer and resource recovery facilities.

32 (e) To make loans or grants to any municipal corporation, city, county, or agency of the State
33 of Oregon, or combinations thereof, for planning of eligible projects as defined in ORS 454.505,
34 sewerage systems as defined by ORS 468.700 or facilities for the disposal of solid waste, including
35 without being limited to, transfer and resource recovery facilities. Grants made under this paragraph
36 shall be considered a part of any grant authorized by paragraph (a) or (d) of this subsection if the
37 project is approved.

38 (f) To acquire, by purchase, or otherwise, general obligation bonds or other obligations of any
39 municipal corporation, city, county, or agency of the State of Oregon, or combinations thereof, is-
40 sued or made for the purpose of paragraph (d) of this subsection in an amount not to exceed 100
41 percent of the total project costs.

42 (g) To advance funds by contract, loan or otherwise, to any municipal corporation, city, county
43 or agency of the State of Oregon, or combination thereof, for the purpose of paragraphs (a) and (d)
44 of this subsection in an amount not to exceed 100 percent of the total project costs.

1 (h) To pay compensation required by law to be paid by the state for the acquisition of real
2 property for the disposal by storage of environmentally hazardous wastes.

3 (i) To dispose of environmentally hazardous wastes by the Department of Environmental Quality
4 whenever the department finds that an emergency exists requiring such disposal.

5 (j) To acquire for the state real property and facilities for the disposal by landfill, storage or
6 otherwise of solid waste, including but not limited to, transfer and resource recovery facilities.

7 (k) To acquire for the state real property and facilities for the disposal by incineration or oth-
8 erwise of hazardous waste or PCB.

9 (L) To provide funding for the Assessment Deferral Loan Program Revolving Fund established
10 in ORS 468.975.

11 (m) To provide funding for the Orphan Site Account established in ORS 466.590 but only to the
12 extent that the department reasonably estimates that debt service from bonds issued to finance such
13 facilities or activities shall be fully paid from fees collected pursuant to paragraph (c) of subsection
14 (2) of section 124 of this 1989 Act, under section 138 of this 1989 Act, under *[sections 139 to 148 of*
15 *this 1989 Act,]* **sections 162 to 168 of this 1989 Act** for the purpose *[described in ORS 466.590*
16 *(6)(a)(A)]* **of providing funds for the Orphan Site Account** and other available funds, but not from
17 repayments of financial assistance under sections 102 to 111 of this 1989 Act or from moneys re-
18 covered from responsible parties.

19 (n) To advance funds by contract, loan or otherwise, to any municipal corporation, city, county
20 or agency of this state, or combination thereof, for facilities or activities related to removal or re-
21 medial action of hazardous substances.

22 (2) The facilities referred to in paragraphs (a) to (c) of subsection (1) of this section shall be only
23 such as conservatively appear to the department to be not less than 70 percent self-supporting and
24 self-liquidating from revenues, gifts, grants from the Federal Government, user charges, assessments
25 and other fees.

26 (3) The facilities referred to in paragraphs (d), (f) and (g) of subsection (1) of this section shall
27 be only such as conservatively appear to the department to be not less than 70 percent self-
28 supporting and self-liquidating from revenues, gifts, grants from the Federal Government, user
29 charges, assessments and other fees.

30 (4) The real property and facilities referred to in paragraphs (j) and (k) of subsection (1) of this
31 section shall be only such as conservatively appear to the department to be not less than 70 percent
32 self-supporting and self-liquidating from revenues, gifts, grants from the Federal Government, user
33 charges, assessments and other fees.

34 (5) The department may sell or pledge any bonds, notes or other obligations acquired under
35 paragraph (b) of subsection (1) of this section.

36 (6) Before making a loan or grant to or acquiring general obligation bonds or other obligations
37 of a municipal corporation, city, county or agency for facilities for the disposal of solid waste or
38 planning for such facilities, the department shall require the applicant to demonstrate that it has
39 adopted a solid waste management plan that has been approved by the department. The plan must
40 include a waste reduction program.

41 (7) Any grant authorized by this section shall be made only with the prior approval of the Joint
42 Committee on Ways and Means during the legislative sessions or the Emergency Board during the
43 interim period between sessions.

44 (8) The department may assess those entities to whom grants and loans are made under this

1 section to recover expenses incurred in administering this section.

2 **SECTION 171.** If the Supreme Court declares that sections 139 to 148 of this Act impose a tax
3 or excise levied on, with respect to or measured by the extractions, production, storage, use, sale,
4 distribution or receipt of oil or natural gas or levied on the ownership of oil or natural gas, that is
5 subject to the provisions of section 2, Article VIII, or section 3a, Article IX of the Oregon Consti-
6 tution, section 132 of this Act is amended to read:

7 Sec. 132. (1) Notwithstanding the totals established in sections 123, 138 and [140] 162 of this 1989
8 Act, after July 1, 1991, the Environmental Quality Commission by rule, may increase the total
9 amount to be collected annually as a fee and deposited into the Orphan Site Account under sections
10 123, 138[,] and [140] 162 of this 1989 Act. The commission shall approve an increase if the commis-
11 sion determines:

12 (a) Existing fees being deposited into the Orphan Site Account are not sufficient to pay debt
13 service on bonds sold to pay for removal or remedial actions at sites where the department deter-
14 mines the responsible party is unknown, unwilling or unable to undertake all required removal or
15 remedial action; or

16 (b) Revenues from the sale of bonds cannot be used to pay for activities related to removal or
17 remedial action, and existing fees being deposited into the Orphan Site Account are not sufficient
18 to pay for these activities.

19 (2) The increased amount approved by the commission under subsection (1) of this section:

20 (a) Shall be no greater than the amount needed to pay anticipated costs specifically identified
21 by the Department of Environmental Quality at sites where the department determines the respon-
22 sible party is unknown, unwilling or unable to undertake all required removal or remedial action;
23 and

24 (b) Shall be specifically approved by the Joint Committee on Ways and Means during the legis-
25 lative sessions or the Emergency Board during the interim period between sessions.

26 **SECTION 172.** If the Supreme Court declares that sections 139 to 148 of this Act impose a tax
27 or excise levied on, with respect to or measured by the extractions, production, storage, use, sale,
28 distribution or receipt of oil or natural gas or levied on the ownership of oil or natural gas, that is
29 subject to the provisions of section 2, Article VIII, or section 3a, Article IX of the Oregon Consti-
30 tution, section 133 of this Act is amended to read:

31 Sec. 133. Nothing in sections 117, 121 to 131, 132, 134, 135, 137, 138 and [139 to 148] 162 to 168
32 of this 1989 Act, including the limitation on the amount a local government unit must contribute
33 under sections 137 and 138 of this 1989 Act, shall be construed to affect or limit the liability of any
34 person.

35 **SECTION 173.** Notwithstanding any provision of paragraph (c) of subsection (2) of section 124
36 of this Act, the fee imposed under paragraph (c) of subsection (2) of section 124 of this Act or under
37 sections 139 to 148 of this Act shall not include any amount to be deposited in the Orphan Site
38 Account until after the Emergency Board first approves the issuance of bonds under ORS 468.195
39 to provide funding for the Orphan Site Account. Following the initial approval of the issuance of
40 bonds, the fee imposed under paragraph (c) of subsection (2) of section 124 of this Act, the fee im-
41 posed under section 138 of this Act and the fee imposed under sections 139 to 148 of this Act shall
42 all be assessed whether the bonds are issued for removal or remedial action at a solid waste disposal
43 site or at another site for which the Department of Environmental Quality determines the respon-
44 sible party is unknown, unwilling or unable to undertake all required removal or remedial action.

1 **SECTION 174.** Notwithstanding any provision of ORS 466.590, during the biennium beginning
2 July 1, 1989, moneys collected under the schedule established in paragraph (c) of subsection (2) of
3 section 124 of this Act, under section 138 of this Act and under sections 139 to 148 of this Act to
4 be used for removal or remedial action at sites for which the Department of Environmental Quality
5 determines the responsible party is unknown, unwilling or unable to undertake all required removal
6 or remedial action, may be used only for payment of debt service on bonds issued under ORS 468.195
7 for the purposes allowed under ORS 468.220, (1)(m).

8 **SECTION 175.** ORS 466.653, 466.660 and 466.665 are repealed.

9 **SECTION 176.** Notwithstanding any other law, the amount of \$1,441,487 is established for the
10 biennium beginning July 1, 1989, as the maximum limit for payment of expenses incurred in carrying
11 out the provisions of the Community Right to Know and Protection Act from fees, moneys or other
12 revenues, including Miscellaneous Receipts, excluding federal funds, collected or received by the
13 Executive Department, Office of the State Fire Marshal under sections 121 to 131 of this Act.

14 **SECTION 177.** Notwithstanding any other law limiting expenditures of the Department of Re-
15 venue for the payment of expenses, there is authorized to be expended, in addition to other limita-
16 tions established by law, the amount of \$91,582 for the biennium beginning July 1, 1989, from fees
17 collected by the Department of Revenue, as the maximum limit for payment of expenses for admin-
18 istration of this Act.

19 **SECTION 178.** In addition to and not in lieu of any other appropriation, there is appropriated
20 to the Executive Department, Office of the State Fire Marshal, for the biennium beginning July 1,
21 1989, out of the State Fire Marshal Fund from moneys derived from the gross premium tax under
22 ORS 731.820, the sum of \$500,000 for the purpose of providing training under ORS 453.347.

23 **SECTION 179.** In addition to and not in lieu of any other appropriation, there is appropriated
24 to the Executive Department for the Office of the State Fire Marshal, out of the State Fire Marshal
25 Fund, from moneys derived from the gross premium tax under ORS 731.820, for the biennium begin-
26 ning July 1, 1989, the sum of \$200,000 for the purpose of establishing the revolving fund under sec-
27 tion 88 of this Act.

28 **SECTION 180.** Notwithstanding any other law, the amount of \$33,000 is established for the
29 biennium beginning July 1, 1989, as the maximum limit for payment of expenses from fees, moneys
30 or other revenues, including Miscellaneous Receipts, excluding federal funds, collected or received
31 by the Department of Energy for the purposes of sections 81 to 91 of this Act.

32 **SECTION 181.** Notwithstanding any other law, the amount of \$67,000 is established for the
33 biennium beginning July 1, 1989, as the maximum limit for payment of expenses from fees, moneys
34 or other revenues, including Miscellaneous Receipts, excluding federal funds, collected or received
35 by the Emergency Management Division of the Executive Department for the purposes of sections
36 81 to 91 of this Act.

37 **SECTION 182.** Notwithstanding any other law, the amount of \$3,323,666 is established for the
38 biennium beginning July 1, 1989, as the maximum limit for payment of expenses incurred in carrying
39 out the state-wide hazardous material emergency response system from fees, moneys or other re-
40 venues, including Miscellaneous Receipts, excluding federal funds, collected or received by the
41 Executive Department, Office of the State Fire Marshal.

42 **SECTION 183.** Notwithstanding any other law, the amount of \$250,000 is established for the
43 biennium beginning July 1, 1989, as the maximum limit for payment of expenses from fees, moneys
44 or other revenues, including Miscellaneous Receipts, excluding federal funds, collected or received

1 by the Department of Agriculture.

2 **SECTION 184.** Notwithstanding any other law, the amount of \$183,484 is established for the
3 biennium beginning July 1, 1989, as the maximum limit for payment of expenses incurred in carrying
4 out duties under the state-wide hazardous material spill response system, from fees, moneys or other
5 revenue, including Miscellaneous Receipts, excluding federal funds, collected or received by the
6 Department of Higher Education.

7 **SECTION 185.** (1) In addition to and not in lieu of any other appropriation, there is appropri-
8 ated to the Emergency Board for the biennium beginning July 1, 1989, out of the General Fund, the
9 sum of \$100,000, which may be expended for the purpose of carrying out section 30 of this Act. The
10 Emergency Board may authorize expenditures of any or all of the amount appropriated by this sec-
11 tion upon submission of a plan to carry out such provisions by the Health Division of the Depart-
12 ment of Human Resources.

13 (2) If all of the moneys referred to in subsection (1) of this section are not allocated by the
14 Emergency Board prior to December 1, 1990, such moneys on that date become available for any
15 other purpose for which the Emergency Board lawfully may allocate funds.

16 **SECTION 186.** This Act being necessary for the immediate preservation of the public peace,
17 health and safety, an emergency is declared to exist, and this Act takes effect on its passage.

18

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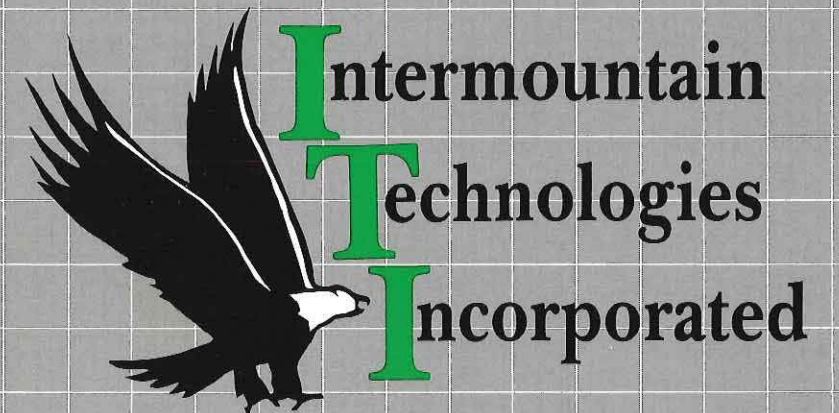
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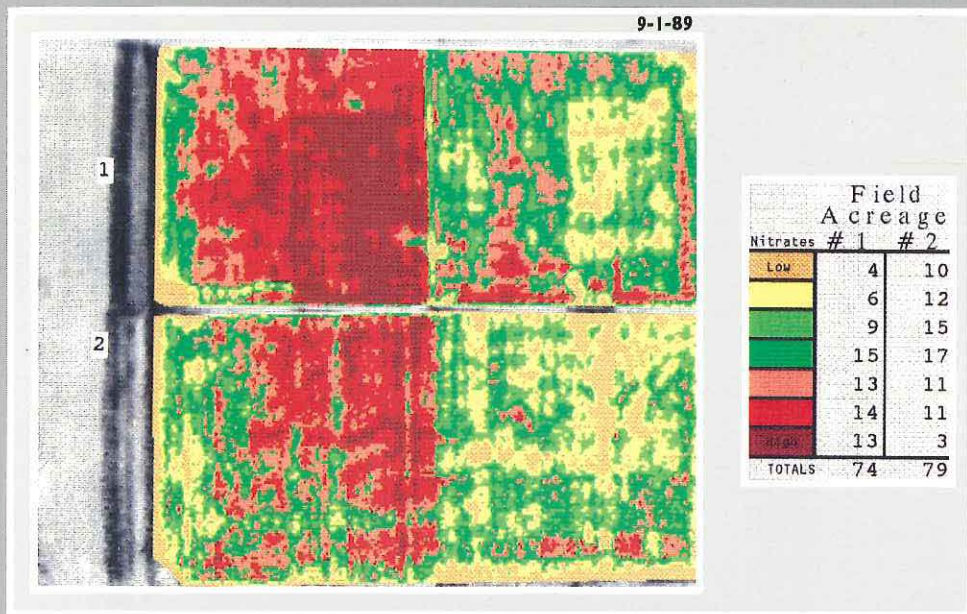
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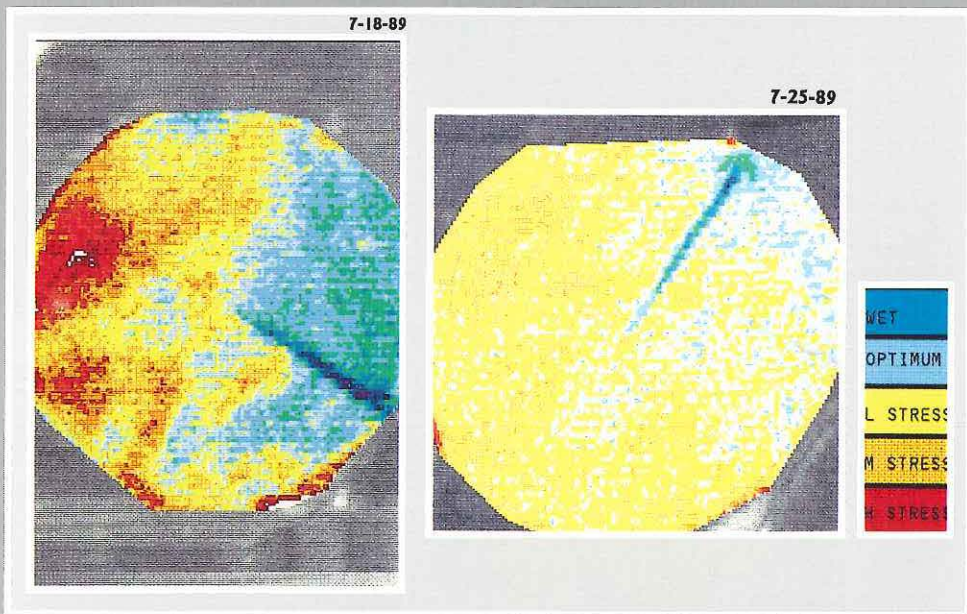
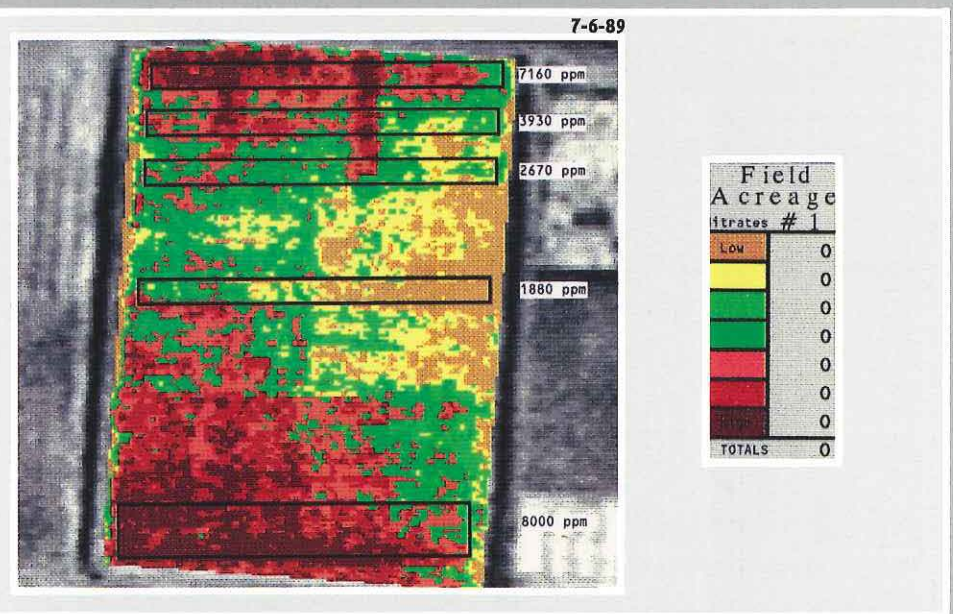


◀ NITRATE MAP POTATOES ▶

This map is an example of how one farmer tracked the nitrogen levels in his potato fields. It's easy to see the effects of the uneven nitrogen concentration in the soil. The yellow area on the map have received insufficient nitrogen, while the green areas indicate an optimum amount of nitrogen in the soil. The red areas are those that have been severely over-fertilized, indicating a waste of fertilizer. By mapping your fields with the Nitrate map, you will know, as this farmer did, where to fertilize for maximum effectiveness without waste.

▶ NITRATE MAP SUGARBEETS ▶

The nitrate levels indicated in this field of sugarbeets indicates the accumulation of both the season-long, and recent nitrogen absorption. By conducting periodical surveys throughout the season, you can easily see trends in the shift of nitrate levels. This information allows you to manage nitrate levels precisely as the growing season progresses.

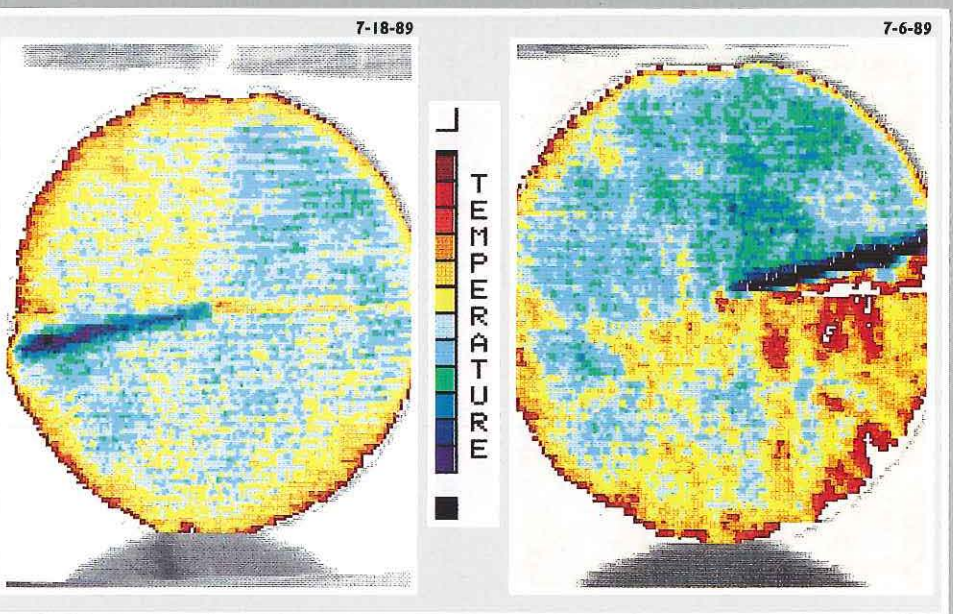


◀ IRRIGATION (WATER MANAGEMENT) POTATOES ▶

Crops will grow best when they receive the optimum amount of water. Not visible to the grower, this map shows a field of potatoes that has areas that are under-watered and areas that are over-watered. By adjusting his watering schedule to provide adequate water to those areas that were under-watered, and to allow over-watered areas to dry out, this grower was able to maximize the output of this field.

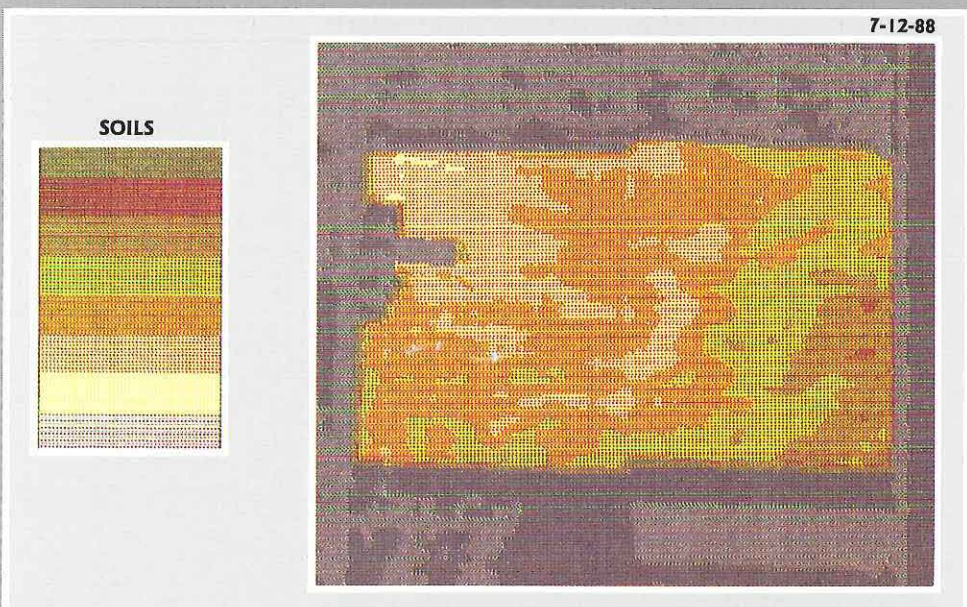
▶ IRRIGATION (WATER MANAGEMENT) CORN ▶

Not visible to the grower, this map shows the water problems in a field of corn. Not only was there a problem with the way the grower was irrigating the field, the map showed a specific problem in the end gun on the irrigation system. By repairing the irrigation system and adjusting the irrigation schedule, the problems were corrected and the field provided maximum yield.



AFTER WATER ADJUSTMENT

AFTER WATER ADJUSTMENT

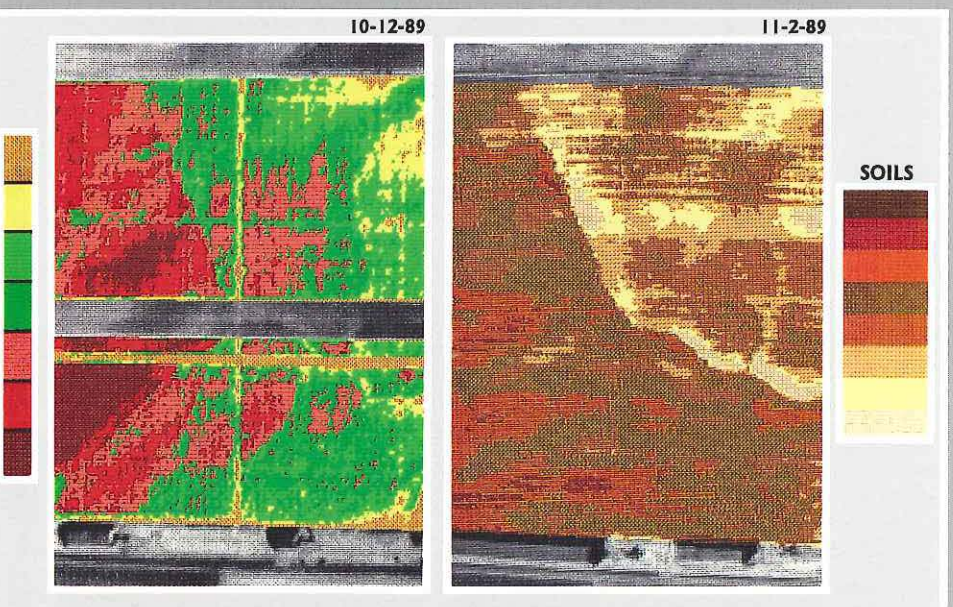


◀ SOIL HAWK MAP ▶

The Soil Hawk map is specifically designed to tell the grower where to take soil samples in each field for the most accurate representation of his fertilizer needs. By looking at the various colors on this field for seed potatoes, the grower was able to see that the field had three different types of soil. He was able to reduce his fertilizer cost by only adding potash on the right one-third of the field where potassium was needed as varified by soil analysis.

▶ NITRATE AND SOIL MAP (SUGARBEETS) ▶

These two maps confirm, when used together, that the soil in the left portion of this field is extremely high in nitrogen. The grower, who had originally flown nitrogen over the entire field, indicated that if he would have had the mapping done before fertilizing, he would have fertilized only those areas that were nitrogen deficient, thus saving him considerable money.





IRZ CONSULTING

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IRRIGATION SCHEDULING PROGRAM

NEUTRON PROBE - SOIL MOISTURE

IRRIGATION DESIGN PROGRAM

IRRIGATION AUDIT PROGRAM

PUMP TESTING PROGRAM

*From: Fred Ziari
Irrigation Specialist*

BACKGROUND

Umatilla Electric serves some 200,000 acres of irrigated land in the Umatilla and Morrow Counties. Approximately 70% of our electrical load is used in agriculture, with irrigation comprising 40% of that load. Water is pumped from a variety of sources, including the Columbia River, Umatilla River, Wells and Canals. Center pivot (circle) irrigation is mainly used.

Our major crops are potatoes, corn, wheat, alfalfa, and watermelon. Other crops include grapes, apples, asparagus, onion, and pasture. More recently the move has been towards the more intensive vegetable crop production, grown under drip irrigation and plastic mulching.

Our customers are among the most sophisticated growers in the Pacific Northwest and based on their request and in cooperation with them, we have developed a variety of irrigation programs starting in 1982. Since then we have done extensive system re-design and hardware improvements, such as pump and motor efficiency improvement, mainline re-sizing, and conversion to the more efficient low pressure sprinkler systems.

Realizing that water is our most precious resource, we also have developed an extensive Water Management Program. We started this program in late 1982, with only 500 acres in the program. At present we are directly involved with over 70,000 acres and indirectly (through other consultants and some Washington growers) with some other 30,000 acres.

WATER SAVING

Water savings under an irrigation management program will vary from year to year and from farm to farm. Following are the results of savings from one irrigation season.

<u>CROPS</u>	<u>SAVING</u>
Alfalfa	25%
Corn	28%
Potatoes	30%
Wheat	25%

As a rule of thumb we are able to save an average of 20% in one irrigation season. Savings are higher initially and reduces as irrigators become familiar with the program and learn the value of the efficient use of water.

WATER MANAGEMENT - MAJOR BENEFITS

- Encourages the efficient use of water
- Reduces the cost of operation
- Results in efficient use of energy
- Increases the crop quality and yield
- Reduces fertilizer and chemical leaching

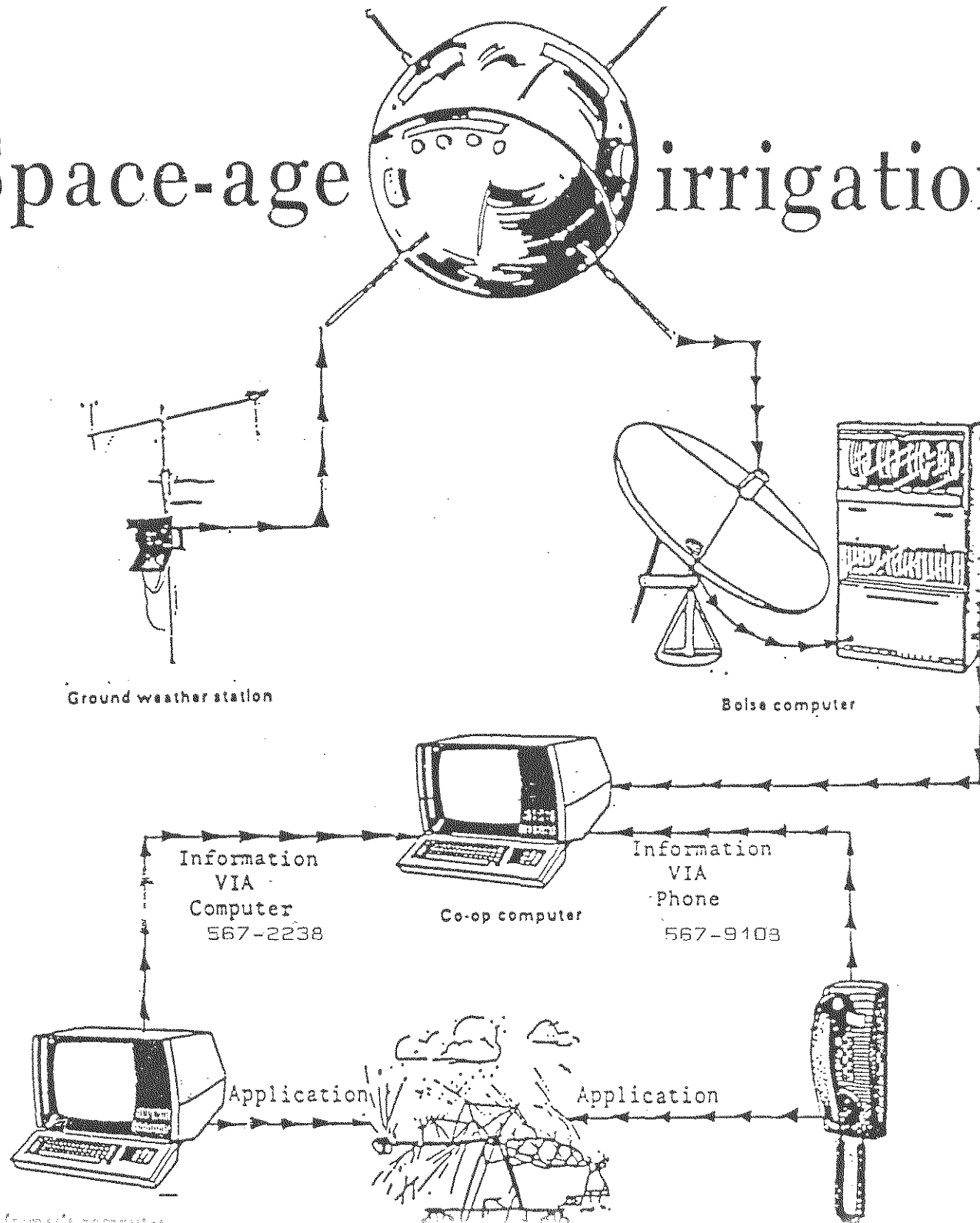
IRRIGATION ENERGY SAVINGS

HORSEPOWER Before	HORSEPOWER After	KWH SAVED	%SAVED
40	30	23,000	25%
50	40	29,000	20
65	45	59,000	31
200	130	157,000	35
230	115	150,000	50
300	180	217,000	40
300	215	173,000	28
350	280	406,000	20
550	350	510,000	36
700	350	650,000	50
1100	730	1,008,000	34
2000	1300	1,500,000	35

ENERGY AUDIT BY : Fred Ziari

UTILITY..... : Umatilla Electric, Hermiston Oregon

Space-age irrigation



05/11/88

Weekly Irrigation Scheduling Report
Up to date 05/10/88 forecast to 05/17/88

CROPS	05/04 -----> 05/10							Past 7 days	<-- Next 7 days -->	
	Wed	Thu	Fri	Sat	Sun	Mon	Tue	inch/week	inch/day	inch/week
ETp	0.14	0.20	0.23	0.21	0.19	0.25	0.22	1.44	0.21	1.47
ALFALFA	0.14	0.20	0.23	0.21	0.19	0.25	0.22	1.44	0.21	1.47
PASTURE	0.13	0.18	0.21	0.19	0.17	0.22	0.20	1.30	0.19	1.30
CORN	0.02	0.03	0.03	0.03	0.03	0.04	0.03	0.21	0.03	0.23
W-WHEAT	0.14	0.20	0.23	0.21	0.19	0.25	0.22	1.44	0.21	1.47
S-WHEAT	0.14	0.20	0.23	0.21	0.19	0.25	0.22	1.44	0.21	1.50
E-POTATO	0.07	0.08	0.09	0.09	0.08	0.10	0.10	0.61	0.11	0.80
M-POTATO	0.03	0.04	0.05	0.04	0.04	0.05	0.05	0.30	0.07	0.48
L-POTATO	0.03	0.04	0.05	0.04	0.04	0.05	0.04	0.29	0.04	0.29
ONION	0.07	0.09	0.09	0.09	0.09	0.11	0.10	0.64	0.11	0.77
GRAPE	0.04	0.06	0.07	0.06	0.06	0.08	0.07	0.44	0.08	0.53
APPLE	0.08	0.11	0.12	0.12	0.11	0.14	0.14	0.82	0.14	1.01
MINT	0.07	0.09	0.10	0.10	0.09	0.11	0.11	0.67	0.10	0.73
PEAS	0.07	0.09	0.10	0.10	0.09	0.12	0.11	0.68	0.12	0.87
W-MELON	0.06	0.07	0.07	0.07	0.07	0.08	0.07	0.49	0.07	0.52

C E N T E R P I V O T R E P O R T

Recommended hours of operation per week
 From 09-Sep to 16-Sep

CROP	CROP WATER USE		Gallons/minute/acre					
	|<-FORECAST NEXT 7 DAYS->|		4	5	6	7	8	9
	inch/day	inch/week						
ALFALFA	0.25	1.75	233	186	155	133	116	104
PASTURE	0.21	1.47	196	157	130	112	98	87
CORN	0.14	0.98	130	104	87	75	65	58
L-POTATO	0.11	0.77	103	82	68	59	51	46

NOTE: Hours/week maintains the same soil moisture at the end of the week
 : Efficiency of center pivots have been considered.
 : Hours greater than 168 hours/week require continous operation.

LOCAL FORECAST FOR HERMISTON AND PENDLETON

FOR : MAY 10, 1988

TODAY..... FAIR WITH HIGH CLOUDS, LIGHT WIND
HIGH: 85 TO 90

TONIGHT... HIGH VARIABLE CLOUDS WITH LIGHT WIND
LOW: 45 TO 50

TOMORROW... INCREASING CLOUD WITH CHANCE OF AFTERNOON SHOWER
HIGH: 80 TO 85

===== STATISTICAL RECORD =====

CROP YEAR RAIN: 7.51 IN : 2.25 INCH BELOW NORMAL

AVERAGE TEMP. : HIGH 69 : LOW 45

RECORD TEMP. : HIGH 92 : LOW 30

SUNRISE : 5:29 AM : SUNSET 8:15 PM

ETp ADJUSTMENT: 0%

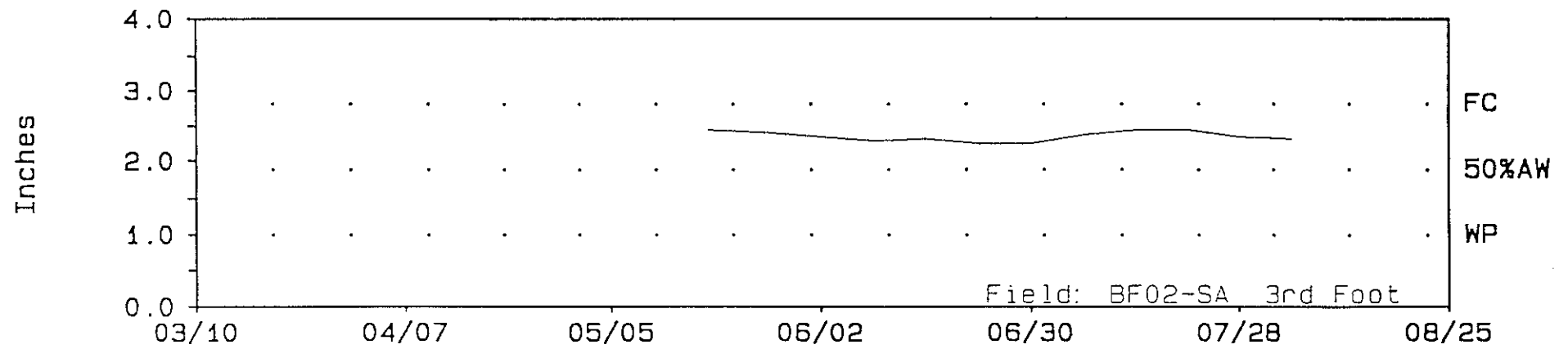
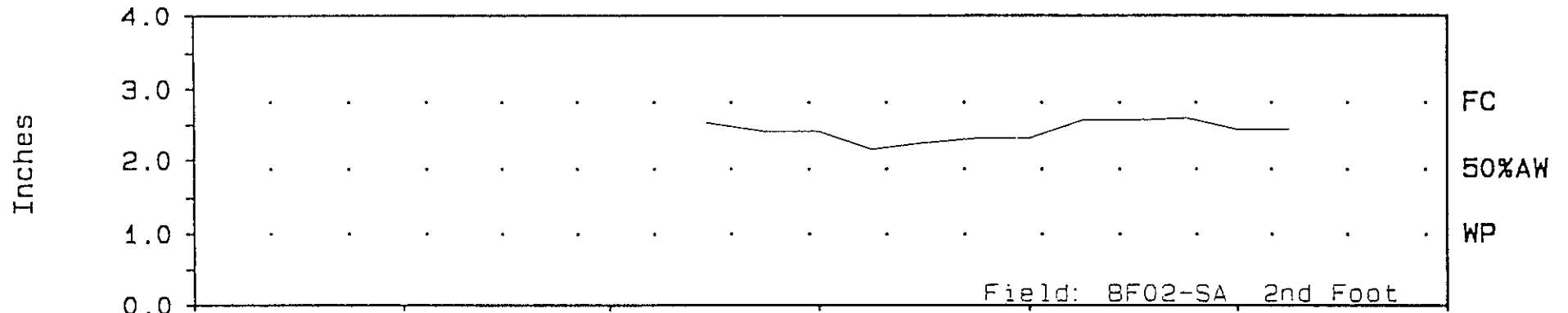
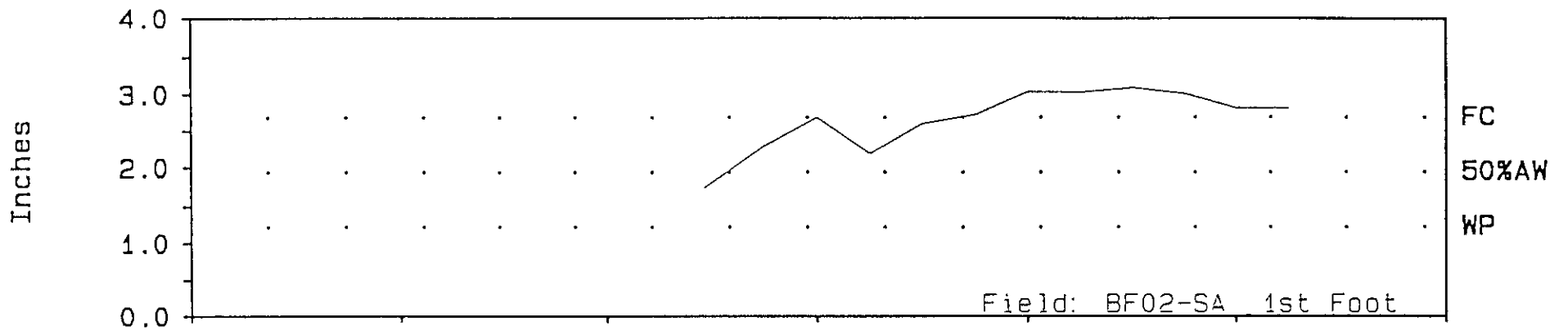
3 TO 5 DAY EXTENDED FORECAST FOR EASTERN OREGON

=== MAY 10, 1988 ===

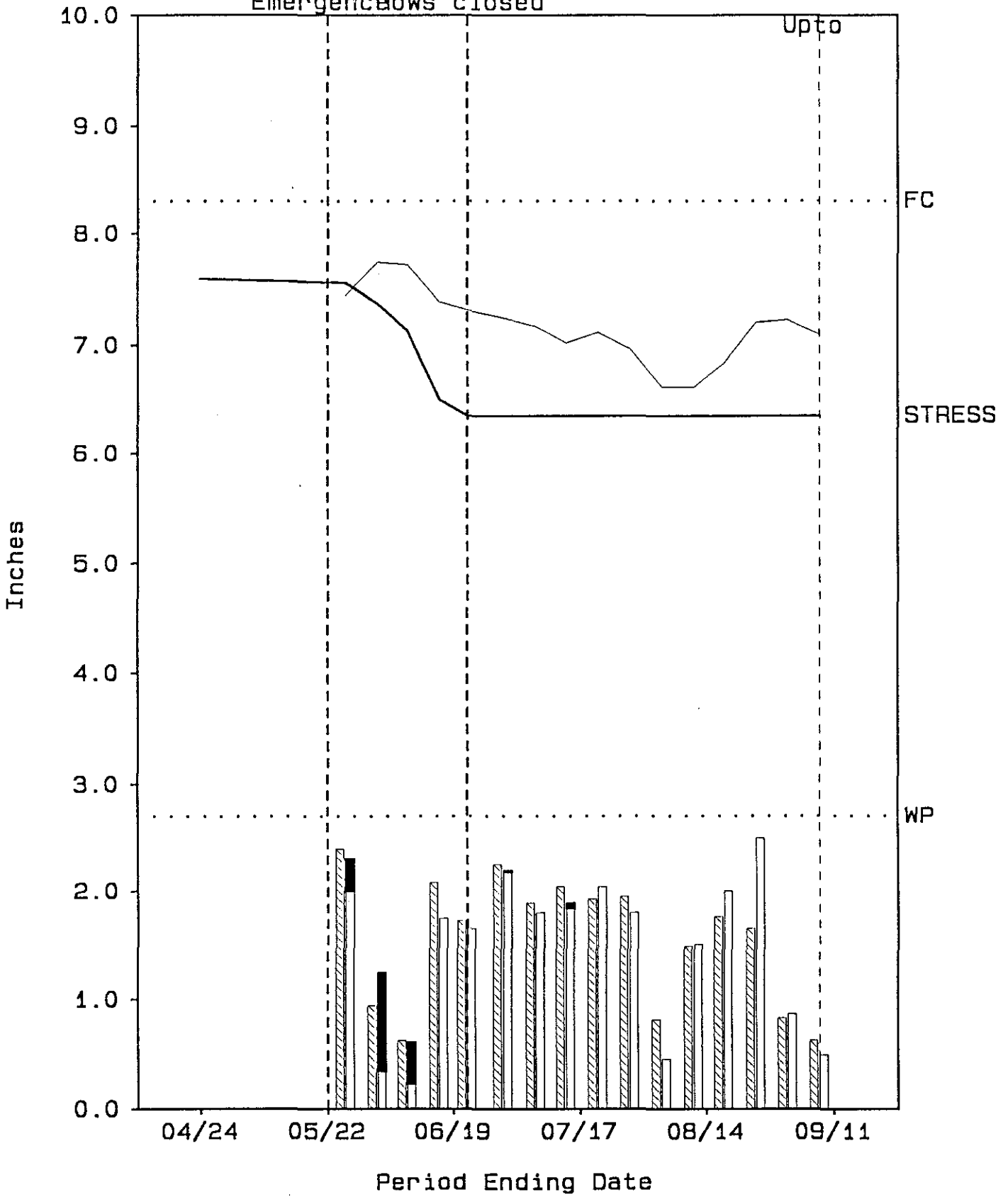
FORECAST FROM FRIDAY THROUGH SUNDAY :

... PARTLY CLOUDY WITH INCREASING CHANCE OF SHOWER THROUGH SUNDAY
... HIGH: 60'S TO LOW 70'S
... LOW : 30'S TO 40'S

=====



L-RUSSET: Field PT01-1 Started 04/24/88
 Emergencflows closed



— Soil moisture □ Crop ET □ Irrigation ■ Rainfall

EXTENSION SERVICE
Umatilla County



418 N. Main
P. O. Box E
Milton-Freewater,
Oregon 97862-0905

(503) 938-5597

GROUNDWATER PROTECTION - OVERVIEW, ACTIVITIES & PROPOSALS

Tom Darnell, Horticultural Agent
Oregon State University Extension Service
Milton Freewater, Oregon
March 1, 1990

I have been an Extension agent in the Milton Freewater area since 1978, responsible for educational programs in the production of tree fruits, vegetable crops and home horticulture.

Umatilla County's agriculture is diverse and generated \$166.7 million in gross agricultural receipts in 1989, ranking third behind Marion and Clackamas counties. (4)

At the national and state levels Extension has increased program emphasis on the protection and maintenance of groundwater quality.

We are fortunate in Oregon that we have relatively pure groundwater. The United States Geological Survey states, "Groundwater in Oregon generally is unpolluted and is suitable for most uses; however, contamination may exist and yet be undetected in many areas. If existing areas of contamination are allowed to remain unchecked, the indiscriminate use of chemical contaminants and the uncontrolled disposal of waste products could pose the greatest threat to Oregon's groundwater resources" (9). I believe agriculture is up to the challenge.

A 1988 Extension Service survey of pesticides in groundwater reports that of the 44 pesticides tested for in Oregon 33 were not detected. Of the remaining 11 only one, ethylene dibromide (EDB), was above the health advisory level in five of one hundred wells sampled. (5) Agriculture is responsible for protection of ground and surface water from contamination by pesticides and fertilizers. Agriculture's interests in groundwater are:

1. Detrimental effects of adverse publicity - public image,
2. Possible liabilities in contaminating water,
3. Field sanitation requirements for agricultural workers - pure drinking water supply,
4. Economic impacts, and
5. Probably the most important - most farmers depend upon groundwater for their domestic supply.



Agriculture, Home Economics, 4-H Youth, Forestry, Community Development, Energy, and Marine Advisory Programs. Oregon State University, United States Department of Agriculture, and Oregon Counties cooperating

The Department of Environmental Quality ranked the Milton Freewater area eighth of twelve regions in Oregon where contamination of groundwater by agricultural sources was likely (6).

Because of local orchardist's concerns a pesticide testing program of area wells was done in 1988. With cooperation from local residents and the Extension Service, ten wells were tested for 17 pesticides or their metabolites, nitrate and arsenic.

None of the 17 pesticides or metabolites were detected at a level of confirmability of 1.0 ppb. Nitrate levels ranged from 0 - 1.2 ppm, well below the Environmental Protection Agency's maximum contamination level of 10.0 ppm. This study cost approximately \$20,000.00 and was initiated by a request from area farmers (3).

In 1989 a nitrate/total coliform bacteria testing program was made available to Milton Freewater area residents by the Extension Service. Of forty wells tested 37 had nitrate levels below the detection limit of 1 ppm. The highest nitrate reading was 1.3 ppm (2). Bacterial contamination is of concern. Extension is providing information on water treatment methods.

Extension is involved in numerous educational activities encompassing the protection of groundwater resources.

Since last winter 272 private pesticide applicators have attended programs that included sessions on groundwater protection. Other programs provide training for pesticide consultants and commercial applicators.

Adoption of integrated pest management (IPM) programs require growers to recognize pest life cycles, and determine damage thresholds. Correct timing of pesticide applications many times reduces pesticide use. In some instances cultural methods have eliminated the need for some pesticides.

Agribusinesses also sponsor educational programs for growers, applicators and fieldmen. These programs cover an extremely wide range of topics. Properly rinsed metal pesticide containers are collected by industry and recycled into fence posts and re-bar.

Growers are adopting new technologies that save money, conserve limited resources and protect groundwater. In the Hermiston area, in cooperation with the Umatilla Electric Coop, a sophisticated irrigation scheduling program is used on over 70,000 acres. More crops will be included in similar programs.

Increased plant and soil testing, along with more accurate methods of fertilizer application reduce the likelihood fertilizers will reach groundwater.

Research is developing best management practices (BPM's) for different cropping systems. Extension's role is to disseminate research results to growers in a useful, easily understood form. New practices are more readily adopted by growers if there is an economic return.

Scientists at the Columbia Basin Agricultural Research Center at Pendleton are conducting research that will preserve

groundwater quality while maintaining acceptable wheat yields. At the Hermiston Agricultural Research Center horticulturists working with high value crops are acutely aware of the need for groundwater protection.

The S.T.E.E.P. program (Solutions To Environmental and Economic Problems) addresses non-point sources of water pollution and developing methods that reduce sedimentation and runoff in the steep dryland areas of the Pacific Northwest. Farmers in Umatilla county have enrolled almost 90,000 acres in the conservation reserve program (CRP).

The Extension Service is assisting the Soil Conservation Service in groundwater quality protection education and practices. Rapid advancements in new technologies require effort, resources and energy to remain current.

The Oregon Department of Environmental Quality and Oregon State University have signed an interagency agreement to designate responsibilities and schedules to provide for the coordinated implementation of the groundwater quality protection programs established in the Groundwater Quality Protection Act of 1989. Initial efforts will study the effect of different management practices on movement of nitrates and agricultural chemicals to shallow groundwater in the Ontario/Vale area. In the Hermiston/Boardman area, where the potential for a groundwater problem is thought to exist, background measurements and information will be gathered.

We have fairly good estimates of pesticide use on Oregon's farms (8). How much of these materials are used in urban areas is unknown. The National Wildlife Federation states, "Suburban homeowners and commercial landscapers now spread more pesticides and fertilizers per acre than U.S. farmers apply to cropland" (1). Most homeowners have limited training and understanding of the hazards from pesticides and fertilizers. Many lawns are over-watered, not only wasting water but increasing the chances of chemicals entering groundwater. There are additional problems with used petroleum products and household chemicals. Potential groundwater pollution in urban areas cannot be ignored.

New water conservation practices and irrigation scheduling being considered for farmers could impact groundwater quality. Coordination with the Oregon Water Resource Department is essential.

Finally, I would like to propose that the Oregon Department of Environment Quality sponsor a pilot pesticide collection and disposal program for farmers and urban residents in the Milton Freewater area. This would eliminate the possibility of numerous chemical entering groundwater. Present rules and regulations governing the disposal of these materials is too restrictive and expensive for adequate compliance. Similar programs have been done in Washington. The Groundwater Protection Act (HB 3515 Sections 17 - 66) assigns to the Strategic Water Management Group

the responsibility for the implementation of several groundwater quality protection activities. This includes interagency coordination and the development of programs designed to reduce impacts on groundwater quality. Public education programs on methods for protecting groundwater quality are a part of the Act (7). By working together we can maintain and improve one of our most valuable resources.....groundwater.

REFERENCES

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2. Darnell, T.J. (1988). Nitrates and Bacteria in Groundwater, Milton Freewater Area, Umatilla County, Oregon. Oregon State University Extension Service, Milton Freewater, Oregon.
3. Darnell, T.J., M.L. Montgomery and J.W. Witt (1989). Pesticides in Groundwater, Milton Freewater, Umatilla County, Oregon. Oregon State University Extension Service, Milton Freewater, Oregon.
4. Miles, S.D., et. al., (1989). Agricultural Commodity Sales, Umatilla County, 1989 p, Economic Information Offices, Oregon State University, Corvallis, Oregon.
5. Parsons, D.W. and J.M. Witt, (1988). Pesticides in Groundwater in the United States of America. A report of a 1988 Survey of State Lead Agencies. Oregon State University Extension Service, Corvallis, Oregon.
6. Pettit, G. (no date). Assessment of Oregon's Groundwater for Agricultural Chemicals, State of Oregon, Department of Environmental Quality, Water Quality Division, Portland, Oregon.
7. Pettit, G. (August 22, 1989). Minutes, Strategic Water Management Group, State of Oregon, Salem, Oregon.
8. Rinehold, J.W. and J.W. Witt (1989). Oregon Pesticide use Estimates for 1987, Special Report 843, Oregon State University Extension Service, Corvallis, Oregon.
9. United States Geological Survey, (1986). Water Supply Paper 2325.

Oregon Environmental Quality Commission

Special Public Forum on GROUNDWATER

MIKE HENDERSON

Name (Please Print Clearly)

Address

LAMB-WESTON

Affiliation

I request approximately 10 minutes to speak on the subject of

_____.

Oregon Environmental Quality Commission

Special Public Forum on GROUNDWATER

Name (Please Print Clearly) *Scott Duff / For Clint Reeder*

Address *I*

Affiliation *Oregon Wheat Growers League*

I request approximately _____ minutes to speak on the subject of

Oregon Environmental Quality Commission

Special Public Forum on GROUNDWATER

Tom Darnell

Name (Please Print Clearly)

P.O. Box E, Milton Free Water, Or 97862

Address

Oregon State University Extension Service

Affiliation

I request approximately 15 minutes to speak on the subject of

ground water protection

Probably should call on

Rep Norris.

even tho he didn't sign up.

Oregon Environmental Quality Commission

Special Public Forum on GROUNDWATER

Name (Please Print Clearly)

Address

Affiliation

I request approximately _____ minutes to speak on the subject of

_____.

OREGON ENVIRONMENTAL QUALITY COMMISSION

WITNESS REGISTRATION

H. C. WRIGHT
NAME (PLEASE PRINT)

FOSSIL
ADDRESS

WRIGHT CHEVROLET
AFFILIATION

I REQUEST APPROXIMATELY 10 MINUTES TO SPEAK.

OREGON ENVIRONMENTAL QUALITY COMMISSION

WITNESS REGISTRATION

Gary Kraemer, John Lang, Floyd Collins
NAME (PLEASE PRINT)

 a
ADDRESS

USA, PDX, Salem
AFFILIATION

I REQUEST APPROXIMATELY 5 MINUTES TO SPEAK.

OREGON ENVIRONMENTAL QUALITY COMMISSION

WITNESS REGISTRATION

Jim HERMANN
NAME (PLEASE PRINT)

19700 S.W. TETON TUALATIN OREGON
ADDRESS

EARTH STONE MKTG, INC.
AFFILIATION

I REQUEST APPROXIMATELY 5 MINUTES TO SPEAK.

OREGON ENVIRONMENTAL QUALITY COMMISSION

WITNESS REGISTRATION

John Crouch

NAME (PLEASE PRINT)

Box 322 New Plymouth ID 83655

ADDRESS

Wood Heating Alliance

AFFILIATION

I REQUEST APPROXIMATELY 3 MINUTES TO SPEAK.



POPE & TALBOT, INC.

March 1, 1990

Fred Hansen
Department of Environmental Quality
811 SW 6th Avenue
Portland, Oregon 97204

Dear Fred:

During the past several months there has been a great deal of discussion about the Individual Control Strategy permits and what the various pulp mills can or cannot accomplish relative to these permits. Each mill involved has a fairly unique situation so I felt it would be worthwhile to summarize for you the position of the Pope & Talbot Halsey mill.

I
Balanced Approach

The Environmental Quality Commission should take a "Balanced Approach" towards the Pope & Talbot Individual Control Strategy permit. This approach should address the operational aspects of our bleach kraft pulp mill in conjunction with the Oregon environment and economy. This balanced approach should consider, the receiving water quality, the type of products produced, customer quality requirements, the type of wood species pulped, the available technology, and environmental risks and concerns. This Individual Control Strategy permit should be consistent with the Environmental Quality Commission and national policies to achieve environmental benefits in a cost effective manner.

The central issues the EQC must resolve are: 1) what levels of dioxins may be discharged to the Willamette River and 2) what level of chlorine may be used in the bleaching process which does not significantly impair the environment or endanger public health.

One reason the Halsey mill is impacted so severely by this chlorine standard is it undermines the primary product the mill produces. The company has developed a market niche in its "White Gold" product which is based on high

strength and low impurities. This product is used in the manufacture of newsprint by every newsprint manufacturer in the Northwest. Chlorine is necessary to the break down and removal of impurities that are critical to printing grade papers. Without chlorine we cannot meet our customer quality requirements. With a standard of 1.5 kg/ton AOX this unique market niche will be severely impacted which jeopardizes the financial viability of the existing mill.

Based on this balanced approach, Pope & Talbot believes the best available technology to meet the goals of the environmental regulations and the requirements of its customers consists of the following:

1. Prior to June 1992, 50% substitution of chlorine with chlorine dioxide and replacement of sodium hypochlorite with chlorine dioxide (\$35,000,000 - Capital Cost). This technology will achieve a reduction of chlororganics (AOX) from the bleach plant to 6.0 lbs/ton from 14 pounds per ton. This may improve our pulp strength which is desirable to our customers, but this process makes it more difficult to remove impurities in the pulp and it will double the cost of bleaching. This is approximately \$6,000,000 per year in added chemical cost.

From these changes the actual impact on dioxin reduction in bleach plant effluents is not clear. However, laboratory results on pulp samples show some reduction in dioxin occurs with up to 50% substitution. Analytical capabilities and inaccuracy will not allow us to statistically quantify how much reduction is achievable. We believe a reduction in dioxin occurs in bleach plant effluents even though we have found no studies available to directly verify this.

2. The installation of oxygen delignification (\$10,000,000) will reduce the levels of organic material entering the bleach plant. This will have a direct effect on reducing chlororganic generation from 6.0 lbs/ton to 5.0 lbs/ton, but it will unfortunately lower pulp strength. The bleach chemical usages are reduced because of the lower organic load to the bleach plant but no environmental benefits will be achieved with this technology unless the mill

constructs the chemical recovery capacity to burn the additional organic load. The Halsey mill will have to install a new chemical recovery boiler (\$80,000,000) in order to handle these organic loads. Otherwise, the organic loads would be discharged with the effluent. This is why the expansion is an integral part of our plan to achieve the environmental benefits with the retrofit of the existing mill. A realistic schedule for O₂ delignification is to start up a new boiler and O₂ in 1993 or 1994. This depends on the permit approval of the proposed expansion. The Department of Environmental Quality should facilitate the necessary air permit if this technology is to be installed.

3. Explore and implement treatment technologies that will assure environmental compliance but will not impair Pope & Talbot's ability to operate in a competitive manner. One approach would be to install a wetland treatment facility. This technology would achieve further reduction in BOD and suspended solids (TSS). The removal of TSS alone would result in an average 60% removal of dioxins from secondary treated effluents.

Because a wetland does remove color the reduction of AOX would be negligible. The available literature and experience of wetland treatment of kraft mill effluents is limited. Therefore, we would propose to establish a 5 acre pilot facility in 1990 to evaluate and design a full scale facility. This pilot facility will take two to three years to become fully productive and allow us to properly design a full scale facility. The pilot program would also study optimum plant cultures and a controlled analysis on the fate of dioxin.

II

Background

On January 31, 1990, Pope & Talbot received a draft modified NPDES permit from the Oregon Department of Environmental Quality (DEQ). This draft provided a good basis for the Interim Control Strategy. However, some provisions of this permit did not provide scientifically achievable limitations.

On February 1, 1990, Pope & Talbot suggested the necessary modifications to make this permit a workable compliance tool to address environmental concerns. These included definitions of dioxin compliance and appropriate AOX levels based on technology and the products our customers require us to produce.

On February 5, 1990, Pope & Talbot received a modified NPDES permit from the DEQ which is not a workable document and does not establish limitations that are scientifically based. This modified permit ignored most of Pope & Talbot's suggestions and added arbitrary conditions which are neither achievable, nor based on sound science. These arbitrary conditions jeopardize Pope & Talbot's present operations and will scuttle Pope & Talbot's future expansion plans at Halsey. This modified permit provides no greater protection to the environment than a workable permit based on achievable conditions outlined in our February 1st comments. (See attached: Comment to Kent Ashbaker, DEQ - 1/31/90)

III

Modified Existing Permit

The modified permit for the existing mill has an Environmental Protection Agency imposed mass loading number for dioxin. This number was calculated using a water quality standard of 0.013 ppq for dioxin and other conservative assumptions inappropriate to the Willamette River. This mass loading value has not been subject to public hearing nor technical review. The mass loading number (TMDL), which can change after public comment, is a moving target. The Environmental Quality Commission must insert a viable reopener clause in the permit which will address site specific data for the Willamette River. The stringent AOX value, which has no scientific basis, suggests an unstated policy of zero chlorine. If zero chlorine is to be the goal of the Environmental Quality Commission, then the metallurgy used for CLO_2 will not work and would require very costly changes in the mill metallurgy.

The Modified Permit contains the following limitations:

1. An Environmental Protection Agency imposed mass loading dioxin limit of 4.4×10^{-7} lbs/day or 0.2 mg/day by June 1992.
2. An AOX limit of 3.0 lbs/ton by June 1993.
3. The mass loading dioxin limitation is based upon a waste load allocation developed by the Environmental Protection Agency for the Columbia River. Pope & Talbot will be considered to be in compliance with the dioxin mass loading limitation if samples taken in the combined bleach plant sewer produce

a mass loading limit of 4.8×10^{-7} lbs/day. The 4.8×10^{-7} number is derived by multiplying the percentage dioxin removal in the aerated lagoon which receives the combined bleach plant waste by 10%. ($1.1 \times 4.4 \times 10^{-7} = 4.8 \times 10^{-7}$ lbs/day)

4. The combined bleach plant sewer will be sampled and analyzed for dioxin.

The Modified Permit contains the following items:

1. A detection limit shall be determined for each sample. Currently the Environmental Protection Agency Method 1613 allows for a detection limit from 10 to 40 ppq.

2. The combined bleach plant effluent target concentration is 8.2 ppq based on the above mentioned Environmental Protection Agency mass load value.

3. If the detection limit is greater than the target concentration, the test is invalid and has to be retested. (How can 8.2 ppq ever be greater than 10-40 ppq?) A standard written such as this is arbitrary, not achievable, not quantifiable, and not enforceable.

4. If the detection limit is equal to or less than the target concentration, it shall be reported as measured.

5. If the analysis shows nondetectable, it shall be reported at the detection limit. (This is scientifically improper and without regulatory precedent.)

This permit is unacceptable and unworkable for the following reasons:

1. For Pope & Talbot a concentration limit of 8.2 ppq or 4.8×10^{-7} lbs/day of dioxin is not achievable with the installation of best available technology in the bleach plant.

2. In a research situation it is possible to detect TCDD to levels below 10 ppq. This is because in a laboratory sample there is not a great amount of interference from impurities. However, with mill production sample testing it

is rarely possible to measure below ppq. At the present time the recognized detection limit for dioxin by the Environmental Protection Agency method 1613 is from 10 to 40 ppq with a range of 10 to 20 ppq regularly achievable. This is above the proposed concentration limit of 8.2 ppq in the combined bleach plant sewer. This means Pope & Talbot could either have the detection limit above 8.2 ppq and never have a valid sample or have a sample reported as nondetectable at greater than 8.2 ppq and be in violation of the permit.

3. There has not been a public hearing process or technical review to assign a waste load allocation to the Pope & Talbot mill. There should be a reopener clause in the modified permit to address the expected changes to TMDL based on scientific, site specific findings. The permit limitation for dioxin to change the expanded mill should be at least 0.6 mg/day based on tonnage calculation used by the Environmental Protection Agency.

4. The 3.0 lbs/ton limit for AOX is not achievable for mills which bleach 100% softwood (Douglas Fir). This standard is not supportable based on a technical evaluation of conditions below the mill outfall. AOX has never been demonstrated to be a water quality parameter which has an effect on ambient water quality. Even in the Swedish studies that supposedly drives these technological changes, "No clear relationship was found between chlororganics and environmental effects." (Procter & Gamble Science Panel - NCASI Report 89-08)

This permit condition ignores the fact we practice effective secondary treatment. There is no demonstrated ability to consistently comply with 3.0 lbs/ton of AOX limit under our product mix and quality requirements. Instead the 3.0 lbs/ton AOX should be set as a goal and a 5.0 lbs/ton limit should be established with O₂ delignification. (Please consider Roger Campbell's Scandinavian trip report and our comments on a balanced approach.)

5. After January 1, 1992, monitoring frequency for TCDD for primary sludge should be changed from monthly to quarterly because of the high cost of analysis.

6. The permit should contain a reopener to address new federal, best

available technology guidelines when they are final. The permit should be reopened to include all applicable effluent limits not already in the permit as well as those which are more or less stringent than those presently in the permit if an environmental impact is demonstrated.

IV

Dioxin Standards

Many states have adopted site specific standards other than 0.013 ppq, such as; Texas - 0.13 ppq, Ohio - 0.13 ppq, New York - 1.0 ppq, Alabama - 1.2 ppq, Maryland - 1.2 ppq, Virginia - 1.2 ppq, Georgia - 7.2 ppq and Tennessee - 1.0 ppq. Pope & Talbot expected the DEQ to continue its environmental leadership and conduct site specific studies to establish a workable and achievable standard. Instead, DEQ has ignored the "site specific" issue which is part of the law, and has ignored evidence from "site specific" studies of the Willamette River which it received in September 1989 and January 1990. These studies demonstrate fish, crayfish and insect samples have nondetectable concentrations of dioxin and fish caught and consumed from the Willamette River is seven times lower than the Environmental Protection Agency model used to develop the 0.013 ppq number. Present evidence indicates dioxin will break down in the environment with an average half life of one to three years. (See attachment "Dioxin in the Environment", page 4.) DEQ needs to address this straight forward scientific evidence utilizing sound scientific methodology.

V

AOX Standards

The proposed Individual Control Strategy permit limit for AOX of 3.0 lbs/ton has not been demonstrated to be achievable on Douglas Fir bleached kraft effluents after secondary treatment. Furthermore, no environmental impacts have been shown to occur from AOX compounds discharged after secondary treatment.

AOX does not belong as a standard in the permit because:

1. Only 20% of the AOX generated in the bleach plant is biologically active (potentially toxic) and this is being removed by proper secondary treatment. This 20% fraction is the low molecular weight compound and are directly

measurable by the standard BOD test. (Reeves Pulp & Paper Canada 90:4, 1989). The high molecular weight fraction which is the highly colored part of the effluent is nontoxic and biologically inactive. Even though eventual breakdown in the environment may occur, this reaction is so low in relation to the assimilation capacity of the environment that no impact can be found on the Willamette River as demonstrated by DEQ dissolved oxygen data.

2. Analytical methods for AOX determination are not standardized. It is very difficult to quantitatively evaluate data described in the literature. This is especially true for Scandinavian data which is often reported as TOCL rather than AOX. (Report on Scandinavian Pulp Mill Tour, Roger Campbell, January 18, 1990, Exhibit 17; Survey on Current Environmental Regulations and Technology used to Reduce Effluent Load in Scandinavia and Canada, EKONO, January 10, 1990, Exhibit 18.) We are concerned the DEQ did not undertake a rigorous evaluation of data from other countries where test methods differ from ours. Therefore, even though there are references which state 3.0 lbs/ton AOX can be achieved they have not been compared on an equal basis. DEQ needs to compare the ability of each mill to achieve an AOX limit on equal conditions for products, quality requirements, processes and raw materials.

3. AOX generation is dependent on the wood species being bleached. Hardwoods generate much less AOX than softwoods and there is evidence of significant differences from one softwood species to another. (Report on Scandinavian Pulp Mill Tour, Roger Campbell, January 18, 1990, Exhibit 17; EKONO Report, supra, Exhibit 18.) We are concerned the DEQ did not give adequate consideration to the fact we bleach 100% Douglas Fir softwood pulp, which requires more chlorine and generates more AOX. Wood chip supply in Central Oregon make it impractical for the Halsey mill to use hardwood chips.

4. We are not aware of any mill worldwide which consistently meets a 3.0 lbs/ton AOX limit on 100% softwood pulp with our product mix and quality requirements. Most mills in Scandinavia pulp a combination of hardwood and softwood and can average their results to meet 3.0 lbs/ton TOCL. We believe, as do the requirements of the Clean Water Act, that one of the

criteria for setting a limit must be that control technology is available and proven. It has not been proven a 3.0 lbs/ton limit can be consistently met in a production scale softwood pulp mill. The best level achieved in Sweden was 5.0 lbs/ton with 50% ClO_2 .

VI

Halsey Expansion

Pope & Talbot has proposed to expand the Halsey site to increase production from 550 to 1,500 tons per day. Pope & Talbot would invest nearly \$400 million in this expansion which would provide 281 jobs and dramatic economic benefits to Oregon, particularly Linn, Lane and Benton counties.

The expansion, including retrofitting, will utilize the best available technology (BAT) in the world. This state-of-the-art technology will enable the Pope & Talbot mill to achieve the same permit conditions for the conventional pollutants like BOD_5 and suspended solids and to further reduce color in its effluent by 60%, chlororganics by 60% and dioxin to nondetectable levels. However, this state-of-the-art mill would not satisfy the DEQ permit conditions of February 5, 1990.

If our expansion technology is coupled with the use of secondary treatment and wetland treatment then environmental quality of the effluents would surpass any pulp mill existing in the world today. Pope & Talbot has plans for installation of BAT technology which will accomplish these reductions with the following specific modifications:

1. Extensive delignification of the pulp in the pulping process using oxygen which will reduce the chlorine demand by 60 to 70 percent at 50% substitution by chlorine dioxide.
2. Extensive brownstock washing will remove soluble organics and chemicals before the pulp is sent to the bleach plant.
3. At least 50% substitution of chlorine. This chlorine will be replaced with chlorine dioxide.

4. Substitution of chlorine dioxide for sodium hypochlorite in the third and fourth bleaching stages.

5. Long term detention and secondary treatment in an expanded aerated lagoon.

6. Pending the results of the feasibility studies in our proposed pilot wetland, Pope & Talbot plans on installing a full scale wetland near the Willamette River. This wetland will remove 66% of the suspended solids and 35% of the BOD₅ from the effluent. In addition, the wetlands will remove 60% of the dioxin associated with the biological suspended solids discharged from the aerated lagoon. (See attached research articles published by Weyerhaeuser Company and the Environmental Protection Agency.)

Pope & Talbot intends to apply this state-of-the-art technology in the existing mill as well as for the proposed expansion. These reductions will be accomplished on a schedule which will be coordinated with the expansion plans.

VII

Schedule

Our present schedule, developed prior to the issuance of the modified permit, anticipated at least 50% substitution for chlorine by June 1992, the substitution of chlorine dioxide for sodium hypochlorite by June 1992, use of oxygen delignification after the expansion boiler comes on-line in 1993-94, and building the pilot tertiary facility in the summers of 1990-1991 and the full scale facility in the summer of 1993-1994. The remainder of the expansion facility would come on-line after 1993-1994 period.

VIII

Summary

The process of installing 50% Chlorine Dioxide substitution and a wetland will achieve dioxin levels in the discharge of the wetland to below detection and theory suggests we will be able to comply with a TMDL of 0.2 mg/day (at 500 tons/day) and a TMDL of 0.6 mg/day (at 1,500 tons/day). After the new

recovery boiler is in operation and oxygen delignification is accomplished, we expect to be able to achieve an AOX limitation of 5.0 lbs/ton in the bleach plant. In order to achieve this the DEQ will have to facilitate the permits for a new recovery boiler, a wetland treatment area, along with the appropriate construction permits.

Pope & Talbot had been working with the DEQ staff for 18 months regarding these reductions and this state-of-the-art technology for the expansion and retrofiting. We definitely want to move ahead with these projects but will have extreme difficulty in justifying any capital expenditures until a clear direction is set by the Environmental Quality Commission and a permit is developed that has achievable limits. Again, if these criteria were set as goals and not as regulatory limits it would be possible to develop a meaningful time frame for technology implementation and evaluation toward setting limits. The water quality criteria for dioxin was established by the Environmental Protection Agency using the most conservative science available. The Environmental Protection Agency called for individual states to carefully review this for their "site specific" cases and apply a different number if appropriate. This is part of the Oregon rules and it is time to fulfill the obligation we all have to use all means at our disposal in deciding on fair and equitable standards. Since there is no immediate health or environmental threat from the existing mill it is not clear why there is such a push to regulation without supporting studies. Even the dioxin levels are under re-evaluation by the Environmental Protection Agency. AOX is not being compared on an equal basis with mills having similar technology. Even though lower levels are possible the conditions and products are quite different from those at the Halsey mill.

Pope & Talbot is willing to install a pilot wetland tertiary treatment facility in 1990 and 1991. This will be a joint study involving Oregon State University and Karl Huber, a Sierra Club member. Based on evaluation results a full scale facility could be installed in 1993 to remove trace levels of dioxin. This project would study the removal, fate and breakdown of dioxins in an aquatic environment. We are willing to provide at least 50% chlorine dioxide substitution in our bleach plant and phase out sodium hypochlorite by June 1992. We cannot comply with the existing permit because we don't know if

our proposed bleach plant modifications will meet 8.2 ppq but we could meet 20 ppq if we could get credit for our proposed wetland facility. The expanded mill will contain all known best technology for AOX reductions. We will accept an AOX limit for the expanded mill at 5.0 lbs/ton.

We have proposed a workable expansion permit utilizing best available technology which would achieve reasonable environmental protections. Our suggestions are based on sound science and good common and economic sense. We would appreciate your serious consideration of our balanced approach which would result in permits which are achievable and enforceable for all bleached kraft pulp mills. This approach would insure the continued viability and growth of the pulp and paper industry. Each of which have a major economic impact on the state of Oregon. We challenge the Environmental Quality Commission to put science back into this process.

Sincerely,



W. G. Frohnmayer
Group Vice President
Fiber Products Division



POPE & TALBOT, INC.

January 31, 1990

Kent Ashbaker
Department of Environmental Quality
811 SW Sixth Avenue
Portland, Oregon 97204-1334

Dear Kent:

Pope & Talbot provides the following comments on the preliminary draft ICS Permit.

1. Schedule A - 2,3,7,8 - TCDD

In Schedule A, the word "limitations" should be "limit", the word "are" should be "is", and "Concentration 3.76 ppq" should be deleted and addressed in Footnote 1.

2. Schedule A; Footnote 1

It is unclear what happens if the detection limit goes below 10 ppq. Pope & Talbot suggests deleting the second sentence, the words "until that happens" from the beginning of the third sentence, and the words "with this concentration limit". The third sentence should now read, "Any sample which is analyzed as non-detectable by Environmental Protection Agency method 1613. shall be considered in compliance." In the last sentence between "the" and "concentration" the words "annual average loading limitations equates to a calculation of 3.76 ppq" should be added. The words "limit is" should be deleted. The last sentence should read, "The annual average loading limitation equates to a calculation based upon an effluent flow of 21.7 cfs. The average annual loading is the controlling limit, not the concentration."

3. Schedule A; Footnote 2

The last sentence is Footnote 2, Schedule A should be changed to read:

"When determining compliance with the loading limit, all detectable values shall be used as well as all values associated with "non-detectable" numbers. All non-detectable readings above 20 ppq shall be re-tested. All non-detectable readings below 20 ppq and above 10 ppq shall be recorded as 3.76 ppq. Non-detectable values of 10 ppq or below shall be recorded as zero ppq. All values reported as detectable levels shall be recorded as reported. This compliance determination is based upon Environmental Protection Agency method 1613."

4. Schedule B; Footnote 6

There presently is no protocol available for testing AOX in sludge. AOX monitoring in the primary and secondary waste sludge shall not begin until that protocol is established by the Department.

5. Schedule A - AOX

The AOX limitation in Schedule A should be removed for the following reasons:

a) No scientific or legal basis now exists for inclusion of an AOX limitation.

b) AOX is not an appropriate limitation for Pope & Talbot which uses secondary treatment to remove effluent toxicants.

c) The ICS permit expires 6 months before the AOX standard would be effective.

d) We will have 6 months of operating experience between start-up of the modified mill and expiration of the permit. During that period we will need to operate the installed facilities at peak efficiency to comply with the 2,3,7,8 - TCDD limitation and during that period AOX data will be obtained.

Footnote 3, with the final sentence deleted, should be placed in the monitoring section.

6. Schedule D; New Item 11

An overriding concern with the preliminary draft ICS Permit is the possibility that the 0.2 mg/day will continue to be used in our proposed permit for the expansion. Therefore, we propose that item 11 be added to state the permit shall be reopened and the 2,3,7,8 - TCDD annual average loading and the associated concentration calculations shall be adjusted based upon a Department of Environmental Quality approval of a site-specific study or a mill expansion. We suggest the following provisions:

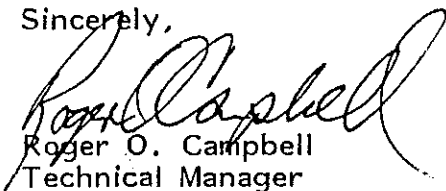
Water Quality Standard

a) "Should the state adopt a site-specific standard for the Willamette or modify its water quality standard for 2,3,7,8 TCDD, it shall revise the TMDL for dioxin upon which the permit is based, and this permit shall be reopened to adjust the effluent limitations to be consistent with the modified TMDL."

Plant Expansion

b) "Should Pope & Talbot expand its facilities, its allocation for the mass discharge of 2,3,7,8 - TCDD shall be reopened and adjusted based upon plant production to accommodate the expansion."

Sincerely,


Roger O. Campbell
Technical Manager

Bench-scale study of dioxins and furan (2378-TCDD and 2378-TCDF) treatability in pulp and paper mill wastewaters

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ABSTRACT *The principal objectives of this study were to determine the solid- and liquid-phase distribution of 2378-TCDD and 2378-TCDF in untreated, partially treated, and treated process wastewaters from pulp and paper mills, and to determine whether chemically assisted clarification might be a feasible alternative for removing these compounds from process wastewaters. Analyses indicate that 30–40% of the 2378-TCDD and 2378-TCDF are present in the solid phases of internal mill samples: more than 90% in aeration basin effluents and 40–75% in final effluents. In bench-scale studies, chemically assisted clarification proved to be effective at removing 2378-TCDD and 2378-TCDF from internal mill wastewaters. However, the dosages and capital investments required would make this solution less cost effective than providing improved treatment in existing secondary treatment facilities.*

KEYWORDS

Dioxin
2378-TCDD
2378-TCDF
Wastewater treatment
Clarification
Solid phase distribution
Liquid phase distribution

The formation of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (2378-TCDD) and 2,3,7,8-tetrachlorodibenzofuran (2378-TCDF) in the bleaching of certain kraft pulps and the discharge of 2378-TCDD and 2378-TCDF (2378-TCDD/TCDF) from certain bleached kraft pulp and paper mills have been well documented (1–3). Contamination of native fish collected downstream from a number of pulp and paper mills has also been demonstrated (4). Several states have issued fish consumption advisories for segments of streams with paper mill discharges where native fish have been found to be contaminated with 2378-TCDD at levels high enough to cause concern (5–9). Other fish consumption advisories are anticipated as additional data become available through the U.S.

Environmental Protection Agency's (EPA) bioaccumulative pollutant study and monitoring by states. Because of the high incidence of native fish contamination downstream from pulp and paper mills, the EPA has determined, as part of an interim strategy for regulating pulp and paper mills, that short-term measures to limit discharges of 2378-TCDD/TCDF should be taken where possible (10).

From an environmental standpoint, the most effective method to reduce or eliminate wastewater discharges of 2378-TCDD/TCDF from pulp and paper mills, as well as the discharge of other toxic organic pollutants, is through process modifications which would eliminate or minimize formation of these materials. The limited

information currently available suggests that major process modifications such as installation of oxygen delignification systems at existing kraft mill bleach lines or installation of completely new bleaching sequences may be effective at significantly reducing formation of 2378-TCDD/TCDF and other toxic pollutants. Also, the degree of chlorination and chlorine dioxide substitution in conventional bleaching lines may significantly affect the formation of 2378-TCDD/TCDF. Swedish studies also show that chlorine minimization is effective in reducing the amount of dioxin formed (11). Each of these technologies results in the use of less elemental chlorine for lignin removal in the first chlorination stage during bleaching of kraft pulps (2, 11–14).

Additional research is underway to determine the mechanisms of formations of 2378-TCDD/TCDF and the process modifications that will be most effective at minimizing or eliminating formation of these compounds. Results from this research are expected during the next few years. Although decisions to install oxygen delignification and other bleaching process modifications have been made for several mills, implementation of process modifications across the industry, if warranted, may be a relatively long-term proposition.

Given these developments, EPA is interested in fostering development of low-cost measures which can be implemented quickly to minimize 2378-TCDD/TCDF wastewater discharges until such time as more effective process-related solutions can be found. The EPA Office of Water Regulations and Standards, Industrial Technology Division, in cooperation with Regions 1 and 5, undertook a wastewater characterization and preliminary (bench scale) treatability study at two bleached kraft pulp and paper mills. Results from the EPA/Paper Industry Cooperative Dioxin Screening Study (2), also known as the "five-mill study," demonstrated that caustic extraction-stage filtrates often contained the greatest quantities of 2378-TCDD/TCDF in bleach plant wastewaters, that combined bleach plant wastewaters generally accounted for most of the 2378-TCDD/TCDF found at each mill, that 2378-TCDD/TCDF tend to accumulate on or in the mixed liquor suspended solids of activated sludge-type treatment systems, and that mills with greater discharges of total suspended solids and relatively high rates of formation of 2378-TCDD/TCDF had the highest final effluent discharges of 2378-TCDD/TCDF (2).

This preliminary treatability study focused on determining the solid- and liquid-phase distribution of 2378-TCDD/TCDF in the untreated and treated wastewater streams and evaluating possible removal of these compounds from the wastewater streams through chemically assisted clarification (CAC).

Methodology

Study design

The bench-scale wastewater treat-

ability study was conducted in two phases. Phase 1 consisted of screening the effectiveness of several coagulants and polymers for suspended solids removal from samples of caustic extraction-stage filtrate, combined bleach plant wastewaters, aeration basin effluent prior to settling, and final effluent, all obtained from Mill E as designated in the five-mill study (2). Phase 2 consisted of performing CAC studies on a second set of samples obtained at Mill E and a set of similar samples obtained at Mill A from the five-mill study. Both mills have activated sludge biological treatment systems. The aeration system at Mill A is an oxygen aeration system (UNOX).

Those coagulants and polymers determined to be most effective from the Phase 1 screening program were tested at various dosages and combinations in Phase 2. Caustic extraction stage filtrates and combined bleach plant wastewaters were selected for the treatability study since data from the five-mill study indicated these streams contained the highest levels of 2378-TCDD/TCDF (2). We thought that removal of these compounds in lower-volume high-strength wastewaters might be effective. Aeration basin effluents prior to settling were selected since effective separation and removal of biological solids would appear to have a direct bearing on final effluent quality.

The untreated samples obtained for the Phase 2 program were analyzed for 2378-TCDD/TCDF in both the aqueous and solid phases, as were those treated samples from the bench-scale studies exhibiting the best performance with respect to total suspended solids (TSS). Samples of gravity settled (in laboratory) aeration basin effluents were analyzed for 2378-TCDD/TCDF in similar fashion. The number of samples analyzed for 2378-TCDD/TCDF were limited to those exhibiting the best performance with respect to TSS removal because of the high cost of TCDD/TCDF analyses.

Field and experimental programs

Samples for the Phase 1 screening program were obtained at Mill E by personnel from the EPA Region 1 Environmental Services Division (ESD) and E. C. Jordan Co. Samples for the Phase 2 program were collect-

ed by Region 1 ESD personnel at Mill E and by Region 5 Environmental Sciences Division personnel at Mill A. Four grab samples were collected at each sampling site to prepare eight-hour composite samples. Samples were shipped or transported to the Jordan laboratory in Portland, Me., where the chemically assisted clarification studies were conducted.

Bench-scale jar tests were performed to evaluate the effectiveness of several coagulants and polymers for total suspended solids and total organic carbon (TOC) removal from the untreated wastewater streams. A six-paddle gang stirrer was used to perform the tests. The order of the tests was selected and appropriate cleaning steps were taken between tests to ensure there was no cross-contamination of samples. After chemical addition and flocculation, samples were allowed to settle for 30 min. The clear aqueous phase was decanted and subsequently subjected to analyses for 2378-TCDD/TCDF. The quiescent settling period of 30 min used in these studies is less than the detention time in conventional clarification systems for secondary biological solids removal.

Analytical program

Analyses for TSS and TOC were performed by Jordan using EPA approved analytical methods. Analyses for 2378-TCDD/TCDF were performed by the Brehm Laboratory at Wright State University using the sample extraction, extract cleanup, and analytical protocol developed for the five-mill study, with a modified three-phase column for concurrent isomer-specific determinations of 2378-TCDD/TCDF. The solid and liquid phases of each sample were separated using a Whatman 42 filter. The filtrate and solid material recovered were extracted and analyzed separately. Criteria for identification and quantitation of 2378-TCDD/TCDF were attained. However, for selected samples with low levels of solid material, the desired analytical detection levels of 0.01 picograms per gram (pg/g) were not achieved. This is primarily a function of conducting separate analyses of the solid and aqueous phases of each sample. The problem was particularly evident for the final effluent and treated sample from Mill E. The untreated Phase

I. Distribution of 2378-TCDD and 2378-TCDF in solid and aqueous phases

Wastewater sample	Phase	2378-TCDD		2378-TCDF	
		%	pg/g or ppt	%	pg/g or ppt
<u>Mill A</u>					
Caustic extraction filtrate, TSS 40 mg/L	Solid	37	...	35	...
	Aqueous	63	...	65	...
	Total	...	0.50	...	2.15
Combined bleach plant, TSS 86 mg/L	Solid	32	...	35	...
	Aqueous	68	...	65	...
	Total	...	0.20	...	0.88
Aeration basin effluent prior to settling, TSS 3700 mg/L	Solid	>98	...	>99	...
	Aqueous	<2	...	<1	...
	Total	...	0.84-0.85	...	2.63
Final effluent, TSS 23 mg/L	Solid	>75	...	75	...
	Aqueous	<25	...	25	...
	Total	...	0.009-0.012	...	0.043
<u>Mill E</u>					
Caustic extraction filtrate, TSS 240 mg/L	Solid	...	...	31	...
	Aqueous	...	...	69	...
	Total	...	ND(0.024)	...	0.069
"B" bleach line, TSS 410 mg/L	Solid	...	...	>30	...
	Aqueous	...	...	<70	...
	Total	...	ND(0.014)	...	0.027-0.087
Aeration basin effluent prior to settling, TSS 840 mg/L	Solid	>92	...	92	...
	Aqueous	<8	...	8	...
	total	...	0.10-0.11	...	0.74
Final effluent, TSS 44 mg/L	Solid	...	...	41	...
	Aqueous	...	...	59	...
	Total	...	ND(0.044)	...	0.15

Wastewater concentrations of 2378-TCDD and 2378-TCDF are reported as picograms/gram (pg/g) or parts per trillion (ppt).

Where 2378-TCDD or 2378-TCDF were not detected in either the solid phase or aqueous phase of a sample, the distribution between the solid phase and aqueous phase was estimated assuming the analyte was present at the detection level for that fraction of the sample.

Where a range of concentrations is presented, the values reported represent the minimum and maximum concentrations. The minimum concentration was estimated by assuming that the analyte concentration was zero when not detected in a fraction. The maximum concentration was estimated by assuming that the analyte was present at the detection level.

samples from Mill E had much lower levels of 2378-TCDD/TCDF than similar samples obtained during the five-mill study. In retrospect, the analytical protocol for aqueous samples used in the five-mill study would have been preferable for attaining lower detection limits. That protocol included combining the extracts from separate extractions of the solid and liquid phases for each sample prior to analysis.

Summary of results

Distribution of 2378-TCDD and 2378-TCDF in wastewater samples

Table I presents the analytical results for 2378-TCDD/TCDF in untreated and partially treated wastewaters and the final effluents from Mills A and E. Table II presents final effluent data for two California pulp mills that

have no end-of-pipe treatment and discharge to the ocean. These data show that substantial fractions (60-70%) of the 2378-TCDD/TCDF found in caustic extraction-stage and combined bleach plant wastewaters are in the aqueous phase. Also, 35-50% of the 2378-TCDD/TCDF found in combined untreated wastewaters from pulping and bleaching are in the aqueous phases of those wastewaters. All of the untreated wastewaters are high in organic content. Our theory is that 2378-TCDD/TCDF are codissolved with the organic species or are attached to colloidal suspensions that pass through the fine laboratory filters used to separate the aqueous and solid fractions of each sample.

Of particular importance is the finding that nearly all of the 2378-TCDD and 2378-TCDF in unsettled aeration basin effluents are found on the mixed-liquor suspended solids. It

is likely that as other organics are oxidized in biological treatment systems, 2378-TCDD/TCDF, which are refractory to conventional biological treatment, are taken up with food by the active microorganisms or are adsorbed onto the cell walls. This biosorption has been reported by others in the literature (15). This finding also is consistent with the distribution of 2378-TCDD/TCDF in primary and secondary wastewater treatment sludges observed in the five-mill study (2) and findings at the Dow Chemical Michigan Division plant at Midland, Mich. (16). These data clearly indicate that effective separation of mixed-liquor suspended solids from activated sludge treatment systems and, by extension, suspended solids from extended aeration treatment systems, is a key factor in minimizing effluent discharges of 2378-TCDD/TCDF.

II. California pulp mills. Distribution of 2378-TCDD and 2378-TCDF in solid and aqueous phases

Sample	Phase	2378-TCDD		2378-TCDF	
		%	pg/g or ppt	%	pg/g or ppt
Mill 1					
Final effluent, TSS 120 mg/L	Solid	64	...	50	...
	Aqueous	36	...	50	...
	Total	...	0.10	...	0.63
Final effluent, duplicate	Solid	66	...	56	...
	Aqueous	34	...	44	...
	Total	...	0.11	...	0.63
Mill 2					
Final effluent, TSS 113 mg/L	Solid	56	...	45	...
	Aqueous	44	...	55	...
	Total	...	0.36	...	7.59
Final effluent, duplicate	Solid	59	...	48	...
	Aqueous	41	...	52	...
	Total	...	0.36	...	7.42

Wastewater concentrations for 2378-TCDD and 2378-TCDF are reported as picograms/gram (pg/g) or parts per trillion (ppt).
The final effluents at both mills are comprised of essentially untreated wastewaters from pulping and bleaching.
Samples collected November 1987 by USEPA-Region 9.
Analyses for 2378-TCDD and 2378-TCDF by Brehm Laboratory, Wright State University, Dayton, Ohio (see Analytical Program for analytical protocol).
Analyses for total suspended solids by Kennedy/Jenks/Chilton, San Francisco, California.

For the final effluent sample at Mill A, the distribution of 2378-TCDD/TCDF was about 75% solid phase and 25% aqueous phase. For Mill E, 2378-TCDF was equally distributed between the solid and liquid phases; 2378-TCDD was not detected in the Mill E final effluent at 0.044 pg/g. These data indicate substantial fractions of 2378-TCDD/TCDF discharges from conventional secondary settling in activated sludge treatment systems remain in the aqueous phase or in fine colloidal suspensions. This material is readily available for bioconcentration in the aquatic environment.

Bench-scale wastewater treatability study

The Phase 2 bench-scale results are summarized in Tables III and IV for mills A and E, respectively. As noted earlier, the unexpectedly low levels of 2378-TCDD/TCDF in Mill E samples and the low levels of solid material in the treated samples confounded the analytical program and rendered analysis of much of the treatability

data for that mill inconclusive.

The results for Mill A demonstrate that more than 95% of the 2378-TCDD/TCDF present in the caustic extraction stage and combined bleach plant wastewaters was removed through chemically assisted clarification. However, the substantial dosages of alum (2000 mg/L) or lime (1500 mg/L) that may be required for treatment would result in generation of large quantities of sludge from the TSS removed, any alum or lime in excess of saturation, and dissolved and colloidal materials taken out of solution. To implement this type of treatment on a full-scale basis, separate clarification and sludge dewatering facilities would be required at most mills.

For the Mill A aeration basin mixed-liquor suspended solids, use of a nonionic polymer resulted in improved suspended solids effluent quality over laboratory gravity settling. Lower levels of 2378-TCDD/TCDF also are indicated with polymer treatment. The level of TSS attained with polymer treatment was

III. Mill A EPA bench-scale paper mill wastewater treatability study preliminary summary of results

	% Treatment			
	Untreated	Treated	Removal	
Caustic extraction				
TSS	40	18	55	Alum, 2000 mg/L
TOC	290	150	48	Nalco 7769
2378-TCDD	0.50	<0.019	>96	7.5 mg/L
2378-TCDF	2.15	<0.039	>98	(anionic)
Combined bleach plant				
TSS	86	19	78	Lime, 1500 mg/L
TOC	190	120	37	Calgon WT 2439
2378-TCDD	0.20	<0.010	>95	5.0 mg/L
2378-TCDF	0.88	<0.011	>98	(cationic)
Aeration basin effluent				
TSS	3700	70	98	Gravity settling, no additives
TOC	400	57	86	
2378-TCDD	0.84-0.85	<0.030	>96	
2378-TCDF	2.63	0.091	>96	
Aeration basin effluent				
TSS	3700	17	>99	American
TOC	400	48	88	Cyanamid
2378-TCDD	0.84-0.85	<0.016	>98	1906 N, 6.25
2378-TCDF	2.63	<0.016	>99	mg/L (nonionic)
Final effluent				
TSS	23	15	35	Alum, 200 mg/L
TOC	48	22	54	Calgon 2136,
2378-TCDD	0.009-0.012	<0.043	...	4.0 mg/L
2378-TCDF	0.043	<0.02	>53	(cationic)

Analytical results for total suspended solids (TSS) and total organic carbon (TOC) are reported in mg/L (or ppm); analytical results for 2378-TCDD and 2378-TCDF are reported in pg/g (or ppt).
Analyses for TSS and TOC by E.C. Jordan Co.
Use of products or mention of trade names does not constitute endorsement.

somewhat lower than that attained in the full-scale treatment system without the use of polymers or settling aids but with a longer settling time. 2378-TCDD and 2378-TCDF were both removed to less than detectable levels (detection level 0.016 pg/g) in the polymer-treated sample, while the actual treatment system discharge levels were 0.009-0.012 pg/g and 0.043 pg/g, respectively. The results suggest limited improvement with CAC over a full-scale treatment system that was operating well with respect to TSS removal (23 mg/L) without the use of settling aids. Using the same polymer at a lower dosage for the Mill E aeration basin effluent appeared to be less effective for removal of TSS, 2378-TCDD, and 2378-TCDF.

The polymer-treated and actual effluent concentrations observed in this study for Mill A are significantly less than final effluent discharge levels of 0.12 pg/g and 2.2 pg/g for 2378-TCDD and 2378-TCDF, respectively, observed during the five-mill

IV. Mill E EPA bench-scale paper mill wastewater treatability study preliminary summary of results

	Untreated	Treated	% Removal	Treatment
Caustic extraction				
"B" bleach line				
TSS	240	16	93	Lime, 5000 mg/L
TOC	550	250	55	Calgon WT 2439
2378-TCDD	<0.024	<0.014	...	3.0 mg/L
2378-TCDF	0.069	<0.009	>87	(cationic)
Combined "B" bleach line				
TSS	410	31	92	Lime, 6000 mg/L
TOC	400	200	50	Calgon WT 2439,
2378-TCDD	<0.014	<0.020	...	8.0 mg/L
2378-TCDF	0.027-0.087	<0.008	>70	(cationic)
Aeration basin effluent				
TSS	840	160	81	Gravity settling, no
TOC	180	110	39	additives
2378-TCDD	0.10-0.11	<0.030	>71	
2378-TCDF	0.74	0.13	81	
Aeration basin effluent				
TSS	840	39	95	American
TOC	180	97	46	Cyanamid
2378-TCDD	0.10-0.11	<0.054	>48	1906 N, 5.0 mg/L
2378-TCDF	0.74	0.35	53	(nonionic)
Final effluent				
TSS	44	21	52	Alum, 400 mg/L
TOC	93	32	66	Nalco 7769, 3.5
2378-TCDD	<0.044	<0.027	...	mg/L (anionic)
2378-TCDF	0.15	<0.011	>92	

Analytical results for total suspended solids (TSS) and total organic carbon (TOC) are reported in mg/L (or ppm); analytical results for 2378-TCDD and 2378-TCDF are reported in pg/g (or ppt).

Analyses for TSS and TOC by E.C. Jordan Co.

Use of products or mention of trade names does not constitute endorsement.

V. Estimated investment and annual costs. Chemically assisted clarification

	Caustic extraction stage filtrate	Combined bleach plant effluent	Aeration basin effluent
650 tons/day mill			
Wastewater flow, million gal/day			
Investment costs, \$millions	2	4	
Annual costs, \$millions	2.15	2.85	0.46
Cost/ton of pulp, \$	9.62	7.30	4.72
1130 tons/day mill			
Wastewater flow, million gal/day	3.5	7	31.5
Investment costs, \$millions	2.54	3.69	0.47
Annual costs, \$millions	3.29	2.30	1.59
Cost/ton of pulp, \$	8.31	5.80	4.02
1620 tons/day mill			
Wastewater flow, million gal/day	5	10	45
Investment costs, \$millions	2.92	4.35	0.48
Annual costs, \$millions			
Cost/ton of pulp, \$	7.78	5.20	3.74

Investment (capital) cost estimates include direct costs plus indirect costs amounting to about 45% of direct costs.

Annual cost estimates include annualized cost of capital (22%), chemicals, operation and maintenance, sludge disposal, and energy and power.

study (2). The effluent TSS concentration at that time was 104 mg/L. These data indicate that, depending upon treatment and discharge levels of TSS, improved TSS controls in existing treatment systems should be effective as an interim measure to minimize discharges of 2378-TCDD/TCDF.

The final effluent at Mill A was subjected to treatment with alum (200 mg/L) and a cationic polymer (4.0 mg/L). Marginal improvement of effluent quality is indicated with respect to TSS and 2378-TCDF. Results for 2378-TCDD are inconclusive due to the analytical issues noted earlier. Treatment of a final effluent in this manner as an interim measure would not be practical because of the need for installation of additional large-scale clarification facilities.

Preliminary engineering cost estimates were prepared for treating caustic extraction-stage filtrates, combined bleach plant effluents, and activated sludge aeration basin effluents for three model pulp and paper

mills ranging in pulping and bleaching capacity from 650 tons/day to 1620 tons/day. The results are summarized in Table V. The cost estimates were prepared with the following assumptions:

1. For the E-stage filtrates and bleach plant effluents, new coagulant and polymer addition, clarification, and sludge dewatering facilities would be required.
2. For the activated sludge aeration basin effluents, new polymer addition facilities would be required. However, solids removal and sludge dewatering would occur in existing secondary clarification and sludge dewatering facilities.
3. All new facilities could be located in reasonable proximity to existing production and wastewater treatment facilities.
4. Coagulant and polymer dosages would be those that produced optimal removal of 2378-TCDD/TCDF in the bench-scale studies, without regard to cost-effect-

iveness.

The estimates presented in Table V indicate that for mills for which interim removal of 2378-TCDD/TCDF must be considered, treatment of aeration basin effluents in existing secondary clarification facilities by CAC appears to be more cost effective than separate treatment of E-stage filtrates or combined bleach plant effluents.

Although installation of facilities for treatment of internal process wastewaters (caustic extraction-stage filtrates, combined bleach plant wastewaters) might appear to be an effective method for reducing effluent discharges, the time required for installation, the additional sludge generated, possible difficulties in sludge dewatering, and the relatively high costs argue against this alternative as an interim treatment method. Improved suspended solids controls in existing treatment facilities would be more effective as a lower-cost interim measure that could be implemented in the short term. Facilities for addition

VI. Mill A five-mill study and treatability study. Chlorination practice and 2378-TCDD/2378-TCDF levels

	Five-mill study June 1986	Treatability study ^a December 1987
Chlorination practice^b		
C-stage softwood	75 lb/ton	60 lb/ton
Bleach line, softwood	235 lb/ton	121 lb/ton
C-stage, hardwood	66 lb/ton	41 lb/ton
Bleach line, hardwood	128 lb/ton	75 lb/ton
Bleach plant ^c	162 lb/ton	99 lb/ton
Pulp characteristics		
Softwood		
K, unbleached	19.6	20.3
CEK	3.0	2.8
Final brightness	*	*
Hardwood		
K, unbleached	11.8	12.4
CEK	2.9	3.0
Final brightness	*	*
Wastewater		
Caustic extraction Stage, softwood	2378-TCDD 1.8 ppt 2378-TCDF 33	0.50 ppt 2.2
Combined bleach plant ^d	2378-TCDD 0.44 2378-TCDF 7.6	0.20 0.88
Aeration basin effluent	2378-TCDD NA ^e	0.84-0.85
Prior to settling	2378-TCDF NA	2.6
Final effluent	2378-TCDD 0.12 2378-TCDF 2.2	0.009-0.012 0.043
TSS	104 ppm	23 ppm
^a Treatability study results for 2378-TCDD and 2378-TCDF (December 1987) are for native wastewater samples prior to addition of any coagulants or polymers. ^b Chlorination practice expressed as pounds Cl ₂ EQOX/ton of air-dried brownstock pulp (2). ^c Bleach plant chlorination practice is production weighted for hardwood and softwood bleach lines. ^d Combined bleach plant sample for the five-mill study represents mathematical composite of softwood and hardwood bleach line filtrates. Combined bleach plant sample for treatability study represents field composite sample obtained from combined bleach plant sewer. ^e Not analyzed in five-mill study. *Data not presented.		

VII. Mill E five-mill study and treatability study of chlorination practice and 2378-TCDD/2378-TCDF levels

	Five-mill study January 1987	Treatability study ^a December 1987
Chlorination practice^b		
C _D -stage hardwood	98 lb/ton	** lb/ton
Bleach line, hardwood	156 lb/ton	** lb/ton
Bleach plant ^c	193 lb/ton	** lb/ton
Pulp characteristics		
Softwood		
K, unbleached (PN)	18.8	**
CEK	3.0	**
Final brightness	*	**
Hardwood		
K, unbleached (PN)	16.7	**
CEK	2.8	**
Final brightness	*	**
Wastewater		
Caustic extraction Stage, hardwood	2378-TCDD 3.6 ppt 2378-TCDF 14	<0.024 ppt 0.069
"B" bleach line ^d	2378-TCDD 2.1 2378-TCDF 5.8	<0.014 0.027-<0.087
Combined bleach plant ^e	2378-TCDD 1.3 2378-TCDF 5.8	NA ^f NA
Aeration basin effluent	2378-TCDD NA ^f	0.10-0.11
Prior to settling	2378-TCDF NA	0.74
Final effluent	2378-TCDD 0.09 2378-TCDF 0.42 TSS 89 ppm	0.044 0.15 44 ppm
^a Treatability study results for 2378-TCDD and 2378-TCDF (December 1987) are for native wastewater samples prior to addition of any coagulants or polymers. ^b Chlorination practice expressed as pounds Cl ₂ EQOX/ton of air-dried brownstock pulp (2). ^c Chlorination practice for bleach plant is production weighted for hardwood and softwood bleach lines. ^d "B" bleach line sample for treatability study represents field composite of "B" bleach line (hardwood) filtrates. "A" bleach line (softwood) was down during treatability study sampling program. "B" bleach line sample for five-mill study represents mathematical composite of "B" bleach line filtrates. ^e Combined bleach plant sample for the five-mill study represents a mathematical composite of "A" bleach line and "B" bleach line filtrates. ^f Not analyzed in five-mill study or not sampled in treatability study. *Data not presented. **Bleach plant chemical application and pulp data claimed confidential.		

of clarification chemicals (e.g., coagulants and polymers) have been installed at most pulp and paper mills or can be installed quickly at relatively low cost. Also, the incremental sludge generated can be dewatered within the capability of existing sludge handling facilities at most mills.

As was pointed out earlier, both Mills A and E have conventional activated sludge treatment systems. However, studies conducted by EPA

in 1979 as a part of effluent limitations guidelines development showed that improved TSS removals could be achieved using chemically assisted clarification on aerated stabilization basin (ASB) effluents as well as effluents from activated sludge systems (17). Based upon these data, we expect that additional 2378-TCDD/TCDF removals could be achieved at mills using ASBs for treatment. While ASB systems do not normally have continuous sludge removal, the

addition of treatment chemicals may necessitate more frequent sludge removal from settling areas of treatment.

Other observations

Tables VI and VII present comparisons of results obtained in the five-mill study with results obtained in the treatability study for Mills A and E, respectively. These comparisons illustrate two important points:

1. Significantly lower levels of 2378-TCDD/TCDF were found in bleach plant wastewaters with lower bleaching rates (application of chlorine and chlorine derivatives) in C-stages and across the bleach lines
2. Significantly lower effluent discharges of 2378-TCDD/TCDF were observed with improved suspended solids control.

Bleach plant operating data for Mill E for the treatability study have been claimed confidential and have not been presented here. Notwithstanding, the degree of bleaching at each mill during the treatability study sampling as characterized by unbleached, partially bleached, and fully bleached pulp testing (K, CEK, final brightness) was about the same as that observed during the five-mill study. Based upon limited results from other studies (2, 11, 14, 18), the changes in levels of 2378-TCDD/TCDF presented in Tables VI and VII for bleach plant samples are believed to be principally related to changes in bleaching practice rather than laboratory, random process, or chemical reaction-rate variability. These limited data indicate that an effective interim strategy for minimizing effluent discharges of 2378-TCDD/TCDF should include both chlorine minimization and improved suspended solids controls.

Findings and conclusions

We came to the following conclusions:

1. While some fraction of 2378-TCDD/TCDF in internal untreated pulp and paper mill bleached wastewaters (i.e., caustic extraction-stage filtrates, combined bleach plant wastewaters) is associated with suspended solids, most of the 2378-TCDD/TCDF is in the aqueous phase of those wastewaters or in fine colloidal suspensions.
2. After biological treatment at two mills, more than 90% of the 2378-TCDD/TCDF is associated with suspended solids and subsequently is transferred to the sludge or discharged with the suspended solids in the effluent.
3. Chemically assisted clarification appears to be an effective mechanism for control of 2378-TCDD/

TCDF in internal mill wastewaters. However, as an interim control measure, improved suspended solids removal in existing treatment facilities can be implemented more quickly and easily and at less cost.

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Utilization of artificial marshes for treatment of pulp mill effluent

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Tertiary treatment of mill effluent in an artificial marsh is an effective way of removing algal nutrients

It is expected that the effluent discharge requirements at some U.S. pulp mills will become more stringent. If receiving water conditions warrant, BOD (biochemical oxygen demand) limits can be reduced below BCT (best conventional technology) guidelines based on waste load allocation modeling. There is a strong effort underway by the Environmental Protection Agency (EPA) to incorporate toxicity requirements into NPDES (national pollution discharge elimination system) permits. Although it is too soon to say exactly how this will affect the industry, it is safe to assume that at least some facilities will have to reduce toxicity levels by modifying plant operations or improving effluent treatment. In addition, there are special receiving water conditions in parts of the country where algal nutrients are perceived as a problem by regulatory authorities, and these may require some level of treatment.

Traditional secondary treatment has proved effective for control of BOD and total suspended solids (TSS). However, BOD limits derived by waste load allocation modeling are often very low, straining the capabilities of even the best designed and operated secondary treatment systems. In addition, these systems are only moderately successful in removing some important toxicants and are ineffective in removing nutrients.

Both natural and artificial marshes have been used to treat primary and secondary municipal effluent. Several such systems have been described in the literature, both on an experimental and on a fully operational basis. In general, these marshes have proved to be effective in removing BOD, TSS, bacteria, and plant nutrients. Only one study of the feasibility of using marshes to treat pulp mill effluent has appeared in the literature.¹ Under somewhat artificial conditions ("static, hydroponic greenhouse conditions"), Allender found that levels of lignosulfonate, color, TSS, BOD, and foaming propensity in a secondary-treated effluent were reduced. Several plant species were tested. A rush, *Juncus pallidus*, proved to be the most effective, achieving further reduction of

some pollutants of up to 90%.

One type of marsh system that has proved to be particularly effective is a combination of a wetland plant (usually reed) grown in an anaerobic rock substrate.² The combination of plant uptake and anaerobic breakdown is very efficient in removing plant nutrients. This system was tested successfully on a pulp mill effluent in the laboratory. The initial success of these early experiments led to a larger-scale study over a period of three years.

Background

Eight artificial marsh reactors were constructed. Each 2.6-m² reactor contained a variety of marsh plants in a gravel matrix. A secondary-treated effluent of high quality was introduced at one end and withdrawn at the other. Retention times were varied between 6 h and 24 h. Table I shows that removal efficiencies were high for TSS and ammonia, moderate for BOD and organic nitrogen, and relatively low for phosphorus. There was no reduction in color levels. These results were comparable with what had been reported by several investigators for municipal effluent treated by a variety of marsh systems.

Based on a few samples, the marshes also showed some ability to remove toxicants. Removal efficiencies for the fatty and resin acids averaged about 20-25%, while removal of the chlorinated phenolics was about 50%. There was no significant removal of total organic chlorine (TOCl). Much of the TOCl is made up of large refractory molecules that either resist breakdown or break down into smaller chlorine-containing compounds. The marsh plants were able to survive in the treated effluent. At one stage, black liquor was added to simulate a spill, and the plants were unaffected.

In general, the marsh systems proved to be very effective in affording a further level of treatment to an already high-quality effluent. Before treatment by the marshes, pollutant levels were: TSS, 5-8 mg/L; BOD₅, 10-15 mg/L; ammonia, 1.5-3.0 mg/L; organic nitrogen, 2.5-3.5 mg/L; and phosphorus, 0.5-0.8 mg/L.

¹Allender, B. M., *Appita* 37: 303(1984).

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²Wolverton, B. C., *Econ. Botany* 36: 373(1982).

I. Summary of removal efficiencies for measured pollutants

Pollutant	Removal efficiency, %
Color	0
TSS	54
BOD ₅	29
Ammonia	64
Total organic nitrogen	33
Total phosphorus	18

II. Removal efficiency as a function of retention time

	Removal efficiency, %		
	6-h retention	15-h retention	24-h retention
TSS	52-55	60-62	62-68
BOD ₅	32-39	37-40	41
Ammonia	11-31	59-64	52-88
Organic nitrogen	16-19	24-29	24-27
Phosphorus	9-14	18-19	19-31

Design considerations

Optimum performance of a marsh treatment system depends on several design elements, including retention time, depth of substrate, size and character of substrate, and plant type and density. These variables were the subject of several parametric studies.

Retention time

Retention times of 6 h and 24 h were tested initially. Subsequently, an intermediate retention time of 15 h was examined as well. Table II shows that there was a clear difference between the 6-h and 24-h retention times. This was particularly notable for the two nutrients monitored, ammonia and phosphorus. The differences were slight for both TSS and BOD (an improvement of 15-20% at 24 h). As will be noted later in this article, the organic nitrogen is removed largely by filtration. Consequently, the improvement in organic nitrogen removal over time would be expected to be about the same as that of TSS, and the data reflect this.

There was relatively little difference between the results obtained at the intermediate retention time of 15 h and the extended retention time of 24 h. The longer retention time led to improvements of 10% or less in all parameters except total phosphorus, which showed an improvement of about 40%.

Retention time is directly related to the size, and thus to the cost, of a marsh treatment system. It is apparent that a retention time of 15 h would be almost as effective as a longer retention time for all of the parameters tested. If the primary concern were with BOD and TSS, then a retention time of only 6 h might be adequate.

Plant type

Three types of plants were studied: cordgrass (*Spartina cynosuroides*), cattail (*Typha latifolia*), and reed (*Phragmites australis*). The cattail and reed have been used successfully in many pilot and full-scale facilities. A control reactor, containing only gravel substrate and no plants, was also included in the study.

The cattail and reed were collected from the margins of the ponds of a pulp mill treatment system. The cordgrass (also known locally as sawgrass) was collected from a nearby river in the vicinity of the pulp mill. The plants (about 0.5 m in height at the time) and associated roots or rhizomes were harvested in the spring and immediately transplanted to the artificial marshes. In each marsh, 30 plants were

placed at 0.3-m intervals. By the conclusion of the experiments, the roots and rhizomes had sent out many more shoots, and the height of the plants approached 3 m.

Table III shows that the presence of plants had little impact on the ability to remove TSS, BOD, and organic nitrogen. The removal mechanisms for these parameters are probably filtration and bacterial breakdown. However, the plants had a substantial impact on the ability to remove ammonia and phosphorus. Without plants, ammonia removal was only 16%; with plants, the levels ranged from 53% to 82%. While there was virtually no phosphorus removal in the reactor without plants, the reactors with plants removed from 16% to 26% of the phosphorus.

Based on the water chemistry data and measures of nutrient concentrations in the plant foliage and roots, it was possible to assess the relative importance of various removal mechanisms. The results of this analysis are listed in Table IV. A certain amount of the nitrogen and phosphorus is contained in or attached to particulate matter. Filtration by the gravel matrix accounted for 10% of the nitrogen and 18% of the phosphorus removed by the marsh system. Plant uptake into foliage and roots accounted for the remainder of the phosphorus reduction (82%). Plant uptake was also an important mechanism for the reduction in nitrogen (45%), with denitrification accounting for the remainder of the nitrogen reduction (45%). Plants play an important role in denitrification. Oxygen is transported from the foliage to the roots. A certain amount of this oxygen is leaked into the substrate, which is largely anaerobic. Consequently, this oxygen allows the incoming ammonia to be oxidized to nitrate. The nitrate can then be denitrified, yielding nitrogen gas which escapes to the atmosphere. Other studies have demonstrated that provision of this oxygen is one of the most important functions of the plants.

The differences in removal efficiency among the three species of plants were slight, as seen in Table III. If we assume that the plants affected only the removal of ammonia and phosphorus, then the reeds appear to be the most effective. However, the cattails were damaged by a wind-storm in the second year of the study, and this clearly had an effect (as observed shortly after the storm occurred) on their removal efficiency. If this had not occurred, the mean values for the cattails and reeds would have been closer.

Given these similarities in performance, it might be more appropriate to base the choice of species on the life cycles of the various plants. The cattails sprout earlier in the year (early February) than cordgrass and reed.

III. Removal efficiency as a function of plant type

	Removal efficiency, %			
	No plants	Cordgrass	Cattail	Reed
TSS	52	54	62	59
BOD ₅	40	36	41	36
Ammonia	16	63	53	82
Organic nitrogen	27	31	28	29
Total phosphorus	2	16	23	26

IV. Relative importance of removal mechanisms, %

	Phosphorus	Nitrogen
Bacterial uptake	Small	Small
Filtration	18	10
Denitrification	...	45
Plant uptake	82	45

V. Effect of substrate configuration on efficiency of pollutant removal

	Removal efficiency, %			
	15 cm	15-40 cm	15-40 cm*	40 cm
TSS	49	53	64	55
BOD ₅	46	46	37	28
Ammonia	96	83	61	42
Organic nitrogen	31	27	29	33
Total phosphorus	27	26	20	14

*Plants in front half of reactor only.

However, the cattails remain green and growing only until October, while the cordgrass and reed are viable until December. Late in the year, the reed proved to be more effective than the cordgrass in removing ammonia. The choice of an appropriate plant would depend upon the nature of the receiving water. Generally speaking, river flows would be lower in November than in February. However, if the receiving water had problems with algal blooms, the cattails might provide better removal in the early spring.

Substrate

The most expensive component of an artificial marsh system is the gravel substrate. Some sizes and shapes of gravel may be more effective than others. However, as a practical matter, the builder of an artificial marsh is restricted to the cheapest local source of gravel. Many types have been used with success, generally in the size range of 1-3 cm. In our experiments, the substrate was marl, a locally abundant source of rock composed principally of calcium carbonate and clay. Marl is relatively inexpensive and has good weight-supporting characteristics because of its angular configuration. The substrate in a full-scale artificial marsh must be capable of supporting the weight of maintenance vehicles used for plant harvesting and other activities.

A key characteristic of the gravel used in a marsh is its porosity or void volume. Well-sorted gravels have porosities in the range of 25-40%. If they have not been well sorted, then sands and silts can occlude the voids, yielding much lower porosities. In our experiments, the marl (1-3 cm) had a porosity in the range of 35-40%. Substrate porosity has a direct effect on retention time. If the porosity is low, then the inflow must be reduced or

the size of the marsh system must be increased.

In most studies reported in the literature, the depth of the substrate was set between 30 cm and 50 cm. During the first year of our study, substrate depth was about 40 cm. In the second year, we tested other substrate configurations to determine the effect of substrate depth on pollutant removal efficiency. Four different substrate configurations were tested using reeds:

1. 15 cm of substrate
2. 15 cm of substrate in the first half of the reactor and 40 cm in the last half
3. 15 cm of substrate in the first half of the reactor and 40 cm in the last half; reed plants restricted to the first half of the reactor
4. 40 cm of substrate.

The rationale of this design was two-fold:

- Determine the effectiveness of a shallow substrate relative to an equal volume of a deeper substrate
- Determine whether an artificial marsh can be segregated into zones of activity, i.e., a plant uptake zone and an anaerobic zone.

Both of these factors have an impact on the cost of a full-scale artificial marsh system. The tests were conducted to determine whether costs could be cut by reducing either the number of plants or the volume of gravel substrate.

All four systems had a retention time of 15 h. Consequently, the flow rates had to be varied so that less water flowed through the reactor with a 15-cm substrate than through the reactor with a 40-cm substrate.

Table V shows that the effect of substrate depth varied with the different pollutants. Substrate depth had little apparent effect on removal of TSS and organic nitrogen. As noted earlier, the removal mechanism for TSS and organic nitrogen appears to be filtration. Consequently, for a given retention time, the substrate depth would not be expected to exert much of an influence.

The BOD removal efficiency was relatively high in the reactor with the shallow substrate, intermediate in the reactors with mixed depths, and low in the reactor with the deep substrate. In the shallow substrate, a greater proportion of the effluent could be re-aerated through its proximity to the air. Further, the root mass of the plants, which leak oxygen to the substrate, is denser near the surface of the substrate. Thus the opportunity for aerobic

breakdown of organic matter is greater in a marsh system with a shallow substrate. Comparing the two mixed-substrate reactors, it appears that the plants had a positive effect on BOD removal (46% in the reactor with a full complement of plants vs. 37% in the reactor with plants restricted to the front half).

The effect of substrate depth was remarkable for the two nutrients tested: ammonia and phosphorus. Removal efficiency for ammonia was very high in the shallow reactor. In this reactor, the higher ratio of plant foliage and root volume to the volume of effluent probably accounted for the higher removal efficiency. In addition, higher oxygen input per unit volume via reaeration and root leakage would aid in the conversion of ammonia to nitrate and subsequent denitrification.

The substrate layer in most artificial marsh systems is 30-50 cm deep. It appears that deep-substrate systems are limited in their ability to remove BOD and ammonia because of inadequate levels of oxygen. Taken at face value, the data in Table V suggest that a marsh system with a shallow (15 cm) substrate would be as effective as a marsh system with a deeper (40 cm) substrate with twice the volume. Because gravel is such an important component of the capital cost, this merits serious consideration. On the negative side, a marsh with a shallow substrate would have to be larger in areal extent, even allowing for its greater efficiency. This would necessitate additional land and would require more plants. Operating costs (management and harvesting of the plants) would also be greater. A decision on the depth of substrate rests largely on the relative cost of land vs. gravel.

Operating considerations

For a full-scale facility, several operational problems would have to be resolved.

The amount of biomass produced is extraordinary. After the second year of operation of the pilot units, the standing stock of plant tissue was 4.4 kg/m² (dry weight) for the above-ground foliage and more than 12 kg/m² for the total plant. These rates of growth are comparable with the highest reported in the ecological literature (for sugar cane fields or natural sea marshes). At the production rates demonstrated for the reed reactor in its second year, almost 2000 dry tons of above-ground foliage would be produced each year in a 100-acre marsh. The biomass could be used as a hogged fuel (running a 250 × 10⁶ Btu boiler for about five days), livestock feed, or fiber source (mills in eastern Europe and Asia use reeds in the production of paper). Obviously, such uses would have to be thoroughly studied to anticipate any operational problems or, in the case of livestock, adverse effects on health.

There is also the question of long-term performance. One concern entering the study was the possibility that the substrate interstices could become so occluded with roots and bacterial accumulations that the retention time and the treatment efficiency would be significantly reduced. At the end of each of the first three growing seasons, the amount of interstitial space was estimated by simply draining the reactors and refilling them with liquid. The data indicate a 10% reduction in interstitial volume in each of the years. If this trend is representative, then plans to "rejuvenate" a full-scale marsh would have to be made.

This would involve the removal of subsurface biomass on a periodic basis.

Capital cost

The construction costs of an artificial marsh system are affected by several factors:

- Value of the land occupied by the marsh
- Earth-moving costs (shallow excavation with a surrounding berm)
- Clay or plastic liner (if required in a particular locale)
- Gravel substrate (including delivery and spreading)
- Marsh plants (including labor for planting)
- Piping, header, weir, and pump (plus labor).

The largest single-cost item is the gravel. If the cost of gravel is assumed to be \$10/yard³, it will constitute one-half to two-thirds of the total cost. For this reason, there may be locales where this technology is not economically feasible. Some have tried marsh plants grown in a soil matrix. This has proved to be acceptable in cases where the volume of effluent applied per area of marsh is low. Otherwise, flooding will occur.

The cost of the plants is modest. Depending on type and quantity, the cost per plant is \$0.10-\$0.50. If planted at three-foot intervals, the cost per acre (without labor) would be \$500-\$2500.

Based on our experience with a recently constructed one-acre pilot facility, we estimate the total cost to be about \$30,000 per acre (exclusive of land costs). Gravel costs at this location were about \$8/yard³.

Summary

Concentrations of BOD, TSS, ammonia, total nitrogen, and total phosphorus can be reduced significantly through tertiary treatment of mill effluent in an artificial marsh system. While there are other ways of reducing BOD and TSS, the marsh system has the unique ability to remove nitrogen and phosphorus. This technology merits serious consideration in areas where control of algal nutrients is a concern. □

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December 18, 1989

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SPECIAL REPORT 89 - 08

PULPING EFFLUENTS IN THE AQUATIC ENVIRONMENT:
A REPORT OF THE SCIENTIFIC PANEL ON PULPING EFFLUENTS
IN THE AQUATIC ENVIRONMENT

Over the past several decades, a considerable amount of research into the aquatic effects of paper industry wastewaters has been undertaken in the United States by NCASI, individual pulp and paper companies, consulting firms, universities, regulatory agencies, and other research institutions. This research has generated a body of published and unpublished information that provides considerable evidence of the compatibility of biologically treated pulp and paper mill effluents with healthy and productive aquatic ecosystems.

In the past several years, there has been a dramatic increase in the amount of Northern European research directed at pulp mill wastewaters, especially those from bleached kraft mills, and their effects on aquatic ecosystems. The results of this research have sometimes appeared to contradict the findings of related North American research. Recognizing a need to (a) identify the sources of these apparent contradictions and (b) obtain an independent assessment of the data describing the situation in North America, the Procter & Gamble Company, early in 1988, retained Sirrine Environmental Consultants to compile and summarize the available published and unpublished information on pulping effluents in the aquatic environment.

This compiled information was then submitted to an international panel of independent scientists for evaluation. In particular, the panel was asked to (a) examine the North American data to determine whether it provided evidence of the compatibility of biologically treated effluents with healthy and productive aquatic ecosystems, and (b) identify the sources of apparent contradictions between recent North American and Northern European research on the aquatic effects of pulping effluents. The panel was comprised of the following individuals:

Panel Chairperson: Dr. Paul Mehrle
Columbia, MO

Dr. Kenneth Dickson, University of North Texas, U.S.
Dr. Rolf Hartung, University of Michigan, U.S.
Dr. Robert Huggett, College of William and Mary, U.S.
Dr. Donald McLeay, McLeay Associates, Ltd., Canada
Dr. Aimo Oikari, University of Joensuu, Finland
Dr. John Sprague, J.B. Sprague Associates, Ltd., Canada

After reviewing the information compiled by Sirrine Environmental Consultants, the panel issued their findings in a report. The panel concluded "from the majority of reported field research investigations that treated bleached kraft effluents from well managed and operated North American mills show little or no adverse impacts on receiving waters."

The panel identified several factors that contribute to the apparent contradictions between some Northern European and U.S. research findings. First, the characteristics of the receiving waters being studied differ considerably between Northern Europe and North America. Much of the European research has been conducted in the Gulf of Bothnia in the Baltic Sea. This is a brackish water body with little flushing and having little physical, chemical, or biological similarity to receiving waters in North America. In addition, the wastewaters studied by Northern European researchers were, for the most part, untreated or partially treated. Furthermore, the biological endpoints measured by North American and Northern European researchers often differ, with Northern European researchers placing relatively more emphasis on indirect measures of the health of the organism, population, and aquatic community.

Recognizing the National Council's technical information dissemination role in this industry, and its staff's contributions to successful completion of this project, The Procter & Gamble Company has extended to NCASI permission to publish the panel's findings in this Special Report. (NCASI recently published the information compiled by Sirrine Environmental Consultants in two technical bulletins; NCASI Technical Bulletin No. 572, "PULPING EFFLUENTS IN THE AQUATIC ENVIRONMENT - PART I: A REVIEW OF THE PUBLISHED LITERATURE" and NCASI Technical Bulletin No. 573, "PULPING EFFLUENTS IN THE AQUATIC ENVIRONMENT - PART II: A REVIEW OF UNPUBLISHED STUDIES OF IN-STREAM AQUATIC BIOTA IN THE VICINITY OF PULP MILL DISCHARGES".)

Questions on this material should be directed to either Dr. Dennis Borton at NCASI's Southern Experimental Streams Laboratory at (919) 637-4326, or to Reid Miner in this office.

Very truly yours,



Dr. Isaiah Gellman
President

PULPING EFFLUENTS IN THE AQUATIC ENVIRONMENT

A REPORT PREPARED BY

**THE SCIENTIFIC PANEL ON PULPING EFFLUENTS
IN THE AQUATIC ENVIRONMENT**

FOR

**THE PROCTER AND GAMBLE COMPANY
CINCINNATI, OHIO**

AUGUST 11, 1989

**PULPING EFFLUENTS IN THE AQUATIC ENVIRONMENT:
A REPORT OF THE SCIENTIFIC PANEL ON PULPING EFFLUENTS
IN THE AQUATIC ENVIRONMENT**

SPECIAL REPORT NO. 89 - 08
December 1989

ABSTRACT: In 1988, the Procter and Gamble Company retained Sirrine Environmental Consultants to assemble the available information on pulping effluents in the aquatic environment. This information was then submitted to an international panel of independent scientists for evaluation. The panel was asked to (a) examine the North American data to determine whether it provided evidence of the compatibility of biologically treated effluents with healthy and productive aquatic ecosystems, and (b) identify the sources of apparent contradictions between recent North American and Northern European research. After reviewing the information, the panel issued their findings in a report, which is contained herein. In assessing the information on North American receiving waters, the panel concludes "from the majority of reported field research investigations that treated bleached kraft effluents from well managed and operated North American mills show little or no adverse impacts on receiving waters." The panel identified several factors that contribute to the apparent contradictions between some Northern European and U.S. research findings. First, the characteristics of the receiving waters being studied differ considerably between Northern Europe and North America. In addition, the wastewaters studied by Northern European researchers were, for the most part, untreated or partially treated. Furthermore, the biological endpoints measured by North American and Northern European researchers often differ, with Northern European researchers placing relatively more emphasis on indirect measures of the health of the organism, population, and aquatic community.

KEYWORDS: Pulp mill effluents, waste treatment, Canada, Scandinavia, Sweden, Finland, Baltic Sea, Gulf of Bothnia, AOX, chlorinated organic chemicals, toxicity, bioassay

RELATED NCASI PUBLICATIONS:

- (1) Pulping Effluents in the Aquatic Environment - Part I: A Review of the Published Literature, NCASI Technical Bulletin No. 572, October 1989
- (2) Pulping Effluents in the Aquatic Environment - Part II: A Review of Unpublished Studies of In-Stream Aquatic Biota in the Vicinity of Pulp Mill Discharges, NCASI Technical Bulletin No. 573, October 1989.

EXECUTIVE SUMMARY

The Scientific Panel on Pulping Effluents in the Aquatic Environment was convened by The Procter and Gamble Company with input from the National Council for the Paper Industry for Air and Stream Improvement (NCASI) to examine the scientific literature related to the impacts of pulping effluents on aquatic environments. The scientific literature for laboratory and field investigations on pulping effluents demonstrates that environmental impacts to aquatic environments can occur in some instances, but not in others. We conclude that the controlling variables appear to be the quality and quantity of the effluent relative to the physical, chemical, and biological characteristics of the particular receiving waters.

- The conclusions by Swedish investigators that bleached kraft effluents are more harmful than unbleached effluents can serve to guide further evaluations in North America, but these findings should not be directly extrapolated or applied to North American mills. The reasons are that many physical, chemical, and biological differences exist between the Swedish and North American situations which prevent direct extrapolations related to ecological impacts.

- One clear reason for differences in ecological impact is the high degree of secondary treatment given to North American mill effluents relative to most Swedish mills in the mid-1980's when major Scandinavian research programs were conducted.

- Another important difference is that the Swedish Gulf of Bothnia appears to be a unique hydrological system in comparison to the receiving waters of North American mills.

- We conclude that factors which influence the potential for adverse environmental impacts from pulping effluents are complex, site specific, and dependent upon the operation of both the pulping process and effluent treatment.

- We conclude from the majority of reported field research investigations that treated bleached kraft effluents from well managed and operated North American mills show little or no adverse impacts on receiving waters. The relationship between chlorinated organic compounds discharged from mills producing bleached pulp and significant environmental impacts has not been conclusively demonstrated. The Swedish studies conducted in the Gulf of Bothnia and at the Norrsundet mill do not conclusively implicate chlorinated organics as the single causative factor for the impacts observed. A number of factors in addition to the organochlorine contaminants could contribute to the observed findings at Norrsundet.

biological effects. The use of biomarkers to assess the impacts of complex effluents is a rapidly developing area. However, the current "state of the art" for relating most biomarkers to the health of aquatic resources is not well advanced. It is recommended that the pulp mill industry closely follow biomarker and bioassessment research efforts and consider incorporating appropriate biomarkers into its monitoring and research programs.

The Scientific Panel on Pulp Mill Effluents in the Aquatic Environment found that the assessment of the environmental impacts from pulp mill effluents is a complex endeavor. Extrapolation of ecological impacts from pulp mill effluents from one location to another is difficult, if not impossible, because of the differences in mill operation, effluent quality, receiving waters, and toxicological assessment approaches. Implementation of tiered assessment strategies will provide a more comprehensive evaluation of the compatibility of pulp mill effluents and aquatic environments and will give better foundation for extrapolation of results among pulp mills and aquatic environments being studied.

effluents are being discharged after only minimal treatment. Many Swedish and Canadian mills provide only primary treatment which involves sedimentation of the most readily settleable solids, but do not provide secondary (biological) treatment. At the time just prior to the Environment/Cellulose study in 1982, only 25% of the bleached pulp mills in Sweden provided any biological treatment (IPK, 1982). Whereas at the present, approximately 50% of Swedish bleached pulp mills utilize some degree of secondary treatment. Of the 30 inland bleached mills in Canada in 1986, 17 provided biological treatment prior to discharge to rivers (Kovacs, 1986). Biological treatment is not provided at many mills discharging to Canadian marine environments. In contrast, nearly 100% of the bleached pulp mills in the U.S. have treated their pulping effluents with both primary and secondary treatment since the late 1970's. The primary and secondary treatment provided by U.S. mills has been found to reduce the concentrations of many discharged compounds including levels of chlorinated organics in bleached pulp mill effluents.

RECEIVING WATERS

Effluents from bleached pulp mills are discharged into streams, lakes, estuaries, bays, and the open ocean. These environments provide different mechanisms and rates of mixing, dispersion, and flushing, as well as different water qualities. The sensitivity of each ecosystem to pollutants is inherently different, as are the fate and transport of contaminants in each ecosystem. Important examples include the brackish Gulf of Bothnia between Sweden and Finland, the extensive freshwater lake system of Finland, deep marine discharges in the fjords of Norway and western Canada, and the riverine systems of North America. Therefore, reported impacts, as well as conclusions relating discharges to impact, should be examined with full appreciation of the peculiarities of these ecosystem influences. Control strategies should reflect the sensitivity of the recipient ecosystem, as strategies appropriate for one location or situation may not be applicable in a different aquatic environment or habitat.

RELATIVE CONTRIBUTIONS OF CHLORINATED ORGANICS TO WASTE LOADS

Bleached pulp effluents are not the only sources of chlorinated organics being discharged to the environment. Any assessment of the impact from these discharges should be made with an awareness of the relative contributions provided by various other sources. In addition, the potential for widespread dissemination in the environment, including that due to airborne transport, should be considered. Other notable sources of chlorinated organics include the organic chemical industries and discharges from Publicly Owned Treatment Works (POTWs) where chlorinated organic compounds are created by chlorinating treated domestic sewage and wastes from indirect industrial dischargers.

It should be noted that the relative contributions of these sources vary from nation to nation. The U.S. EPA estimates that in the United

RATIONALE FOR REVIEW

Recognizing the growing concern for the need to assess the compatibility of pulp mill effluents with aquatic environments, The Procter and Gamble Company, Cincinnati, Ohio, sponsored, and the National Council for the Paper Industry for Air and Stream Improvement (NCASI) assisted efforts to provide a scientific assessment of the impact of pulp mill effluents on aquatic environments. An independent contractor, Sirrine Environmental Consultants, compiled information into several volumes after an extensive literature review. The topics included: 1. biological impact characteristics (published and unpublished literature); 2. effluent treatment and associated characteristics; 3. fate and transport of chemicals in the aquatic environment from pulp mill processes; and 4. process chemistry associated with pulp mill operations. The Scientific Panel on Pulping Effluents in the Aquatic Environment was then organized by The Procter and Gamble Company to address specific issues related to the compatibility of pulp mill effluents and receiving waters. These issues were formulated by The Procter and Gamble Company into the Charge which the Panel addressed and deliberated. The following were the members of the Panel:

Dr. Paul M. Mehrle, Chairman
1804 West Broadway
Columbia, Missouri

Dr. Ken Dickson
Institute of Applied Sciences
University of North Texas
Denton, Texas

Dr. Rolf Hartung
University of Michigan
Ann Arbor, Michigan

Dr. Robert Huggett
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Dr. Aimo Oikari
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Joensuu, Finland

Dr. John Sprague
J. B. Sprague Associates, Ltd.
Guelph, Ontario, Canada

A. In light of the differences between the mills and the environmental situations in Sweden and North America, discuss the relevance of the Swedish findings to pulp mills in North America.

B. Discuss the importance of effluent quality and receiving water conditions in explaining these apparently different findings.

concentrations in the receiving system. However, survey data alone cannot determine the causes for any observed effects. Causality is established best by a combination of approaches, including chemical analyses, toxicity testing, biomarkers, and field surveys. This comprehensive approach is required because of the complexity of pulp mill effluents and the potential variation in the receiving waters and aquatic habitats.

One often ignored aspect in the experimental design of field studies is natural within-species and among-species variability (Huggett, 1981). Individuals comprising aquatic populations are no more like one another than are humans when it comes to dose/response relationships to chemical contaminants. Inherent variability in the organism's biochemistry and physiology, coupled with effects of size, age, maturity, nutrition, sex, reproductive stage, food preference, etc., make this so.

In addition, some abiotic components of the ecosystem are just as variable relative to concentrating, changing, storing, and releasing chemical contaminants as the biotic components are variable in coping with the exposures. Sediment grain size, sediment organic carbon, water pH, hardness, etc. may all influence bioavailability of contaminants.

This translates into a requirement for numerous samples and many analyses in order for the results to be representative of the real environment. Ignoring natural variability and analyzing too few samples with an inadequate temporal or spacial design will result in data which are difficult to interpret and may result in indefensible conclusions. In addition to the need to recognize natural variability, quality control and quality assurance programs must be integrated into the field surveys. Procedures for quality assurance/quality control exist for field surveys, but they are not yet as well established as are protocols for other components of ecological assessment. Table 2 outlines some of the advantages and disadvantages of field surveys.

TOXICITY ASSESSMENTS

Toxicity tests on water and sediment can address the question: are contaminated water and sediment in the receiving system toxic to the aquatic organisms? Toxicity tests can estimate the effects of contaminants from pulp mills on the survival, growth, and/or reproduction of aquatic biota. Most often, samples of sediment and water are collected from the receiving systems and returned to the laboratory for testing with several standard laboratory test species. Toxicity tests conducted in mobile laboratories or in situ allow toxicity testing with resident species from the site. Experimental model streams can be used to assess the toxicity of pulp mill effluents and evaluate impacts to aquatic life in the streams. This approach provides qualitative information regarding the toxicity and other impacts of the pulp mill effluents investigated, but it is not possible to establish quantitative relationships to other specific mill

To be meaningful, these responses need to be related to survival, growth, or reproduction. Many of these responses have potential as biomarkers which will be discussed later in this document. Some of these responses can be measured in organisms that have been exposed in semi-controlled conditions or field studies. This approach provides an important linkage between laboratory and field studies. However, results from such studies need to be interpreted with caution, because field-collected organisms are potentially subjected to multiple stressors and chemicals. These multiple variables must be considered in the design and interpretation of field toxicity studies.

EXPOSURE ASSESSMENT

A critical aspect of assessing the impact of pulp mill effluents on aquatic life is to determine if the components of the effluent are bioavailable. Data are needed that define the concentration and distribution of pulp mill effluent chemicals in the water, sediment and biota. Chemical residue detection in water and sediments does not assess bioavailability to the biota. Bioavailability of chemicals is influenced by many factors. For example, speciation of metals dramatically influences their toxicity; pH influences the fate and transport of some chemicals such as phenols; and the organic carbon content of sediments influences the equilibrium concentration of many non-ionic organics between the sediment and water compartments.

Two approaches have been used to assess the bioavailability of chemicals associated with complex effluents. The first approach is to measure chemical residues in organisms present in the receiving system. Presence of chemical residues (or metabolites) in the tissue of fish and invertebrates indicates that the chemicals are bioavailable. It does not necessarily mean that they are causing an adverse impact. The second approach to assess exposure is to use biomarkers. When integrated with body residue data and field data on contaminant distribution and concentration, biomarkers can sometimes provide insight into biological effects and the bioavailability of contaminants associated with a complex mixture.

TIERED APPROACH

A tiered approach for ecological assessments can be an effective means of assessing the compatibility of pulp mill effluents with the health of aquatic communities. At each step, or tier, the decision is made whether to proceed through the tiers and how best to proceed, based on the interpretation of the data collected up to that point. The tiers may be designed to reflect increasing levels of effort and/or different aspects of the overall ecological evaluation of the pulp mill effluent. The decision to proceed from one tier to the next is based upon the professional judgement of the investigators and goals of the tiered approach. In some tiered assessment approaches, quantitative criteria have been developed to guide decision-making regarding proceeding or stopping (Cairns and Dickson 1978). Experience has shown that using multiple criteria and exercising professional judgement are required.

between pulp mill contaminants and ecological effects: (1) chemical analysis of appropriate biological and abiotic compartments are necessary to establish the presence, concentration, and variability of effluent, effluent concentration, or toxic chemical; (2) biological surveys are necessary to establish whether toxic effects have occurred; and (3) toxicity tests are necessary to establish that the adverse effects can be caused by the toxicity of the chemicals in the effluent. Even with this information, relationships between pulp mill effluents and ecological effects may be difficult to determine. Comparisons based on these three sources of data are greatly simplified when the data collection activities are coordinated. Spatial and temporal coordination of data collection is necessary to eliminate variation in the analytical measurements associated with the difference in distances from the effluent and changes in concentration and toxicity over time. Inherent in the coordination of these assessment activities is the integrated interpretation of results from the activities and the use of professional judgement to formulate useful, valid conclusions.

1-B: WHAT DATA ARE NECESSARY TO ESTABLISH THAT SUCH COMPATIBILITY EXISTS?

In North America, the traditional approach to assessing the health of an aquatic community has utilized data on species richness, density, abundance, diversity, reproduction, and growth, as well as the presence and absence of pollution sensitive/intolerant species as the basis for decision making. These endpoints for effects have proven to be an effective means of assessing first-order environmental impacts, i.e. obvious impacts on community structure, populations, and reproduction. Important questions asked in assessing impacts are: are reasonably productive populations and diverse communities present? Do they contain pollution sensitive organisms? Are they healthy as determined by growth and reproductive success? Where there is concern over bioaccumulative and/or persistent chemicals, these traditional endpoints do not completely address the question of compatibility of wastewaters with a healthy aquatic community. In these cases, it is necessary to examine tissue residues in aquatic trophic levels to determine if levels are approaching or have reached levels of concern in the organisms or their consumers. While our current ability to interpret the meaning of a body residue concentration in terms of adverse impact on the individual organism and on its population is embryonic, efforts must be made to determine whether bioaccumulation of chemicals is occurring and its magnitude within aquatic food chains. Some persistent chemicals which bioaccumulate have had significant adverse consequences on aquatic and terrestrial life. Thus, it is necessary to examine the bioaccumulative properties of the effluent components and to place them in perspective with other chemicals known to bioaccumulate and which have been shown to cause adverse impacts.

Effect endpoints like species richness, density, diversity, abundance, reproductive success, growth, and presence and/or absence of pollution sensitive/intolerant species all reflect the structure and functioning

A major limitation in applying biomarkers in ecological assessments is the current lack of standardized biomarker measurements. Another limitation, particularly for biomarkers related to traditional endpoints, is our lack of understanding of their relevance to alterations at the ecosystem level of organization. While a number of biomarkers are in various stages of development, further research on dose-response and field validations is needed before routine use is possible. The relationship between a measured biomarker response and population-level effects has not been defined. While it is clear that effects found in individuals can represent information that reflects potentially significant consequences in an ecosystem setting, the specific effects have to be interpreted with great caution. This is because the specific effects can range from adaptive responses that may be of little consequence to the individual, to responses that signal incipient life-threatening damage to the individual. Biomarkers have potential to be highly sensitive indices of exposure and sublethal response, and their relevance is most evident when multiple biomarker endpoints are utilized in conjunction with toxicity testing and field assessment surveys. Much research is underway to determine their present and potential value. For instance, the U.S. Environmental Protection Agency has an ongoing research program related to biomarkers. Also, the Chesapeake Bay Program has selected research on the potential of biomarkers as one of the highest biological research priorities for assessing impacts of chemical contaminants. It is recommended that the progress of such investigations be closely followed for possible incorporation into monitoring and research programs where appropriate.

In conclusion, assessing the impacts of pulp mill effluents requires the use of a number of different kinds of effect endpoints. An integrated approach is necessary for incorporating results of field studies, toxicity testing, and measurements of exposure. Each of these three areas have different effect endpoints ranging from species abundance in field studies to the chronic toxicity of an effluent. Impact assessment requires the use of multiple endpoints. Spatial and temporal correlation of sampling is critical in integrating the various effect endpoints used in impact assessment.

CHARGE 2: SOME INVESTIGATORS HAVE CONCLUDED THE TOTAL AMOUNT OF CHLORINATED ORGANIC COMPOUNDS IS A MAJOR FACTOR IN THE TOXICITY OF BLEACHED PULP MILL EFFLUENTS.

2-A: ARE THE EXISTING DATA SUFFICIENT TO SUPPORT A CONCLUSION THAT CHLORINATED ORGANICS FROM UNTREATED PULP MILL EFFLUENTS ARE LARGELY RESPONSIBLE FOR THE ADVERSE ENVIRONMENTAL EFFECTS OBSERVED IN THE BALTIC SEA AND ELSEWHERE?

Halogenated organic compounds have a history, and a somewhat deserved reputation, of being hazardous. Numerous examples of contamination in aquatic systems exist for this class of substances in aquatic systems. This past history and the fact that there are analytical methodologies which allow for the quantification of these compounds at levels one-

BIOACCUMULATION AND TOXICITY OF CHLORINATED AND NON-CHLORINATED EFFLUENT CONSTITUENTS

Certain chlorinated phenolic compounds present in bleached pulp and paper mill effluents (e.g. chlorinated phenols, guaiacols and catechols) can bioaccumulate in fish tissues. They are reported to be rapidly excreted upon transfer to clean water (Landner et al. 1977; Renberg et al. 1980; McLeay et al. 1987). These chlorinated compounds (as with chlorinated resin and fatty acids) have been previously demonstrated to be toxic to fish and aquatic invertebrates, with a general trend towards increased toxicity with increased chlorine substitutions (Kovacs et al. 1980; Salinoja-Salonen et al. 1981; Shigeoka et al. 1988). In spite of these findings, no North American evidence is available to date which demonstrates that chlorinated phenolic compound formation during bleaching of pulp and paper has increased the toxicity of the final mill effluent. It must be noted that few experiments have been designed to test the hypothesis.

Certain resin acids and other non-chlorinated compounds are known to bioaccumulate and to be toxic to aquatic organisms (Leach and Thakore 1973, 1976, 1978). Their chronic toxicities, as well as bioaccumulation potential, have not been thoroughly evaluated, although some information is available (Howard and Monteith, 1977; Oikari et al. 1982, 1983). In addition, their sorption characteristics in sediments have not been adequately assessed. Data bases on organochlorine compounds are better established than for non-chlorinated compounds, and there is a tendency to relate impacts to organochlorine contaminants. This is particularly true given the large quantities of high molecular weight (MW) chlorinated organic material discharged to the aquatic environment by the pulp and paper industry. At the present time, however, little is known of the fate and effects in aquatic environments of high MW compounds.

Among the chlorinated hydrocarbons that have been identified in many bleached kraft mill effluents are low concentrations of polychlorinated dibenzo-p-dioxins (PCDD) and polychlorinated dibenzofurans (PCDF). These findings have raised concerns because of the high level of toxicity of these compounds in laboratory studies, and consequently they have been the subject of in-depth measurements and risk assessments (Mah et al. 1989). Although PCDDs, and to a lesser extent PCDFs, are subject to significant bioconcentration and biomagnification in aquatic environments, no adverse effects on fish have been reported in field studies. However, there is a lack of comprehensive studies conducted to ascertain environmental effects. One field study (Elliott et al. 1988) has shown an association between elevated PCDD/PCDF concentrations in the eggs of Great Blue herons and decreased fledgling survival. In addition, in some localities the concentrations of PCDD/PCDF in fish and shellfish have triggered advisories against their consumption or have resulted in fisheries closures. Concerns regarding the potential risks of 2,3,7,8-tetrachlorodibenzodioxin (TCDD) for humans are largely based upon risk

- (i) Alteration of many biochemical and physiological functions.

In addition, there was a suite of observations which correlated with concentration of organochlorines. These included the following:

- (i) EOC1 in tissues of perch.
- (j) Increasing number of rooted aquatic plants.
- (k) Decreased abundance of brown alga.
- (l) Laboratory studies that produced certain biochemical/physiological effects similar to those observed in the field.

Some of those effects were detected at 10 km from the bleached kraft mill, where dilution of the untreated effluent was over 1000-fold.

With regard to the recent evidence of diverse biological changes in aquatic organisms within the Gulf of Bothnia adjacent to and at some distance from mills discharging bleached effluents, a number of factors in addition to the TOX loading to the Baltic Sea can contribute to the observed findings of environmental degradation and biological effects. The significant quantities of toxic non-chlorinated material (e.g. resin and fatty acids, etc.) released to this waterbody by the pulp and paper industry together with municipal and industrial discharges, which sometimes resulted in hypoxic or anoxic conditions at certain locales, may have undoubtedly contributed to the observed findings (see Section 3).

In North America, studies are much more widely distributed, with field surveys being carried out on lake, riverine, estuarine and marine environments. The studies have been largely conducted by consultants supported by industry and are seldom published in the peer-reviewed literature. Unlike the Swedish studies which were coordinated among several laboratories and focused on certain sites to test the hypothesis that chlorinated organics have an adverse impact on the aquatic community, the North American investigations were usually not carried out as integrated projects. The exception was the NCASI model stream efforts. Many of the industry-supported studies have focused on the impacts on structure of communities (species richness, density and diversity), although some have assessed productivity. North American studies have also had a variety of different objectives and, consequently, a wide array of investigative approaches, measurements and effect endpoints. The NCASI warm- and cold-water model stream studies have focused on density and biomass impacts, and on growth and reproduction assessments (NCASI 1983, 1985). In general, the North American field studies have shown that biological effects for secondary-treated whole mill effluents (bleached or unbleached) occurred only at high effluent concentrations, often 5 to 10% effluent or more. Therefore, effect levels were noted only when effluent concentrations were one to three orders of magnitude higher than those reported from the Baltic studies.

improvement in the quality of the mill effluent and an appreciable reduction in the degree of environmental impact posed by the discharge. In fact, field surveys of aquatic biota attest to the re-establishment of diverse aquatic communities following the installation and effective operation of secondary treatment systems.

Factors which influence the possible environmental effects of pulp and paper mills are complex, site-specific and operation-dependent. Examples are the nature of the wood furnish and in-plant processes at each site (including those related to pulp washing and chemical recovery as well as pulp pre-bleaching and bleaching). A substantial amount of information, although sometimes contradictory, is available in the published literature which indicates the effect on effluent toxicity of various steps in the mill process, e.g. pulping, pre-bleaching, bleaching and chemical recovery processes. Equally important is the design and operation of external effluent treatment systems (e.g. primary clarifiers, activated sludge systems, or aerated stabilization basins with or without secondary clarifiers, etc.).

The available data base for North American fish and aquatic invertebrate species exposed to treated mill effluents under controlled conditions indicates little if any evidence of significant sublethal toxic effects where secondary treated effluent concentrations are diluted below 1%. For typical North American biotreated, bleached effluents, acute or chronic effects are unlikely at concentration below dilutions of 5 - 10%. This information suggests that, given a modest degree of dilution within receiving waters, adverse impacts on aquatic populations and communities should not be anticipated. Obviously, greater dilution would provide a greater margin of safety.

The results of most field studies conducted on bleached kraft mill effluents support this contention. Where biological treatment is in place and there is adequate dilution, studies do not show a significant adverse environmental impact as conventionally assessed in North America. Frequent alterations in aquatic community structure are present in the mixing zone, but limited to a relatively small area near the outfall. Eutrophication impacts are also frequently documented, with increased productivity observed in several trophic levels (i.e. greater growth rates of fish, greater biomass of benthos, etc.).

Only recently have bleached kraft mills in North America included in their impact assessments the potential for effluent components to accumulate in sediments and aquatic organisms. Society is concerned about adverse human and environmental health effects due to persistent chemicals, since some chlorinated organic chemicals are relatively persistent and have caused adverse health and environmental effects. To address those concerns, the data bases in North America need to be expanded to explore in greater depth the potential adverse impacts from chlorinated organic compounds discharged from bleached pulp and paper mills, kraft or otherwise.

2-C: IN THE ABSENCE OF CHLORINATED ORGANIC CHEMICALS, WHAT ADVERSE

- o other neutral compounds.
- o Productivity impacts due to nutrient releases, and/or due to color impacts on light penetration.
- o Avoidance responses of fish.
- o Hormonal effects due to steroid-like compounds in effluent from natural sources in trees (e.g. sitosterol).
- o Presence of compounds causing tainting (e.g. aromatic thiols).
- o Metabolism and biotransformation of resin acids and other non-chlorinated effluent constituents.

CHARGE 3: SOME STUDIES HAVE REPORTED AN ASSOCIATION BETWEEN PULP EFFLUENTS FROM SWEDISH BLEACHED PULP MILLS AND ADVERSE EFFECTS ON THE AQUATIC COMMUNITY IN THE BALTIC SEA. OTHER STUDIES, CONDUCTED ON EFFLUENTS AND RECEIVING WATERS OF NORTH AMERICAN MILLS, INDICATE THAT PULP EFFLUENTS CAN BE DISCHARGED WITHOUT ADVERSE IMPACT ON THE AQUATIC ENVIRONMENT.

3-A: IN LIGHT OF THE DIFFERENCES BETWEEN THE MILLS AND THE ENVIRONMENTAL SITUATIONS IN SWEDEN AND NORTH AMERICA, DISCUSS THE RELEVANCE OF THE SWEDISH FINDINGS TO PULP MILLS IN NORTH AMERICA.

3-B: DISCUSS THE IMPORTANCE OF EFFLUENT QUALITY AND RECEIVING WATER CONDITIONS IN EXPLAINING THESE APPARENTLY DIFFERENT FINDINGS.

It is clear from the literature describing both laboratory and field investigations that in certain situations, effluents from pulp mills can cause environmental damage in aquatic environments, while under other conditions the receiving ecosystems can remain healthy. The controlling variables appear to be both the quantity and quality of the effluent relative to the physical and chemical properties of the receiving waters. This implies the need for impact assessment protocols that consider the type of habitat and effluent characteristics.

FACTORS INFLUENCING THE APPLICABILITY OF SWEDISH FINDINGS TO NORTH AMERICA

The Swedish work gives strong indication that untreated bleached kraft effluents are harmful to the aquatic environment, and points to organochlorines as contributing to the problem. However, there is conflicting evidence (see Section 2), and it is difficult, if not impossible, to draw accurate quantitative conclusions (i.e. concentrations of effluent that cause effects) based on a comparison of the Swedish studies and those performed in North America on treated BKME. There appear to be too many obvious physical-chemical differences between Swedish and North American sites to make detailed conclusions or extrapolations related to ecological impacts. Results to date can serve as a guide for the qualitative environmental responses to be expected from pulp mill effluents, and in distinguishing those responses which may be used in estimating ecological impact. However, these results should not be used for

anywhere from one to three or more decades (Landner et al. 1977, Reeves et al 1988). In any case, the slow turnover worsens the buildup of pollutants from various sources, including pulp mills.

(4) Salinity stress. The Gulf of Bothnia has a brackish salinity of 1 to 5 parts per thousand compared to approximately 35 for the oceans. Indigenous brackish fish species are lacking, and instead, a mixture of marine and freshwater organisms exists. Some of them are well adapted to the low salinity, but other species may be near the limits of their adaptive capabilities. Some of these species might be more susceptible to the effects of pollution from pulp mills or other sources.

(5) Other environmental factors. Compared to the southern locations of many U.S. mills discharging to inland waters, the temperature of coastal Baltic waters is lower (in winter ca. 0°C, in summer generally not more than 15-18°C), possibly resulting in slower degradation and thus greater persistence of some compounds.

(6) Waste treatment. One clear reason that a great difference might be expected between the Swedish and North American studies is the BOD removal efficiency of secondary treatment given to U.S. effluents.

(7) Start-up irregularities. The Swedish studies "Environment/Cellulose" undertaken during 1983-85 encompassed start-up of new processes at the Norrsundet mill which was the principal site of investigations. In 1976 to 1982, the mill used 85-90 kg of chlorine per ton of pulp produced. In 1983, the mill use decreased to 59 kg per ton and then to 30.5 kg per ton in 1985 (Sandstrom et al 1988; Neuman and Karas 1988). The first value is very high. It is noteworthy that fin erosion was found among fishes in the first year of the project (1983), but not later. In addition, the mill output increased from 120,000 tons of bleached pulp to 220,000 tons in 1983-85. This is evidence that at least some of the findings at Norrsundet may be atypical, and therefore these findings need to be interpreted with caution, especially with respect to their potential applicability to operations in other parts of the world.

(8) Lack of comparative studies. In order to document the particular effects of the bleached component of KME, it is necessary to make a careful and parallel assessment of effects from an unbleached effluent. Such comparative studies by Swedish investigators are largely lacking. For example, detailed assessments of perch and other fish populations were done at the bleached mill, but not at the unbleached one (Neuman and Karas, 1988).

Similarly, Larsson et al. (1988) found physiological disturbances in fish near the bleached kraft mill at Norrsundet, but made the following general statement about studies near the unbleached mill: "...a limited investigation on perch caught in the receiving body of water of a pulp mill without bleaching processes showed no or considerably lower effects on most physiological parameters ...", but the details of

useful line of research. However, at the present it is not possible to establish clear-cut qualitative or quantitative relationships between effects on biomarkers and ecosystems in general, and their comparative importance in North American or Scandinavian environments in particular.

Table 2. Advantages and Limitations of Field Surveys in Ecological Assessments

Advantages

Characterizes the basic ecology of the site, identifying important resident species and community types; based on results from the field survey, relevant species for use in toxicity testing and biomarker analyses can be identified.

Potentially demonstrates definitive ecological effects in the field, delineating zones of effect and no apparent effect.

Field responses integrate temporal and spatial variations in exposure and contaminant concentrations.

Limitations

Results from field surveys may be highly variable, requiring extensive sampling to measure ecological status with sufficient precision for detection of effects; as a result the absence of a statistically measurable effect cannot always be interpreted as no effect.

With survey data alone, causes for observed effects are difficult to determine.

Habitat limitations may limit population and community interpretations.

Table 4. Advantages and Limitations of Biomarkers in Ecological Assessments of Pulp Mill Effluents

<u>Advantages</u>	<u>Limitations</u>
Broadly applicable; a measure of biological response that crosses taxonomic lines.	Relationship between biomarkers and population-level effects in the field are not well defined.
Provide insight into the potential mechanisms of contaminant effects.	Biomarkers are seldom specific for individual compounds.
Can be applied in both the laboratory and the field, providing an important link between laboratory and field assessments.	Require particular care in sample handling.
For field samples, biomarkers provide an important index of bioavailability with "real-world" exposures.	For mobile species, difficult to define "exposure", may require destructive sampling.

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DIOXIN

in the Environment: Environmental Its Effect on Human Health

A Report by
the American Council
on Science and Health

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In several communities in the United States, dioxin has been detected along roadsides, in soil samples from residential yards, and in lots adjacent to abandoned chemical manufacturing plants.

During the past few years, the study and control of contamination by the chemical dioxin have drawn the attention of many scientists and the public. At the Love Canal neighborhood in Niagara Falls, New York; in Times Beach, Missouri; in Newark, New Jersey and elsewhere, dioxin has been detected along roadsides, in soil samples from residential yards and in lots adjacent to abandoned chemical manufacturing plants.

Major concerns were raised about the exposure of military personnel to dioxin while using the defoliant, Agent Orange, during the Vietnam War. It was probable that many thousands were exposed, and 15 to 20 years after the fact, some veterans alleged that their health problems were related to dioxin exposure. A civil suit brought by veterans against seven manufacturers of Agent Orange resulted in an out-of-court settlement establishing a \$180 million trust fund to provide appropriate medical care for the exposed veterans and their families.

On the other hand, two recently completed epidemiological studies, i.e., long-term studies of recurring health problems in a group having a common exposure, have concluded that no significant lasting health

effects or birth defects in the offspring could be found for the veterans, not even those most likely to have been exposed to dioxin. Because of the difficulty in drawing definitive conclusions from such studies, long-term health problems from dioxin exposure could not be ruled out either. Larger epidemiological studies are planned for the future.

What are the known effects of these dioxin residues in the environment? How is the public health community responding? Books and articles have warned us that the health of hundreds of thousands of Americans is threatened by exposure to this toxic chemical. The federal government opted to buy the houses in Times Beach and Love Canal and relocate the residents because of concern that exposure to dioxin might pose an imminent health hazard. Elsewhere, such as the Ironbound section of Newark, no such evacuation was recommended.

This report contains a series of questions and answers addressing the many aspects of the dioxin contamination issue.

What is dioxin?

There are 75 compounds comprising the group of chemicals known as dioxins. The most toxic of these is 2,3,7,8-tetrachlorodibenzo-*p*-dioxin, or TCDD.

When the term "dioxin" is used by the media (and in the remainder of this report), it refers to this specific compound. Its presence as a contaminant in some herbicides has led to enormous media coverage, public debate and scientific inquiry into the effects of dioxin on human health and the environment.

Where does dioxin come from?

Minute levels of dioxin are formed during the production of hexachlorophene and the herbicide, 2,4,5-trichlorophenoxyacetic acid (2,4,5-T), and many chlorinated organic solvents. Dioxins have been detected in the products of combustion of both industrial wastes and domestic trash. They appear to be common in very low concentrations in the burning, especially the incomplete burning, of almost any waste containing chlorine, such as chlorinated plastic (PVC) thrown away in domestic trash. Dioxins have been found in the exhaust of coal-burning power plants and diesel engines — and even volcanoes.

What happens to dioxin when it is released into the environment?

As is the case with many pollutants, most dioxin ends up in the soil. Because dioxin is a non-volatile com-

pound, it does not vaporize and thus will only be found in the atmosphere when carried on dust particles. Dioxin has a very low solubility in water and, when released in rivers or lakes, eventually settles to the bottom and accumulates in the sediment.

Dioxin binds tightly to soil. This tendency keeps dioxin from migrating through soil, making contamination of ground water highly unlikely.¹ Soil particles protect the compound from the ultraviolet rays of the sun, which would otherwise cause the dioxin to break down rapidly.² In most cases of environmental dioxin contamination, the vast majority of the chemical has remained on or near the soil surface.

The half-life, or time required for the breakdown of half the dioxin residue present, has been estimated at one to three years.¹ However, if the dioxin does manage to settle deep beneath the surface, its half-life may exceed ten years because of the additional protection against the sun's ultraviolet rays.

In the sediment of a river or lake, dioxin undergoes a slow yet significant degree of microbiological degradation. The half-life in this environment has also been estimated to be one to three years.¹

If dioxin is generated in tiny amounts, why is there so much concern about a health threat?

Animal experiments have shown dioxin to be extremely toxic to some animals, even in small amounts. The compound has caused a number of adverse effects in laboratory animals including severe blood chemistry changes, liver damage, skin disorders, lung lesions, loss of weight and death.

Animal species vary greatly in their susceptibility to dioxin poisoning. Guinea pigs are the most sensitive of the species tested. Indeed, dioxin's reputation as being extremely toxic is based primarily on tests done on these highly susceptible animals. Hamsters, in contrast, are approximately 5,000 times more resistant than guinea pigs to a single dose of dioxin. The variability of dioxin sensitivity is presented in Table 1, which lists the dose necessary to kill half of the test animals (called LD₅₀ value) for a number of species.

Dioxin is also an animal carcinogen, causing many different tumor types at a number of sites including the liver and thyroid. The specific roles which dioxin plays in cancer development, however, are still being explored. Depending on the test species, dose and other experimental conditions, dioxin may act as a co-carcinogen with another cancer-causing agent or even, surprisingly enough, an anti-carcinogen, meaning that the presence of dioxin inhibits some carcinogens from

**TABLE 1
DIOXIN LD₅₀ VALUES**

Animal	LD ₅₀ (µg/kg body weight)
Guinea Pig	1
Rat-male	22
Rat-female	45
Monkey	<70
Mouse	114
Rabbit	115
Dog	> 300
Bullfrog	> 500
Hamster	5,000

Source: Poland and Knutson, *Annual Review of Pharmacology & Toxicology*, 1982.

inducing cancer in laboratory animals.³ Evidence that it is an actual *initiator* of cancer remains weak. Reproduction studies (three generations) with dioxin have shown that it is not mutagenic in mammals.⁴

Maternal exposure to relatively high levels of dioxin during critical periods of fetal development causes birth defects and fetal death in many animal species. While the defects observed vary from species to species, the high frequency of adverse effects leaves no doubt that dioxin can cause serious reproductive problems, at least at doses above some minimum level, in the female test animal. There is no scientific evidence that male sperm cells are affected by dioxin.

In what kinds of situations are people exposed to dioxin?

Human exposure to dioxin can be separated into four distinct groups:

- 1) Accidents at chemical manufacturing plants have exposed workers to large single doses (and in the case of Seveso, Italy, local residents as well);
- 2) Occupational exposure to herbicides has exposed applicators over long periods, including U.S. Air Force personnel who were involved in Agent Orange spraying, and others who work with dioxin-containing products;
- 3) Contamination of the general environment may expose local residents to low doses over potentially lengthy periods, primarily from improper disposal of contaminated industrial waste;
- 4) It is believed that very, very low levels of dioxin con-



ACSH: J. Jones

Exhaust systems of vehicles driven by diesel engines have been shown to contain trace amounts of dioxin, suggesting that dioxin is formed during the combustion of diesel fuel.

tamination are present everywhere, at least in the developed countries, due to the use of herbicides and solvents and the burning of wastes. Dioxin has been detected in pristine lakes, in freshwater fish and in normal human tissues.

What are the known health effects in humans of dioxin exposure?

Only two health effects have so far been repeatedly observed following dioxin exposure; and both are reversible. The first is a skin disorder called chloracne and the second is a general "not feeling well" syndrome including sleeplessness, headache, nausea and irritability. Other effects have been reported in single studies at borderline levels of significance and have thus far failed to be confirmed in any second study. These included: soft-tissue sarcoma (cancer) in Swedish herbicide applicators, increased incidence of stomach ulcers, some birth defects among the offspring of Vietnam veterans and some small changes in certain metabolic measurements. Conclusions are difficult to draw from the single-study effects because any random sample from an unaffected population is likely to display *some* statistically improbable results if many different properties are measured and tested for significance.

Despite the frightening image which the word "dioxin" has come to represent, there are no known human

deaths from exposure to this substance. Some contamination episodes are described below:

Monsanto Workers

An accident at Monsanto Chemical's plant in Nitro, West Virginia on March 8, 1949 exposed more than 200 workers to dioxin. Fumes containing dioxin were emitted when a relief valve opened as a result of an explosion. One hundred twenty-two workers developed chloracne within a few weeks. Other immediate but transient effects were also reported, including headache, dizziness, nausea and general weakness. It is impossible to know what symptoms were specifically caused by dioxin, as many of the observed symptoms can also result from exposure to the other chemicals contained in the fumes.

A 1980 epidemiological study⁵ of 121 of the 122 chloracne victims, 30 years after the incident, permits some judgment about the long-term effects of dioxin. Fewer of these workers had died from cancer than would be expected in a control (unexposed) population. Only 32 of the workers had died from all causes, where 46 deaths would be expected in a comparable sample of that age and size. The authors noted, "It is important that no apparent excess in total mortality or in deaths from malignant neoplasms or diseases of the circulatory system were observed in a group of workers with a high peak exposure to tetrachlorodibenzodioxin who were followed over a period of nearly 30 years." Unfortunately, we do not have data on the dose of dioxin to which the workers were exposed. But we do know that it was sufficient to cause chloracne and other immedi-



ACSH: J. Jones

Guinea pig. Dioxin's reputation as being extremely toxic is based primarily on tests done on guinea pigs. Hamsters, in contrast, are approximately 5,000 times more resistant than guinea pigs to a single dose of dioxin.



E. O. Jones

Following the explosion of a chemical reaction chamber at an ICMESA chemical plant in Seveso, Italy, a section of the community was dusted with an estimated one to four pounds of dioxin. There were no deaths among humans, but plants, birds, rabbits and chickens in the area died soon after the accident.

ate symptoms. Although the total number of people exposed was not large, the results are reassuring for other exposed populations, especially those whose exposure was less than the amount needed to cause chloracne, since no long-term effects have yet been documented among the exposed Monsanto workers who did have chloracne.

Dow Workers

In 1964, 61 Dow Chemical employees were exposed to dioxin levels potentially reaching 10,000 parts per million (ppm), or ten micrograms dioxin per kilogram body weight. After a plant mishap in Michigan, 49 of the exposed employees developed chloracne. As of 1980 (15 years later), no excess in total deaths had occurred among these workers.⁶

Seveso, Italy

One of the most publicized chemical accidents in recent years was the July 1976 accident in Seveso, Italy. Following the explosion of a chemical reaction chamber at the ICMESA chemical plant, a section of the Seveso community was dusted with an estimated one to four pounds of dioxin. In this case, the dioxin was produced during the manufacture of trichlorophenol, a material which was being used to make hexachlorophene.

Some 37,000 people were potentially exposed to the dioxin and several hundred did develop symptoms of acute poisoning. Children and adults complained of nausea, nervous symptoms and chloracne, which was

severe in some cases. The relative contribution of other chemicals released in the explosion towards producing these symptoms is unknown. There were no deaths among humans caused by acute poisoning.

Plants, birds, rabbits and chickens in the area died soon after the accident. The animal mortality was proportional to the dioxin levels in the soil and grass, which were as high as 5.5 ppm in the most heavily contaminated, 180-acre zone.⁶ This finding illustrates a point concerning the relative hazard posed by dioxin in soil. Animals are, for the most part, at a much greater risk, as they are likely to ingest significant and repeated doses of the compound during their normal feeding activities, unlike humans who are unlikely to ingest dirt or plants tainted with dioxin residue.

In the days following the accident, a number of public health measures were instituted by the Italian authorities. Entry into the area of highest contamination was prohibited and 736 inhabitants were evacuated two to three weeks after the accident. Young children, pregnant women and the elderly who resided in the surrounding region that had less, but still significant, contamination were also evacuated. Those remaining were forbidden from consuming fruits, vegetables, meat and dairy products from the area, and domestic animals and livestock were destroyed.

An extensive health surveillance system was put into effect to record any continuing and long-term effects of dioxin exposure on the population. Medical examinations and laboratory tests were performed, pregnant women were closely monitored to record rates of miscarriage and birth defects, and a cancer registry was created to track new cases of cancer.

Chromosomal studies of humans at Seveso who were exposed to high concentrations of dioxin show no evidence of chromosome abnormalities due to dioxin exposure.⁷

A thorough analysis of the health data from the Seveso population shows that affected residents developed chloracne and minor, reversible nerve damage. Clinical studies revealed some impaired liver function, the long-term effects of which are as yet unknown. No other organs or body functions appear to have been affected, nor was reproduction adversely affected. No cases of cancer related to the incident have been observed but study will continue for many years so that long-term effects can be monitored.

Does dioxin cause cancer in humans?

Experiments on laboratory animals have shown that dioxin can cause cancer at very low doses, and this of

course suggests that dioxin could cause cancer in humans. On the other hand, studies of people who have been exposed to dioxin have not shown a relationship between dioxin and cancer and this offers us considerable assurance that traces in the environment do not constitute a cancer hazard. However, the actual number of exposed persons is too small to rule out the possibility of such a hazard. A chromosomal study done at a plant where dioxin-contaminated 2,4,5-T was manufactured showed no chromosomal abnormalities.⁸

Much of the research on dioxin and human carcinogenesis has centered around the compound's alleged ability to cause a rare form of cancer called soft tissue sarcoma (STS). STS is a group of tumors that occur in the muscles, tendons and other connective tissues, fat tissues, blood vessels and nerves.

Researchers in Sweden concluded that development of STS was more likely to occur among workers occupationally exposed to dioxin-contaminated phenoxy acids in agricultural chemicals. Between 1970 and 1976 there were 19 cases of STS among such workers compared with 11 expected cases. Another Swedish study found that railroad workers who handled dioxin-contaminated herbicides suffered an elevated rate of cancer mortality, with six cases observed compared with three cases expected in the sample of 207 men.¹ Since no specific tumor type predominated among the six cases,¹ it is highly questionable whether dioxin was, in fact, related to the cancer mortality.

The dioxin/STS hypothesis was tested by researchers in Finland and New Zealand. The results there differed from those in Sweden. In neither case was any association seen between occupational dioxin exposure and STS, despite the fact that these workers used the same herbicides during the same time period as did the workers in Sweden. Dioxin content in commercial 2,4,5-T used in Finland ranged from 0.1 to 0.9 ppm during the 1960s.¹ The daily dose of dioxin absorbed by an applicator has been calculated to be some 500 times less than the highest level failing to produce a carcinogenic effect (called the no-effect level) in humans based on extrapolation from experimental rodent data.¹ Soft tissue sarcomas are relatively rare, thus few pathologists have been able to achieve a high degree of consistency in their diagnosis. Most experts believe that if dioxin was acting as a carcinogen it would cause an increase of one type of soft tissue sarcoma. In the Swedish studies there was no documented evidence either to intensity, frequency or time of duration of exposure. The results can be confused by exposure to other chemicals, such as amitrole, which is a known carcinogen.

In short, while the Swedish conclusions suggest a link



E. O. Jones

When dioxin contamination occurs, pets and livestock are more likely to be in danger than humans are, because the animals may ingest tainted soil and plants during their normal feeding activities, while humans are unlikely to do so.

between dioxin and STS, there has been no confirmatory evidence to support it, despite an effort by researchers to specifically monitor STS rates in comparable sample populations.

Studies on workers exposed to dioxin during occupational accidents (between 1949 and 1968) failed to establish a dioxin/cancer association. Monsanto, BASF, Boehringer, Philips, Dow, Coalite and Spolana workers all suffered some degree of acute dioxin toxicity symptoms. But of the seven groups, only the BASF group showed any excess cancer mortality. There, the three cases of stomach cancer seen in one age bracket meant that the rate for that cancer was nine times higher than normal. The Monsanto and Dow studies did reveal a few cases of STS, although the cancer rate for all tumor types was not elevated. While the doses to these workers are unknown, the dioxin levels in waste residues were very high, ranging from 140 to 2,400 ppm.¹

Does dioxin cause birth defects?

Laboratory studies show that dioxin causes birth defects when female test animals are exposed to the compound. However, as with cancer, no solid evidence exists linking dioxin with birth defects in humans. Claims have been made to the contrary, but they have been based largely on medically unvalidated and statistically unrepresentative anecdotal reports lacking the sound data base necessary to establish a cause-and-effect relationship.

Typical of these are the Alsea studies released by the Environmental Protection Agency (EPA) in 1979. EPA scientists concluded that there was a relationship between the use of a dioxin-containing herbicide, 2,4,5-T, and an increase in miscarriages among women living in a sprayed region in Alsea, Oregon.

The Alsea II report was understood by many in the lay community as proving that dioxin in 2,4,5-T caused reproductive abnormalities. However, after the report was made public, many scientists challenged the EPA's conclusions. More than 18 reviews of this study have uncovered numerous flaws in the study design, statistical analysis, and interpretation of the results. Criticism of the study was extensive, consistent and practically unanimous. For example, EPA concluded that a seasonal peak in miscarriages followed 2,4,5-T spraying. Close examination of the data by other scientists showed that this peak did not exist.

A number of epidemiological studies have been done to determine what, if any, relationship exists between paternal exposure to dioxin and birth defects. Children fathered by Australian veterans of the Vietnam War who served during the period when dioxin-contaminated defoliants such as Agent Orange were sprayed have not experienced elevated numbers of birth defects. Mothers of these children have not had unusually high numbers of miscarriages. Reproductive outcome of the offspring of male applicators of 2,4,5-T with an average dioxin content of 0.1 ppm in New Zealand has been normal.¹ Similarly, all children born to men affected by the Spolana accident in Czechoslovakia were free of birth defects; miscarriage incidence among their wives was below expected levels.¹

Two major epidemiological studies were completed in 1984 on Vietnam veterans exposed to dioxin in the period 1963 to 1971.^{9,10} The first, the so-called "Ranch Hand Study," because of the code name for the defoliation operations, was conducted by the Air Force and compared the 15 to 20 year health histories of 1,045 herbicide applicators with 19,000 other veterans believed to have had no exposure. The study stressed investigation of chloracne and any incidence of soft tissue sarcoma. In all cases, no adverse health effects were found. Some borderline incidence of increased infant deaths and minor birth defects was observed and noted for follow-up in future studies. The investigators concluded, "current evidence is insufficient to support a causal relationship between herbicide exposure and adverse health."

The second study was conducted by the federal Centers for Disease Control (CDC) on the family health histories of 7,000 children born with birth defects in the Atlanta



ACSH: J. Jones

Dioxin has a very low solubility in water, and when released in rivers or lakes, eventually settles to the bottom and accumulates in the sediment.

area. The parents with Vietnam experience (about 10 percent of the total sample) composed the contrast group for comparison with the others as the control group. Reassuringly, no significant correlation of birth defects or changes in fertility was found to be associated with the Vietnam experience. Weak indications were observed at the level of statistical significance for two specific birth defects: spina bifida (a spinal deformation) and congenital tumors. Again, these results were deemed inconclusive, and will be watched in the future.

Dow Chemical has a large herbicide manufacturing plant in Midland, Michigan. The Michigan Department of Public Health looked at the number of birth defects among Midland County residents and found no excess of any kind.

Researchers in Hungary studied the relationship between 2,4,5-T use and birth defects from 1966 to 1977, a period which coincided with a 30-fold increase in use of the herbicide in that country.¹ No increase in the national frequency of birth defects was detected.

Reproductive patterns were monitored closely in Seveso in the years following the 1976 dioxin exposure. Had the dioxin contamination induced miscarriage, rates would have been highest during the remainder of 1976, the period when women already pregnant in July (the time of the accident) would still be carrying their unborn offspring. Yet the frequency of miscarriage did not deviate from expected levels during these six months. A small decrease in fertility (defined as the

number of new pregnancies) was observed during the months following the accident, possibly suggesting that there may have been an adverse effect from the dioxin or other chemicals released into the environment. More likely though, this reflected a conscious decision by many parents not to have children for fear of dioxin exposure.

In summary, the epidemiological evidence collected to date does not implicate dioxin as a cause of birth defects or miscarriages in humans. Among exposed populations which have been studied, dioxin exposures were not found to adversely affect reproduction. These findings should be a source of comfort to residents of places like Times Beach and Newark, where exposure levels have been substantially lower than in the various industrial accidents.

What happened at Times Beach, Missouri?

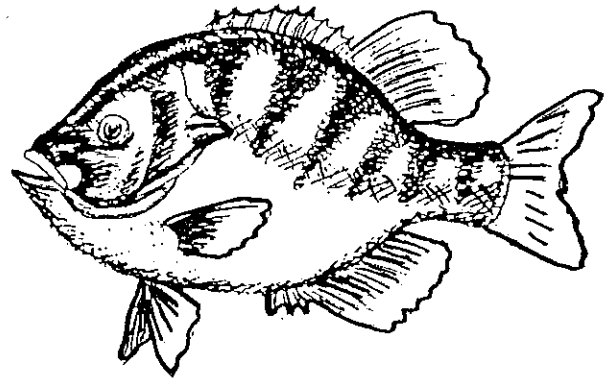
The dioxin contamination of Times Beach, Missouri was perhaps the most widely publicized episode of chemical contamination in the U.S. since the Love Canal story of 1978. Times Beach, a small town of approximately 2,000 residents located 25 miles southwest of St. Louis, drew national attention in December, 1982 after flood waters swept through the area. Concern was raised that contaminated soil which had been present along the roadside had been dispersed widely throughout the town. The incident resulted in a federal buyout and relocation of the Times Beach residents.

How did the dioxin get there?

In 1971, a private waste hauler sprayed dioxin-contaminated waste oil on unpaved roads as a dust retardant. In addition to the roads, two horse arenas were sprayed with the oil. A number of horses and small animals died and two children playing in one of the arenas developed chloracne.¹¹

Investigations were conducted by state officials and the federal government's Centers for Disease Control (CDC). By 1974, CDC scientists concluded that dioxin poisoning was the cause of the horse and other animal deaths. Monitoring of soil samples revealed dioxin concentrations of 31 to 33 ppm in the horse arenas. Dioxin levels in Times Beach soil taken after the 1982 flood ranged from non-detectable levels to 0.3 ppm.¹² The highest level measured in town then was 100 times less than that found in the horse arenas some ten years earlier and approximately 15 times less than the highest level measured in the soil at Seveso, Italy after the 1976 accident.

During the autumn of 1982, EPA tested residues at the chemical plant which was the source of the dioxin



Surveys of Great Lakes fish show that the average levels of dioxin residues in various species range from 40 ppt in Lake Ontario eel and smelt to less than 10 ppt in most species in Lake Erie. Comparisons show that consumers of fish with 25 ppt of dioxin residue would be exposed to less than 1/70th the no-effect level and less than 1/7000th of the carcinogenic level in test animals.

sprayed on roads in 1971. Results showed dioxin present in concentrations of up to 0.3 ppm.

After the December floods, officials feared that the dioxin along the roads might have dispersed, increasing the chances that the population would be exposed. The news hit the front pages across the country. Many Times Beach residents began to fear for their health.

The EPA had never dealt with a comparable dioxin contamination situation. There was no tolerance level for dioxin to use as a criterion upon which to base risk assessment and strategy. The CDC was called in and after extensive epidemiological and statistical modeling, a limit or action level of one ppb (one part per billion) dioxin in soil was announced. CDC calculated, on the basis of hypothetical, yet currently accepted, models of risk estimation, that a 70-year exposure to soil concentrations of one ppb dioxin might cause one excess case of cancer per million people. A major consideration was the possibility that children would be most heavily exposed by ingestion of dirt while playing.¹³ New evidence suggests that laboratory animals exhibit symptoms of dioxin poisoning after ingestion of dioxin-contaminated soil.¹⁴ With Times Beach soil contaminated at levels reaching 0.3 ppm in some samples, CDC recommended evacuation. Times Beach was placed on top of the national priority list of hazardous waste sites. A state of emergency was declared and

federal funds in excess of \$30 million and a \$3 million state contribution were allocated to buy the houses and resettle the residents.

Do the residents of Times Beach exhibit any symptoms of dioxin poisoning?

A pilot epidemiological study of Times Beach residents and of controls conducted by the CDC, Missouri Division of Health, St. Louis University School of Medicine and St. Joseph's Hospital in Kirkwood, Missouri was completed in October 1983. The project consisted of three phases—a questionnaire survey to obtain information on medical histories and risk of exposure to dioxin, a clinical screening for chloracne, and extensive examinations comparing persons with high potential of dioxin exposure to persons with little or no risk of dioxin exposure.

The results of the study were encouraging. In a letter to all participants, the Missouri Division of Health concluded that "we have not been able to identify meaningful ill-health effects related to potential exposure to dioxin. . . . The results show that the high risk group of participants had the same rate of health problems as the low risk group . . . every participant had a skin examination, but no case of chloracne was found. . . . To summarize, this pilot investigation did not turn up evidence suggesting that dioxin has caused any serious health problems in the 104 persons who were studied."¹⁵

Extensive clinical studies of the Times Beach residents reported in 1986¹⁶ were similar to the earlier work in that no conclusive evidence of damaging health effects was found. The study compared 154 exposed persons with an unexposed control group of 155 people having similar lifestyles and medical histories. In an extensive battery of over fifty tests, the differences found between the two groups were some subclinical changes in liver function and some depression of the cellular immune function in the exposed group. In neither case, after whatever exposure took place between 1971 and 1983, had there been any evidence of increased liver disease or general illness in the exposed group as of 1986. Researchers will follow up on the effects noted in future years.

Has the area been cleaned up?

Not yet. Authorities in Missouri have yet to determine how best to dispose of the wastes. An interim disposal site at some Missouri location will be selected while the search for a permanent facility continues.

Is the average American being exposed to dioxin today and, if so, at what levels?

Large scale surveys to answer these questions have never been done but are in the planning stage by the EPA at the present time. The CDC recently announced plans for a \$57 million study of dioxins, "its most complex, ever." With the advent of instruments capable of detecting extremely low concentrations (parts per trillion) of specific chemicals, it comes as no surprise that evidence is accumulating that dioxins, like many other contaminants, are present in extremely low quantities nearly everywhere in the developed world.



When compared with large-scale and indisputable public health hazards such as cigarette smoking, drug abuse and drunk driving, the damage to society and individuals caused by dioxin exposure is negligible.

In spite of the widespread, low level contamination, based on the facts which have been accumulated to date it is highly unlikely that the health of Americans is being affected adversely by dioxin. The symptom-causing exposures of the past have exclusively consisted of herbicide-related accidents and occupational exposures. The EPA severely restricted use of 2,4,5-T in 1979 (inappropriately, in the opinion of many scientists) and is moving towards complete elimination of the use of the herbicide in this country (presently, it is permitted

on rice paddies and rangelands). The 2,4,5-T that is currently used has an average dioxin concentration of only 0.01 ppm, a one hundred-fold reduction compared to the 1 ppm level often present in the 2,4,5-T manufactured twenty years ago. Indeed, some 2,4,5-T made 20 years ago contained 25 ppm or more.¹⁷

The Food and Drug Administration (FDA) has set guidelines for dioxin concentration in edible fish at 25 parts per trillion (ppt). This regulatory decision was arrived at by extrapolating data from rodent laboratory experiments. A simplified explanation of this complex procedure follows.

Surveys of Great Lakes fish determined that the average levels of dioxin residues in various species of fish ranged from 40 ppt in Lake Ontario eel and smelt to less than 10 ppt in most species in Lake Erie.¹⁸ By comparing the amount of dioxin ingested by fish eaters with the no-effect level of dioxin in rodents, it was shown that consumers of fish with 25 ppt of dioxin residue would be exposed to less than 1/70th the no-effect level and less than 1/7000th of the carcinogenic level in test animals.¹⁸ These guidelines are believed to provide a more than adequate margin of safety.

How effective are epidemiological studies and how much of this type of investigation is enough?

It is frustrating to the concerned public to find so many large epidemiological studies ending with "inconclusive results" on the main questions and then reporting weak statistical signals suggesting that some new and previously unsuspected health effect may be present. Unfortunately, it is in the nature of these studies that the two dilemmas exist. They must be expected from future epidemiological studies as well.

Suppose that in fact there is no health effect from a particular exposure. The epidemiological study, or indeed, even a perfectly controlled experiment, will never be able to "prove" that fact, for to do so would be to prove a negative proposition. The best that scientists can hope to do is investigate more and more cases to strengthen their conviction that "no evidence can be found" that the effect in question exists.

At some point we must decide when the investigation has gone far enough. The CDC study of Vietnam-related birth defects in Atlanta cost \$2.8 million; the Air Force Ranch Hand Study cost \$11 million; the future CDC study was planned to cost \$57 million.

On the other hand, as was pointed out earlier, it is likely that *something* unusual will show up in every one of these studies through the workings of chance alone. It is

like a bridge hand which, while it is unlikely to hold any specific combination of cards, is quite likely to contain *some* unusual combination.

Again, scientists must make a judgment about the likely significance of the newly discovered effect and responsible lay people must decide whether to allocate more scarce resources to further investigation.

Epidemiological studies of dioxin have certainly reached a high degree of sophistication and are receiving the benefit of continuing public concern. For example, the Veterans Administration periodically reviews all literature on dioxin with a team of independent medical specialists as mandated by Public Law 96-151, passed in 1979. The 1985 review covered 250 documents published in 1984, two-thirds of which were primary sources.¹⁹ Five major epidemiological studies were reviewed for all of the suspected effects of dioxin exposure. No significant new results were found and the overall conclusion was that present information "was not sufficiently advanced for definitive conclusions on human health effects of low-level exposure."

The great value of epidemiological studies is that where a strong cause-and-effect relationship exists, it will almost certainly show up conclusively in a large sample. This will be true even when the cause (high dioxin exposure) and thus the effect (chloracne) are quite rare in the general population. Only such strong relationships can be conclusively established. It can be very useful, however, to know through epidemiological studies that a strong relationship *probably* does not exist if the studies keep coming in with inconclusive results.

We may never know whether or not weak effects exist. It might be argued that at some point we have enough information to be able to say, "The effect, if any, from this cause is lost in the background of the effect from all other causes." Then we would set prudent limits on future contamination by the target substance and turn our scientific attention, which is a limited resource, to other concerns. In the judgment of many scientists, this time has come for dioxin.

Dioxin Contamination: A Perspective

The lack of any lingering effects among the heavily exposed citizens (including the young and elderly) of Seveso, Italy is comforting for every civilian population exposed to environmental dioxin, since the doses at Seveso were higher than in any other civilian exposure situation, except the Missouri horse arenas. Knowledge about any possible long-term effects based on the Seveso experience is limited because a relatively short time (only ten years) has passed since the accident.

However, the Monsanto workers who were exposed to enough dioxin to cause chloracne and other acute symptoms in 1949 have been studied for more than thirty years. Epidemiological studies of this group have yet to demonstrate any long-term effect of dioxin on the people who were exposed.

At the Scientific Dispute Resolution Conference in Arlington, Virginia²⁰ it was concluded that "phenoxy herbicides containing TCDD have not been shown to be carcinogenic in humans in retrospective epidemiologic studies to date. . . . Analysis of the available data leads this group to the conclusion that no adverse effects on human reproduction have yet been demonstrated after exposure to 2,4,5-T or TCDD." These data came from the United States, Sweden, New Zealand, Australia, Vietnam and Italy.

Possibilities that dioxin may yet cause long-term health problems do remain. The low exposure over many years in a Newark neighborhood adjacent to a chemical manufacturing plant may affect health differently than the large exposure at the Monsanto plant. Conclusions drawn from study of workers may not be able to provide information about the general population, which includes people of all age groups with the complete scope of human illnesses, in addition to healthy working men. Nevertheless, thus far we have no evidence suggesting that either short-term or long-term health effects will be seen in populations exposed to low levels of environmental dioxin such as in Times Beach and Newark.

For further reading, the 1985 book, *Dioxins in the Environment*, by Michael A. Kamrin, published by Harper & Row, is recommended.

In perspective, it should be recalled that the evidence suggesting dioxin causes cancer or birth defects is based on animal experiments. Genuine conflict exists in the scientific community about the validity of direct extrapolation of laboratory data to estimates of human risk. Beyond that, in interpreting the laboratory data on dioxin, one should be aware of the fact that a number of naturally occurring chemicals have also been shown to be potent animal carcinogens and teratogens. For example, aflatoxin (present in peanut butter and grain-based foods) is a potent animal carcinogen. However, there is no evidence that the tolerated trace levels in peanut butter and other foods pose any hazard to human health. Further, while there are some 600 to 800 agents known to be teratogenic in laboratory animals, only about 25 or 30 are known to be responsible for human malformations. It is interesting that the first compounds which showed high teratogenic activity were such essential materials as the vitamins A, D, and E, when administered in excessive quantities.

Public health policy must incorporate both scientific and nonscientific considerations. Medical, ecologic, economic, and legislative input, combined with common sense, is necessary for the framing of future public policy on hazardous waste issues such as dioxin.

No one likes to learn that chemicals are polluting the environment. As a health-conscious society, we strive to minimize health risks whenever possible. That potential health damage resulting from dioxin exposure has received so much media attention and caused enormous public concern is indeed ironic. When compared with large-scale and indisputable public health hazards such as cigarette smoking, drug abuse and drunk driving, the damage to society and individuals caused by dioxin exposure is negligible. Based on laboratory animal studies, however, some suspicion of adverse health effects persists. Fortunately, that potential has not been realized in humans, nor is there good reason to expect it to do so in the years ahead.

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