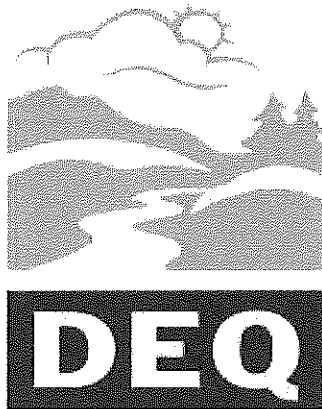


**Part 2 of 2**  
**OREGON**  
**ENVIRONMENTAL QUALITY**  
**COMMISSION MEETING**  
**MATERIALS 01/31/1991**



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

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for any discrepancies in the page numbers**

**REQUEST FOR EQC ACTION**

Meeting Date: February 1, 1991  
Agenda Item: E  
Division: Water Quality  
Section: Groundwater

**SUBJECT:**

Request for Adoption of Rules to Establish a Method and Criteria for Setting Maximum Measurable Levels (MMLs) of Contaminants in Groundwater

**PURPOSE:**

The Department of Environmental Quality (Department) is requesting adoption of proposed rules developed and recommended by the Oregon Groundwater Quality Technical Advisory Committee. The proposed rules establish a method and criteria for setting Maximum Measurable Levels on contaminants in groundwater.

**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 as recommended by the Technical Advisory Committee  
Proposed Rules as modified and recommended by the Department  
Rulemaking Statements  
Fiscal and Economic Impact Statement  
Public Notice

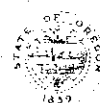
Attachment A

Attachment B

Attachment I

Attachment I

Attachment H



811 SW Sixth Avenue  
Portland, OR 97204-1390  
(503) 229-5696



Meeting Date: February 1, 1991  
Agenda Item: E  
Page 2

<input type="checkbox"/> Issue a Contested Case Order	
<input type="checkbox"/> Approve a Stipulated Order	
<input type="checkbox"/> Enter an Order	
Proposed Order	Attachment <input type="checkbox"/>
<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:	Attachment <input type="checkbox"/>

DESCRIPTION OF REQUESTED ACTION:

The Department is requesting adoption of proposed rules developed and recommended by the technical advisory committee with minor modifications recommended by the Department. These are presented in Attachment B. The Department's recommended modifications were included for review with the technical advisory committee's proposed rules during the public hearing process.

AUTHORITY/NEED FOR ACTION:

<input checked="" type="checkbox"/> Required by Statute: <u>ORS 536.137,468.694</u>	Attachment <input type="checkbox"/>
Enactment Date: <u>July 24, 1989</u>	
<input type="checkbox"/> Statutory Authority: <u>ORS 468.020</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: (explain)

Deadlines established by House Bill 3515:

- EQC to begin rulemaking on establishment of MMLs, 90 days after receiving recommendation from advisory committee, by Dec 20, 1990.
- Adoption of final rules establishing MMLs 180 days after beginning rulemaking process, by June 18, 1991.

DEVELOPMENTAL BACKGROUND:

<input type="checkbox"/> Advisory Committee Report/Recommendation	Attachment <input type="checkbox"/>
<input checked="" type="checkbox"/> Hearing Officer's Report/Recommendations	Attachment <u>D</u>
<input checked="" type="checkbox"/> Summary of Oral and Written Testimony	Attachment <u>E</u>
<input checked="" type="checkbox"/> Response to Testimony/Comments	Attachment <u>C</u>
<input checked="" type="checkbox"/> Prior EQC Agenda Items: (list)	
Request for Authorization to Hold a Public Hearing on Proposed Rules Recommended by the	

Meeting Date: February 1, 1991  
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Advisory Committee (Agenda Item: J, 9/21/90) Attachment \_\_\_\_

Interim Numerical Standards for Maximum  
Measurable Levels of Contaminants in Groundwater.  
(EQC Meeting October 20, 1989)

Groundwater: Proposed Adoption of Interim  
Numerical Standards For Maximum Measurable  
Levels of Contaminants (EQC Meeting May 25, 1990)

Groundwater Act of 1989 (HB 3515)

Attachment \_\_\_\_

X Supplemental Background Information

Minority Statement by David Chandler and  
Lolita Carter

Attachment F

Minority Statement by Mary O'Brien

Attachment G

**REGULATED/AFFECTED COMMUNITY CONSTRAINTS/CONSIDERATIONS:**

The proposed rules will establish a procedure for the preparation of MMLs. The procedure specifies how the Commission will consider information on substances for which MMLs are to be adopted and giving the public a basis to provide input on the development of MMLs.

The proposed rules:

- 1) Declare Maximum Measurable Levels to be protective of public health and the environment.
- 2) Define the intent of an MML as triggering the declaration of a Groundwater Management Area and states that MMLs are not intended for use as clean up standards.
- 3) Define which chemicals are to be considered for MML adoption.
- 4) Establish a procedure for providing early notice to the public of the Department's intent to begin the process to adopt an MML.
- 5) Define when a federal standard is not considered by Oregon to be protective of public health and the environment.

- 6) Outline the procedure used to establish an MML if the federal standard is rejected or no federal standard exists for a substance. Both public health and environmental factors are considered.
- 7) Require the Department to develop and publish Human Health and Environmental Advisories with pertinent information on the effects of the substance in the groundwater.
- 8) Establish a procedure for modifying an MML.

PROGRAM CONSIDERATIONS:

The proposed rules will give the Commission and the Department guidance on future rulemaking activity when establishing MML reference levels in groundwater. Adoption of these rules will have the following effects on the Commission and Department:

- 1) The reference level established by the proposed rules may in many instances require the MML to be set at a different level than the Federal Drinking Water Standard. The Department believes these rules fit well in Oregon's groundwater protection program which is preventative and seeks to avoid contamination of the groundwater or reverse negative trends in groundwater quality. The MML is based on both public health and environmental considerations and could result in a level lower than the federal standard. Alternately, the Federal Drinking Water Standards, Maximum Contaminant Levels (MCLs), focus on the public health issues of using water for drinking and also incorporate treatment technology and economic considerations which tend to increase the numerical level. The enclosed rules (Attachment B) propose that the MMLs would not be adjusted for economic or technological considerations.
- 2) Both the Groundwater Protection Act and the proposed rules define MMLs as being protective of public health and the environment. The proposed rules limit the application of MMLs to contaminants resulting, at least in part, from nonpoint sources. MMLs are intended to be used as a trigger for the declaration of groundwater management areas.
- 3) The legislative deadline of June 18, 1991 for establishment of MMLs will not be met for several reasons. 1) The technical advisory committee believed taking the additional time necessary to establishing the

method and criteria for setting MMLs in rule form was advantageous to the MML process. 2) The proposed rules themselves include additional waiting periods. 3) The Department must prioritize setting MMLs with other work. The Department does not anticipate the requesting adoption of the first MMLs until the October or December, 1991 Commission meeting.

- 4) The Department has determined that only a limited number of MMLs can be established each biennium with available resources. The procedure established in the proposed rules will require additional time and resources beyond those already available.

**ALTERNATIVES CONSIDERED BY THE DEPARTMENT:**

1. The proposed rules could be modified to reflect wording presented in a minority statement prepared by Technical Advisory Committee members David Chandler and Lolita Carter (Attachment F).
2. The Commission could choose to incorporate some of the suggestions presented in the minority statement prepared by Technical Advisory Committee member Mary O'Brien (Attachment G)
3. The Commission could adopt the proposed rules as recommended by the Technical Advisory Committee in their report and presented at the public hearing (Attachment A). The Department believes these rules need some minor administrative revisions.
4. The Commission could adopt the proposed rules with the modifications recommended by the Department and presented during the public hearing and comment period. The proposed rules in Attachment B are the Technical Advisory Committee's proposed rules with the Department's modifications.
5. The Commission could decide not to adopt rules at this time.
6. The Commission could choose to modify the proposed rules before adopting them.

**DEPARTMENT RECOMMENDATION FOR ACTION, WITH RATIONALE:**

The Department recommends the Commission adopt the proposed rules presented in Attachment B. These are the rules proposed by the technical advisory committee, but with some

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primarily administrative modifications recommended by the Department. The Department modifications to the rules are:

- 1) Removal of duplicate general policy statements and definitions.
- 2) Moving part of the "Statement of Purpose" to the policy statement's section.
- 3) Including a compliance clause in the "Notice of Intent" section.
- 4) Rewording of the "Methods to Establish Maximum Measurable Levels" section to indicate the order in which sources of public health data are to be considered.
- 5) Coordinating the review of the MMLs with the Department's tri-annual review of water quality standards.

The Department believes the modifications made to the proposed rules recommended by the Committee reflect the intent of the Committee's proposed rules while including some administrative changes which make them clearer, more concise and less redundant with other groundwater rules.

The Department believes the rules proposed by the Committee are reasonable and workable and staff is reluctant to make major modifications which would differ substantially from those proposed by the Technical Advisory Committee.

**CONSISTENCY WITH STRATEGIC PLAN, AGENCY POLICY, LEGISLATIVE POLICY:**

The Oregon Groundwater Quality Technical Advisory Committee was established by the Groundwater Act of 1989 (HB 3515, Section 24, ORS 536.137). The Committee members were appointed by the Strategic Water Management Group and charged with recommending "a criteria and method for the development of standards that are protective of public health and the environment." The Method and Criteria are to be used to establish Maximum Measurable Levels in groundwater. The legislation states that groundwater quality reaching a percentage of an MML would be used to trigger the designation of a Groundwater Management Area.

In accordance with their charge, the Committee has recommended criteria and a method for development of MMLs and has recommended that the criteria and method be adopted



as rules for the Commission and Department to follow in establishing MMLs.

The Commission, at the September 21, 1990 meeting, gave authorization to the Department to hold public hearings on the Committee's proposed rules and the Department's recommended modifications. Three public hearings were held in November 1990 where 31 persons gave oral testimony; the Department also received written testimony from 61 individuals or organizations.

ISSUES FOR COMMISSION TO RESOLVE:

All of the issues and concerns brought forth during the public hearing process are presented in Attachment C along with the Department's responses. Outlined below are the issues identified as the most controversial along with a short summary of the Department's response.

These issues mostly concern how cancer causing substances are handled in the proposed rules. Two minority statements from members of the technical advisory committee have been submitted on the cancer issue. Attachment F was submitted by Dr. David Chandler and Dr. Lolita Carter. Attachment G has been submitted by Dr. Mary O'Brien.

Issues:

- 1) Is the level of cancer risk (1:1,000,000) specified in the proposed rules justified?

The Department believes this is a policy decision to be made by the Commission. The Commission has chosen to rely on a cancer risk level of one additional cancer in a million people for setting standards for substances in the past.

- 2) Also connected with the cancer issue is the type of model to be used to determine the cancer risk. Should the Department use the linear cancer model which assumes there is no safe level of a cancer-causing substance or a threshold model which assumes that at some concentration a substance is safe to consume and will not cause cancer.

The type of model to be used by the Department is not specified in the proposed rules, although, the linear model is implied by specifying a risk level of 1:1,000,000. In order to establish an MML the Department will need to rely on studies performed by

others. The majority of these studies use some form of the linear model to determine cancer risk. EPA uses the linear model in its calculations and studies and the Department will rely heavily on EPA's analysis to establish MMLs. However, the proposed rules do not preclude the use of other models if the resulting value affords the same level of protection.

- 3) Should Oregon's MML be different than the Federal Maximum Contaminant Level (MCL)? The MML and MCL will be different for many of the substances which cause cancer. There is concern that Oregon will be sending a signal that the MCLs are not protective of Human Health and that there may be a conflict with the federal drinking water standards.

The MML would reflect the state's view on what is protective of public health and the environment and would be used to trigger action to prevent further contamination. The MML would not be reflective of treatment technology nor economics.

- 4) Does the word measurable in the MML mean the reference level established by these proposed rules must be set at a level which is actually measurable using recognized detection methods and not indirectly determined?

Several substances could have MMLs below a commonly attainable detection limit if the 1:1,000,000 cancer risk is used. The technical advisory committee recommended the MML be set at the level associated with what is defined as protective of public health and the environment and not at a detection level which may be higher than what is protective. The Department agrees with this rationale. The legislative intent is unclear on this point although it is clear that the MML should not be zero (0).

- 5) Will the MMLs become "cleanup standards"?

Most testimony indicated that MMLs shouldn't be used as "clean up standards."

The MMLs are a groundwater contamination prevention measure and are to be used as a trigger to declare groundwater management areas.

- 6) Much concern was expressed that the establishment of MMLs and Groundwater Management Areas would interfere with water rights.

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The proposed rules do not pertain to water rights. Control of water rights falls under the authority of the Water Resources Department which have several statutes addressing the issue of water quality and water rights.

- 7) Should synergistic and cumulative effects of substances be addressed in the rules?

Currently there is insufficient information and methods available to establish these levels or administer them. The proposed rules do allow for setting separate MMLs on degradates and metabolites when sufficient information is available to determine a separate MML.

INTENDED FOLLOWUP ACTIONS:

- Adoption of Rules to Establish a Method and Criteria for setting MMLs, February 1, 1991
- Notification to start MML process, July 1991
- Request Authorization to go to Public Hearings on initial MMLs, September 1991
- Hold public hearings, October 1991
- EQC Adopts Initial MMLs, December 1991

Approved:

Section:

Division:

Director:

Richard G. Kepler for AP  
Andrew J. Schaedel for LT  
Bill Hen

Report Prepared By: Richard Kepler

Phone: 229-6804

Date Prepared: December 21, 1990

(RJK:crw)  
(GW\WC7693)  
(1/14/91)

**RULES PROPOSAL:**

**METHODS AND CRITERIA FOR ESTABLISHMENT OF  
MAXIMUM MEASURABLE LEVELS  
OF CONTAMINANTS IN GROUNDWATER**

**STATEMENT OF PURPOSE**

**340-40-100**

The rules within this Division establish the methods and criteria the Environmental Quality Commission shall apply to adopt maximum measurable levels (MMLs) of contaminants in groundwater, resulting from actual or suspected nonpoint sources or activities. These MMLs will be used to designate groundwater management areas.

The maximum measurable levels of contaminants adopted by the Commission using these rules are protective of public health and the environment and existing and future beneficial uses of the groundwater which the natural groundwater quality allows. The Commission recognizes, however, that studies of aquatic and wildlife species are extremely limited. This reduces confidence in the Commission's ability to ensure that maximum measurable levels of contaminants will be protective of those groups in the environment.

The maximum measurable levels established by these rules are not designed to be used as clean-up standards for remedial actions, but to initiate the process of designating groundwater management areas where necessary to preserve groundwater quality.

**DEFINITIONS**

**340-40-105**

Unless otherwise defined in OAR 340-41-006 or OAR 340-40-010, the following terms used in this Division shall mean:

- (1) **Carcinogen:** a compound which the United States Environmental Protection Agency has classified as Group A or Group B under the carcinogenic classification procedures described in 51 Fed. Reg. 33992.
- (2) **Confirmed or Confirmation:** a second laboratory quantitatively detects the presence of the contaminant or substance of concern in groundwater by an established sampling, preservation, and

analytical technique in a laboratory using established quality assurance and quality control procedures, such as indicated in 40 CFR 136 or the Standard Methods For Examination of Water and Waste Water (Latest Edition).

- (3) Contaminant: any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance that does not occur naturally in groundwater or that occurs naturally but at a lower concentration. (HB 3515, Section 17 (2)).
- (4) Detect, Detectable, Detection or Detected: to measure a contaminant by an established sampling, preservation, and analytical technique in a laboratory using established quality assurance and quality control procedures, such as indicated in 40 CFR 136 or the Standard Methods For Examination of Water and Waste Water (Latest Edition).
- (5) Environment: the aggregate of things or conditions affecting the existence, reproduction, growth and development of living organisms, plus the living organisms themselves. The concept shall be interpreted broadly to mean "all aspects of an ecosystem, other than humans".
- (6) Federal Standard: a maximum contaminant level, a national primary drinking water regulation or an interim drinking water regulation adopted by the Administrator of the United States Environmental Protection Agency ("EPA") pursuant to the federal Safe Drinking Water Act (HB 3515, Section 24 (1)).
- (7) Maximum Measurable Level: the maximum allowable concentration of a contaminant or substance of concern that is established by the Commission in accord with these rules, to be used by the Department to initiate the process of designating "Groundwater Management Areas" within the state of Oregon where necessary to preserve groundwater quality. (HB 3515, Section 17 (3)).
- (8) Natural Water Quality: water quality that would exist as a result of conditions unaffected by human-caused pollution. (OAR 340-40-010).
- (9) Nonpoint Source: diffuse or unconfined sources of pollution where contaminants can enter into or be conveyed by the movement of water into public water. (OAR 340-40-010(12)).

- (10) Point Source: any confined or discrete source of pollution where contaminants can enter into or be conveyed by the movement of water to public water. (OAR 340-40-010(14)).
- (11) Protect Public Health and the Environment: to keep humans and the environment from unreasonable adverse risk, effect or harm, excluding economic concerns.
- (12) Substance of Concern: a contaminant confirmed in groundwater in Oregon as a result of actual or suspected nonpoint source activities.

## GENERAL POLICIES

340-40-108

Groundwater is a critical natural resource providing domestic, industrial and agricultural water supply; base flow for rivers, lakes, streams and wetlands; and other beneficial uses. Therefore, the following policy are established.

- (1) Program Priorities: Groundwater quality shall be protected throughout the state of Oregon. However, the Commission shall concentrate its groundwater quality protection implementation efforts in areas where the practices and activities related to the use of one or more substances of concern have the greatest potential for degrading groundwater quality and where potential groundwater quality pollution would have the greatest adverse impact on beneficial uses.
- (2) Beneficial Uses: Groundwater shall be protected for both existing and future beneficial uses so that the State may continue to utilize the resource for whatever beneficial uses the natural water quality allows. High quality groundwater shall be maintained for present and future uses.
- (3) Scientific Evidence: The Commission shall set a maximum measurable level for a contaminant or substance of concern only when there is sufficient scientific evidence to show that the contaminant or substance of concern may cause adverse effects to public health or the environment.
- (4) Naturally Occurring Contaminants: For contaminants that naturally occur in groundwater in concentrations above the maximum measurable level,

the Commission shall consider the natural background level to be the equivalent of the maximum measurable level for that groundwater source.

- (5) **Wildlife:** A preliminary assessment by EPA indicates that aquatic criteria are not in all cases protective of wildlife (e.g., include mercury, selenium, polychlorinated biphenyls, DDT and possibly chlorinated alkanes, benzene, phenols as well as metals in general). However, for contaminants or substances of concern, the Department may rely on the limited information available in EPA's Water Quality Criteria for protection of aquatic and wildlife species as their foundation for recommendations to the Commission, unless scientifically valid evidence shows this to be inadequate.
- (6) **Methods Flow Chart:** A flow chart, Appendix I, graphically describes the methods to be used in establishing maximum measurable levels, which may, as appropriate, be used to interpret these rules.
- (7) **Public Support via Education:** Public support of the groundwater protection program is essential to its long term success, and voluntary compliance will likely lead to the least cost program. Therefore, the Commission is encouraged to conduct ongoing public education and demonstration programs designed to inform the public concerning:
  - (a) Various contaminants,
  - (b) The various elements of the groundwater protection program, and
  - (c) How the public can participate in protecting Oregon's groundwater resource.
- (8) **Other Rules and Statutes Unchanged:** Nothing stated in these rules is intended to change or be changed by OAR 340-40-001 to -080 (General Groundwater Protection); OAR 340, Division 108 (Spills and Other Incidents); OAR 340, Division 150 (Underground Storage Tank Rules); OAR 340, Division 122 (Environmental Clean-up Rules); or OAR 690 Division 10 (Appropriation and Use of Groundwater).

**SUBSTANCES REGULATED UNDER THESE RULES**

**340-40-110**

- (1) The Department shall, pursuant to the procedures adopted in accord with OAR 340-40-125, et. seq., propose to the Commission that it adopt a maximum measurable level for each substance of concern.
- (2) The Department may, pursuant to the procedures adopted in accord with OAR 340-40-125, et. seq., propose to the Commission that it adopt a maximum measurable level for any contaminant that:
  - (a) Is used or has the potential for use in Oregon; and
  - (b) Has the potential to enter groundwater at least partially from one or more nonpoint sources; and
  - (c) May adversely affect public health or the environment.

**NOTICE OF INTENT TO PROPOSE CONTAMINANTS FOR ADOPTION OF A MAXIMUM MEASURABLE LEVEL**

**340-40-120**

- (1) Notwithstanding any other requirement established by law, the Department shall also notify the public of its intent to consider adoption of a maximum measurable level for a contaminant or substance of concern by mailing, first class, postage prepaid, a single page notice to those interested parties who have previously filed written requests to the Department that they be placed on the Department's mailing list for groundwater issues. It shall be the responsibility of the interested parties to maintain their status on that mailing list.
- (2) The notice shall identify the contaminant under consideration and the current federal standard for that contaminant, if any, and shall state the last date by which interested parties may submit to the Department relevant information regarding that contaminant, which date shall not be less than forty-five (45) days after the date of mailing the notice.



- (3) The Department may consider submitted information but need not specifically acknowledge, respond to or address this information in development of its initial proposed maximum measurable levels.

#### METHODS TO ESTABLISH MAXIMUM MEASURABLE LEVELS

340-40-125

- (1) If a federal standard has been promulgated for any substance of concern (OAR 340-40-110(1)) or any contaminant (OAR 340-40-110(2)), the Department shall review and propose only that federal standard to the Commission for adoption as the maximum measurable level, unless at least one of OAR 340-40-125(a)(b)(c) is determined:
  - (a) The Department determines that valid scientific evidence establishes that the federal standard is not protective of human health. To so determine, the Department must declare that at least one of the following applies:
    - (A) For substances of concern or contaminants which are carcinogens, the federal standard represents a risk greater than one additional cancer in one million humans.
    - (B) For all substances of concern or contaminants, the federal standard has not considered relevant scientific evidence that demonstrate the federal standard does not protect public health.
  - (b) The Department determines that valid scientific evidence establishes that groundwater contaminated to the level of that federal standard is not protective of the affected environment.
  - (c) The Department determines that valid scientific evidence establishes that the federal standard is not protective of existing and future beneficial uses of the natural groundwater in Oregon.
- (2) In the event that the Department proposes to reject the federal standard for one or more of the reasons described in section (1) of this rule, the Department shall state the reason(s) in its

proposal and shall propose a maximum measurable level which takes into account the following factors:

(a) Public Health Factors:

(A) For substances of concern or contaminants that are carcinogens, the scientifically valid evidence which supports a conclusion that the Department's proposed maximum measurable level poses a risk level to public health that is less than or equal to one additional cancer in a million humans.

(B) Concentration levels of the substance of concern or contaminant that are considered protective of human health, as a result of evaluation by a federal agency or a recognized scientific advisory group. The Department shall evaluate and rank the available data, conclusions, or recommendations reached by said agencies or advisory groups in the following priority order:

- (i) An EPA proposed maximum contaminant level (MCL) or maximum contaminant level goal (MCLG);
- (ii) An EPA federal health advisory;
- (iii) Assistance from the EPA relative to a federal health advisory or a maximum contaminant level;
- (iv) Recommendations from EPA's Science Advisory Board, the National Academy of Science, the International Agency for Research on Cancer, the European Economic Commission, EPA's Cancer Assessment Group, the Carcinogenic Assessment Verification Endeavor Working Group, the National Toxicology Program, other states that follow EPA-like procedures, and other recognized scientific advisory groups.

(C) Risk to public health is greater than the risk to the environment.

(b) Environmental Factors:

- (A) Scientifically valid evidence that a contaminant or substance of concern in concentrations less than the federal maximum contaminant level (MCL) will cause adverse effects to the environment.
  - (B) Concentration levels of the substance of concern or contaminant that are considered protective of the environment, as a result of evaluation by a federal agency or a recognized scientific advisory group. The Department shall evaluate and incorporate in its proposal the data and recommendations of EPA's Quality Criteria for Water (1986), unless EPA's "National Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses", or other valid scientific evidence demonstrates that EPA's Quality Criteria for Water (1986), is not protective of the environment.
- (3) In the event there is no federal standard for a substance of concern or contaminant to be regulated under OAR 340-40-110 and valid scientific evidence exists to support the development of a maximum measurable level for that substance of concern or contaminant, the Department shall propose a maximum measurable level. If the Department proposes a maximum measurable level under this condition, the Department shall consider the public health factors and the environmental factors set forth in section (2) of this rule.
- (4) In the event no federal standard exists for a substance of concern or contaminant to be regulated under OAR 340-40-110 and there are insufficient scientifically valid data available to the Department to establish that the public health factors and the environmental factors set forth in section (2) of this rule can be met:
- (a) The Department shall request assistance from the EPA to:
    - (A) Set a federal standard when valid scientific evidence warrants;
    - or

- (B) Initiate research on the federal level to determine if scientific evidence will support establishment of a federal standard; or
  - (C) Establish a criterion as defined in Section 304 of the Clean Water Act (33 USCA Section 1314 (a)) which is protective of the environment; and
- (b) The Department shall cause to be published a Health and Environmental Advisory as outlined in OAR 340-40-130, for the contaminant.

#### HUMAN HEALTH AND ENVIRONMENTAL ADVISORIES

##### 340-40-130

- (1) The Department shall provide Human Health and Environmental Advisories for each substance of concern and contaminant to be regulated under OAR 340-40-110. This advisory shall generally follow a standardized format, and shall include, but not be limited to the following information, if known, for the substance of concern or contaminant:
- (a) The common and technical name; CAS number; chemical identity; and synonyms;
  - (b) How it is released to the environment; how it occurs naturally; and its fate in the environment, with particular reference to groundwater quality;
  - (c) The occurrence, or potential for occurrence in groundwater in Oregon;
  - (d) Means of human exposure; fate of the chemical in humans and the human health effects;
  - (e) The environmental effects, including both aquatic and terrestrial organisms;
  - (f) The maximum measurable level established, if any, and the basis for its establishment;
  - (g) How to obtain testing;
  - (h) Brief summary of how to initiate the process of establishing a groundwater area of concern, or groundwater management area;

- (i) Other information, including but not limited to, reference to the Department's staff report upon which the maximum measurable level was proposed; means of treating contaminated water; and reference to various agencies with information relating to groundwater quality.
- (2) A draft of each Human Health and Environmental Advisory shall be submitted with the DEQ staff report when the proposed maximum measurable level is authorized for public hearing.
- (3) The public shall be allowed to comment on the advisory in the public hearing process. The Department will modify the draft advisory, if appropriate, to reflect the public comments.

#### MODIFICATION TO THE MAXIMUM MEASURABLE LEVEL

340-40-135

- (1) The Department shall follow its established schedule for periodic review of all of its rules to determine that all current maximum measurable levels duly adopted by the Commission remain appropriate.
- (2) If a maximum measurable level is based on a federal standard and that standard is duly modified by the authorized federal agency, the Department shall re-evaluate the Commission's adopted maximum measurable level within one hundred eighty (180) days of the date of that federal change. The Department may, after that re-evaluation, either propose to take no action or propose a change to the maximum measurable level, pursuant to these rules.
- (3) The Department may, at any time pertinent scientifically valid information becomes available, propose a change to a maximum measurable level or a new maximum measurable level for any substance of concern or contaminant pursuant to the procedures set forth in these rules.
- (4) The Department may, at any time pertinent scientifically valid information on degradates or metabolites of a parent compound, or interactions thereof, becomes available, propose a change to an existing maximum measurable level or propose a new maximum measurable level for any substance of

concern or contaminant pursuant to the procedures  
set forth in these rules.

**RULES PROPOSAL:**

**NOTE:**

The portions of the text which are underlined and ~~{bracketed}~~ are additions and deletions to the draft rules made in response to public comment.

**METHODS AND CRITERIA FOR ESTABLISHMENT OF  
MAXIMUM MEASURABLE LEVELS  
OF CONTAMINANTS IN GROUNDWATER**

**STATEMENT OF PURPOSE**

**340-40-100**

The rules within this Division establish the methods and criteria the Environmental Quality Commission shall apply to adopt maximum measurable levels (MMLs) of contaminants in groundwater, resulting from actual or suspected nonpoint sources or activities. These MMLs will be used to designate groundwater management areas.

The maximum measurable levels of contaminants adopted by the Commission using these rules are protective of public health and the environment and existing and future beneficial uses of the groundwater which the natural groundwater quality allows. ~~{The Commission recognizes, however, that studies of aquatic and wildlife species are extremely limited. This reduces confidence in the Commission's ability to ensure that maximum measurable levels of contaminants will be protective of those groups in the environment.}~~

The maximum measurable levels established by these rules are not designed to be used as clean-up standards for remedial actions, but to initiate the process of designating groundwater management areas where necessary to preserve groundwater quality.

**DEFINITIONS**

**340-40-105**

Unless otherwise defined in OAR 340-41-006 or OAR 340-40-010, the following terms used in this Division shall mean:

- (1) Carcinogen: a compound which the United States Environmental Protection Agency has classified as Group A or Group B under the carcinogenic classification procedures described in 51 Fed. Reg. 33992.
- (2) Confirmed or Confirmation: a second laboratory quantitatively detects the presence of the contaminant or substance of concern in groundwater by an established sampling, preservation, and analytical technique in a laboratory using established quality assurance and quality control procedures, such as indicated in 40 CFR 136 or the Standard Methods For Examination of Water and Waste Water (Latest Edition).
- (3) Contaminant: any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance that does not occur naturally in groundwater or that occurs naturally but at a lower concentration. ORS 468.691. ~~{(HB-3515, Section-17 (2))-}~~
- (4) Detect, Detectable, Detection or Detected: to measure a contaminant by an established sampling, preservation, and analytical technique in a laboratory using established quality assurance and quality control procedures, such as indicated in 40 CFR 136 or the Standard Methods For Examination of Water and Waste Water (Latest Edition).
- (5) Environment: the aggregate of things or conditions affecting the existence, reproduction, growth and development of living organisms, plus the living organisms themselves. The concept shall be interpreted broadly to mean "all aspects of an ecosystem, other than humans".
- (6) Federal Standard: a maximum contaminant level, a national primary drinking water regulation or an interim drinking water regulation adopted by the Administrator of the United States Environmental Protection Agency ("EPA") pursuant to the federal Safe Drinking Water Act ORS 536.137. ~~{(HB-3515, Section-24-(1))-}~~
- (7) Maximum Measurable Level: the maximum allowable concentration of a contaminant or substance of concern that is established by the Commission in accord with these rules, to be used by the Department to initiate the process of designating "Groundwater Management Areas" within the state of



Oregon where necessary to preserve groundwater quality. ORS 468.691. [~~HB-3515,--Section-17-(3)-;~~]

- ~~(8) Natural Water Quality: water quality that would exist as a result of conditions unaffected by human-caused pollution.---(OAR-340-40-010)-.~~
- ~~(9) Nonpoint Source: diffuse or unconfined sources of pollution where contaminants can enter into or be conveyed by the movement of water into public water.---(OAR-340-40-010(12))-.~~
- ~~(10) Point Source: any confined or discrete source of pollution where contaminants can enter into or be conveyed by the movement of water to public water. (OAR-340-40-010(14))-.~~

(8) ~~(11)~~ Protect Public Health and the Environment: to keep humans and the environment from unreasonable adverse risk, effect or harm, excluding economic concerns.

(9) ~~(12)~~ Substance of Concern: a contaminant confirmed in groundwater in Oregon as a result of actual or suspected nonpoint source activities.

## GENERAL POLICIES

340-40-108

Groundwater is a critical natural resource providing domestic, industrial and agricultural water supply; base flow for rivers, lakes, streams and wetlands; and other beneficial uses. Therefore, the following policy are established.

- (1) Program Priorities: Groundwater quality shall be protected throughout the state of Oregon. However, the Commission shall concentrate its groundwater quality protection implementation efforts in areas where the practices and activities related to the use of one or more substances of concern have the greatest potential for degrading groundwater quality and where potential groundwater quality pollution would have the greatest adverse impact on beneficial uses.
- (2) Beneficial Uses: Groundwater shall be protected for both existing and future beneficial uses so that the State may continue to utilize the resource for whatever beneficial uses the natural water quality allows. High quality groundwater shall be maintained for present and future uses.

- (3) Scientific Evidence: The Commission shall set a maximum measurable level for a contaminant or substance of concern only when there is sufficient scientific evidence to show that the contaminant or substance of concern may cause adverse effects to public health or the environment.
- (4) Naturally Occurring Contaminants: For contaminants that naturally occur in groundwater in concentrations above the maximum measurable level, the Commission shall consider the natural background level to be the equivalent of the maximum measurable level for that groundwater source.
- (5) Wildlife: A preliminary assessment by EPA indicates that aquatic criteria are not in all cases protective of wildlife (e.g., include mercury, selenium, polychlorinated biphenyls, DDT and possibly chlorinated alkanes, benzene, phenols as well as metals in general). However, for contaminants or substances of concern, the Department may rely on the limited information available in EPA's Water Quality Criteria for protection of aquatic and wildlife species as their foundation for recommendations to the Commission, unless scientifically valid evidence shows this to be inadequate.
- (6) The Commission recognizes, however, that studies of aquatic and wildlife species are extremely limited. This reduces confidence in the Commission's ability to ensure that maximum measurable levels of contaminants will be protective of those groups in the environment.

~~(7) [(6)]~~ Methods Flow Chart: A flow chart, Appendix I, graphically describes the methods to be used in establishing maximum measurable levels, which may, as appropriate, be used to interpret these rules.

~~(8) [(7)]~~ Public Support via Education: Public support of the groundwater protection program is essential to its long term success, and voluntary compliance will likely lead to the least cost program. Therefore, the Commission is encouraged to conduct ongoing public education and demonstration programs designed to inform the public concerning:

(a) Various contaminants,

- (b) The various elements of the groundwater protection program, and
- (c) How the public can participate in protecting Oregon's groundwater resource.

~~(9) [(8)]~~ Other Rules and Statutes Unchanged: Nothing stated in these rules is intended to change or be changed by OAR 340-40-001 to -080 (General Groundwater Protection); OAR 340, Division 108 (Spills and Other Incidents); OAR 340, Division 150 (Underground Storage Tank Rules); OAR 340, Division 122 (Environmental Clean-up Rules); or OAR 690 Division 10 (Appropriation and Use of Groundwater).

#### SUBSTANCES REGULATED UNDER THESE RULES

##### 340-40-110

- (1) The Department shall, pursuant to the procedures adopted in accord with OAR 340-40-125, et. seq., propose to the Commission that it adopt a maximum measurable level for each substance of concern.
- (2) The Department may, pursuant to the procedures adopted in accord with OAR 340-40-125, et. seq., propose to the Commission that it adopt a maximum measurable level for any contaminant that:
  - (a) Is used or has the potential for use in Oregon; and
  - (b) Has the potential to enter groundwater at least partially from one or more nonpoint sources; and
  - (c) May adversely affect public health or the environment.

#### NOTICE OF INTENT TO PROPOSE CONTAMINANTS FOR ADOPTION OF A MAXIMUM MEASURABLE LEVEL

##### 340-40-120

- (1) Notwithstanding any other requirement established by law, the Department shall also notify the public of its intent to consider adoption of a maximum measurable level for a contaminant or substance of concern by mailing, first class, postage prepaid, a single page notice to those

interested parties who have previously filed written requests to the Department that they be placed on the Department's mailing list for groundwater issues. The Department will have complied with 340-40-120(1) when it mails the notice to its current interested parties mailing list. It shall be the responsibility of the interested parties to maintain their status on that mailing list.

- (2) The notice shall identify the contaminant under consideration and the current federal standard for that contaminant, if any, and shall state the last date by which interested parties may submit to the Department relevant information regarding that contaminant, which date shall not be less than forty-five (45) days after the date of mailing the notice.
- (3) The Department may consider submitted information but need not specifically acknowledge, respond to or address this information in development of its initial proposed maximum measurable levels.

#### METHODS TO ESTABLISH MAXIMUM MEASURABLE LEVELS

##### 340-40-125

- (1) If a federal standard has been promulgated for any substance of concern (OAR 340-40-110(1)) or any contaminant (OAR 340-40-110(2)), the Department shall review and propose only that federal standard to the Commission for adoption as the maximum measurable level, unless at least one of OAR 340-40-125(a)(b)(c) is determined:
  - (a) The Department determines that valid scientific evidence establishes that the federal standard is not protective of human health. To so determine, the Department must declare that at least one of the following applies:
    - (A) For substances of concern or contaminants which are carcinogens, the federal standard represents a risk greater than one additional cancer in one million humans.
    - (B) For all substances of concern or contaminants, the federal standard has not considered relevant scientific

evidence that demonstrate the federal standard does not protect public health.

- (b) The Department determines that valid scientific evidence establishes that groundwater contaminated to the level of that federal standard is not protective of the affected environment.
  - (c) The Department determines that valid scientific evidence establishes that the federal standard is not protective of existing and future beneficial uses of the natural groundwater in Oregon.
- (2) In the event that the Department proposes to reject the federal standard for one or more of the reasons described in section (1) of this rule, the Department shall state the reason(s) in its proposal and shall propose a maximum measurable level which takes into account the following factors:
- (a) Public Health Factors:
    - (A) For substances of concern or contaminants that are carcinogens, the scientifically valid evidence which supports a conclusion that the Department's proposed maximum measurable level poses a risk level to public health that is less than or equal to one additional cancer in a million humans.
    - (B) Concentration levels of the substance of concern or contaminant that are considered protective of human health, as a result of evaluation by a federal agency or a recognized scientific advisory group. The Department shall evaluate ~~and rank~~ the available data, conclusions, or recommendations reached in the following sources of data by said agencies or advisory groups and determine whether a value can be identified as protective of human health. Once a value is identified as protective of human health, the Department will propose that value to the Environmental Quality Commission as the proposed MML. The Department will consider data sources in the following priority order:

- (i) An EPA proposed maximum contaminant level (MCL) or maximum contaminant level goal (MCLG);
- (ii) An EPA federal health advisory;
- (iii) Assistance from the EPA relative to a federal health advisory or a maximum contaminant level;
- (iv) Recommendations from EPA's Science Advisory Board, the National Academy of Science, the International Agency for Research on Cancer, the European Economic Commission, EPA's Cancer Assessment Group, the Carcinogenic Assessment Verification Endeavor Working Group, the National Toxicology Program, other states that follow EPA-like procedures, and other recognized scientific advisory groups.

(C) Risk to public health is greater than the risk to the environment.

(b) Environmental Factors:

- (A) Scientifically valid evidence that a contaminant or substance of concern in concentrations less than the federal maximum contaminant level (MCL) will cause adverse effects to the environment.
- (B) Concentration levels of the substance of concern or contaminant that are considered protective of the environment, as a result of evaluation by a federal agency or a recognized scientific advisory group. The Department shall evaluate and incorporate in its proposal the data and recommendations of EPA's Quality Criteria for Water (1986), or subsequent update of this publication, unless EPA's "National Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses", or other valid scientific evidence demonstrates that EPA's Quality Criteria for Water (1986), is not protective of the environment.

- (3) In the event there is no federal standard for a substance of concern or contaminant to be regulated under OAR 340-40-110 and valid scientific evidence exists to support the development of a maximum measurable level for that substance of concern or contaminant, the Department shall propose a maximum measurable level. If the Department proposes a maximum measurable level under this condition, the Department shall consider the public health factors and the environmental factors set forth in section (2) of this rule.
- (4) In the event no federal standard exists for a substance of concern or contaminant to be regulated under OAR 340-40-110 and there are insufficient scientifically valid data available to the Department to establish that the public health factors and the environmental factors set forth in section (2) of this rule can be met:
  - (a) The Department shall request assistance from the EPA to:
    - (A) Set a federal standard when valid scientific evidence warrants;  
or
    - (B) Initiate research on the federal level to determine if scientific evidence will support establishment of a federal standard; or
    - (C) Establish a criterion as defined in Section 304 of the Clean Water Act (33 USCA Section 1314 (a)) which is protective of the environment; and
  - (b) The Department shall cause to be published a Health and Environmental Advisory as outlined in OAR 340-40-130, for the contaminant.

#### HUMAN HEALTH AND ENVIRONMENTAL ADVISORIES

##### 340-40-130

- (1) The Department shall provide Human Health and Environmental Advisories for each substance of concern and contaminant to be regulated under OAR 340-40-110. This advisory shall generally follow a standardized format, and shall include, but not be

limited to the following information, if known, for the substance of concern or contaminant:

- (a) The common and technical name; CAS number; chemical identity; and synonyms;
  - (b) How it is released to the environment; how it occurs naturally; and its fate in the environment, with particular reference to groundwater quality;
  - (c) The occurrence, or potential for occurrence in groundwater in Oregon;
  - (d) Means of human exposure; fate of the chemical in humans and the human health effects;
  - (e) The environmental effects, including both aquatic and terrestrial organisms;
  - (f) The maximum measurable level established, if any, and the basis for its establishment;
  - (g) How to obtain testing;
  - (h) Brief summary of how to initiate the process of establishing a groundwater area of concern, or groundwater management area;
  - (i) Other information, including but not limited to, reference to the Department's staff report upon which the maximum measurable level was proposed; means of treating contaminated water; and reference to various agencies with information relating to groundwater quality.
- (2) A draft of each Human Health and Environmental Advisory shall be submitted with the DEQ staff report when the proposed maximum measurable level is authorized for public hearing.
- (3) The public shall be allowed to comment on the advisory in the public hearing process. The Department will modify the draft advisory, if appropriate, to reflect the public comments.

#### MODIFICATION TO THE MAXIMUM MEASURABLE LEVEL

340-40-135

- (1) The Department shall follow its established schedule for periodic review of all of its rules



to determine that all current maximum measurable levels duly adopted by the Commission remain appropriate.

- (2) If a maximum measurable level is based on a federal standard and that standard is duly modified by the authorized federal agency, the Department shall re-evaluate the Commission's adopted maximum measurable level in conjunction with the Department's tri-annual review of water quality standards or before, if the Department considers it necessary to do so. ~~{within one hundred eighty (180) days of the date of that federal change.}~~ The Department may, after that re-evaluation, either propose to take no action or propose a change to the maximum measurable level, pursuant to these rules.
- (3) The Department may, at any time pertinent scientifically valid information becomes available, propose a change to a maximum measurable level or propose a new maximum measurable level for any substance of concern or contaminant pursuant to the procedures set forth in these rules.
- (4) The Department may, at any time pertinent scientifically valid information on degradates or metabolites of a parent compound, or interactions thereof, becomes available, propose a change to an existing maximum measurable level or propose a new maximum measurable level for any substance of concern or contaminant pursuant to the procedures set forth in these rules.

RESPONSE TO TESTIMONY RECEIVED DURING THE COMMENT PERIOD AND  
AT THE PUBLIC HEARINGS FOR PROPOSED RULES TO  
ESTABLISH A METHOD AND CRITERIA FOR SETTING  
MAXIMUM MEASURABLE LEVELS (MML) IN GROUNDWATER

The Department held three public hearings during November 1990 on proposed rules to establish a method and criteria for setting Maximum Measurable Levels (MMLs) in groundwater. Thirty-one (31) people testified at the public hearings and sixty-one (61) people submitted written testimony. The comment period was open between November 1 and November 30, 1990. A summary of the comments received during the comment period and at the public hearings can be found in Attachment E. The issues identified during the public hearing process are summarized and discussed in this report.

**Criteria for Maximum Measurable Levels (MMLs)**

A majority of the testimony centered around how to establish an MML for a substance which has been determined to cause cancer. (A carcinogenic substance is defined in the rules as "a compound which the United States Environmental Protection Agency has Classified as Group A or Group B under the Carcinogenic classification procedures described in Vol. 51 Fed. Reg. 33992.") Comments 1 through 4 address this issue.

1) Risk Level Associated with Carcinogenic Substances

There is a concern whether a minimum risk level is justified and should be included in the proposed rules as a criteria for MML values. The proposed rules require an MML numerical value for a carcinogenic substance to be set at a level corresponding to a cancer risk of 1:1,000,000. A minority statement submitted by two members of the Technical Advisory Committee (David Chandler and Lolita Carter) suggests wording which would not include a specific reference to a risk level, but would leave the decision of the appropriate level of protection for each substance up to the Environmental Quality Commission.

The areas where language changes were recommended by Chandler and Carter are as follows: present language in the proposed rule (OAR 340-40-125 (1) (a) (A) reads

"For substances of concern or contaminants which are carcinogens, the federal standard represents a risk greater than one additional cancer in one million humans".

The proposed language by David Chandler and Lolita Carter would change the wording to the following:

"For substances of concern or contaminants which are carcinogens; there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk."

The second reference to the risk level is found under OAR 340-40-125 (2) (a) (A). The proposed rule now reads

"For substances of concern or contaminants that are carcinogens, the scientifically valid evidence which supports a conclusion that the Department's proposed maximum measurable level poses a risk level to public health that is less than or equal to one additional cancer in a million humans."

The proposed language by David Chandler and Lolita Carter would change the wording to the following:

"For substances of concern or contaminants that are carcinogens, the Department must determine that there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk."

Two view points about this subject were expressed during the public hearing process. A majority of the testimony supported the proposed rule changes while others supported the 1:1,000,000 risk level and requested that it be retained as a criteria for setting MMLs. Other testimony requested that the wording be changed from "at the 1:1,000,000 cancer risk" to "below the 1:1,000,000 cancer risk".

Response: As was mentioned by several of the individuals who testified, the use of a cancer risk level is controversial within the scientific community. The Department recognized and acknowledges the controversy associated with establishing MMLs based on an associated risk level of one in a million (1:1,000,000) additional cancers. However, the Department does recommend the continued inclusion of an associated risk level in the proposed rules for the following reasons.

- a) The Department recognizes that the specified risk level of one in a million additional cancers is a value judgement on the part of the state rather than based on scientific facts that one in a million is the appropriate level to protect society against cancer. However, by specifying a certain risk level the state can provide for consistency among different contaminants when establishing MMLs.

- b) The Department relies heavily on research performed by the federal Environmental Protection Agency (EPA). Much of the information and research done on carcinogenic substances by the EPA are based on the use of risk analysis. For the Department to easily use this information the state should use the same method for deriving a contaminate level as the EPA.
- c) The present federal drinking water standards are based on risk assessment coupled with a risk management process which considers the cost of treatment and other non-health related factors. The use of the risk management process by EPA has resulted in different standards being developed for a substance depending on the program addressing the problem. The Department considers these levels to be inappropriate as a groundwater prevention measure which triggers studies and investigations.
- d) The major differences between the state MML and the federal MCL will be the level of protection desired by the state and its use. The federal EPA cancer risk levels for MCLs vary between 1:10,000 and 1:10,000,000. These varying risk levels in the federal standard are a result of including factors unrelated to public health within the standard setting equation (risk management). (Factors include water treatment technology, detection ability, and cost of treatment (economics)). The proposed risk level of one in a million additional cancers gives the state a consistent level to apply to different substances and is based on health related issues.
- e) The technical advisory committee did recommend establishing an MML based on health criteria and environmental factors only and not other factors. Basing the MML on health criteria is consistent with the prevention goals of the Groundwater Protection Act.
- f) The Department believes the recommended changes suggested in the Chandler/Carter minority statement (Attachment I) would result in confusion as to what a MML should be based on and are too general and ambiguous.

2) Linear vs. Threshold Model for Determining Cancer Risk

The second area of concern deals with the type of model used to determine cancer risk. The question here is whether to use a linear cancer model, which is a statistical procedure extrapolating from a known level back to zero that assumes there is no safe level of a cancer-causing substance or a threshold model which assumes that at some concentration a substance is safe to consume and will not cause cancer. The minority statement suggest that a threshold model for determining the proper level should be used instead of the linear model.

Response: The use of a model to determine the level of cancer risk has not been specified in the proposed rules, although it is implied through the use of a 1:1,000,000 cancer risk which relies on a linear model for determining a value and does imply that one additional cancer may occur in every million people.

Most of the cancer studies preformed today rely on some type of linear model for their risk analysis. In addition, EPA continues to use a linear model for risk analysis for all of their programs, including drinking water, which require the development of a standard for a carcinogenic substance. Therefore, at present there appears to be no alternative available to the Department which has an adequate data base of information available to establish an MML. Most cancer studies do not as of yet determine whether a threshold level exists below which a cancer causing substance has no effect. For the above reasons the Department recommends using the linear model until such time as EPA begins using threshold limits to set federal standards for cancer causing substances.

3) Detection / Measurability of MMLs

A third issue related to setting a compound at the one in a million (1:1,000,000) cancer risk level is a question of the measurability of a contaminant at such a low level. Oregonians for Food and Shelter contend that the word measurable in Maximum Measurable Level was intended to mean a compound must be measurable with currently accepted and readily available testing methods and can not be derived. Setting a contaminant level below the current detection limit for that substance was the same as setting a level of zero for that contaminant and the standard would continually change as detection technology improved.

Other testimony expressed the need to have the MML set at a level which corresponded to the true level needed to protect public health and the environment and not artificially set at a higher level based on a moving technological standard.

Response: During the technical advisory committee's meeting this subject was extensively discussed. The conclusion of the committee was that MMLs should be set at levels reflecting the protection of public health and the environment and not at current detection limits.

The Department recognizes that setting MMLs below detection limits causes concerns about whether people will be held liable for contamination below detection if at some future time a substance becomes detectable. The Department intends to use MMLs as a trigger mechanism for establishing groundwater management areas and not as an enforcement tool. There is a question as to whether the word measurable in MML was there to indicate that a MML had to be directly measurable by present technological methods or indicated the MML could not be set at zero, but at some value above zero.

The actions of the Department will be no different whether the MML is set at the detection limit or below present detection limits. If a contaminant with an MML below the detection limit is ever detected in groundwater the result would be the immediate establishment of a groundwater management area. This same action would take place if a contaminant with an MML set at the detection limit were to be detected in groundwater. In both instances the detected level would be above 50 percent of the MML where a groundwater management area is required to be established.

The Department does see several problems with setting an MML at a detection limit which is presently technologically achievable instead of at the health related level.

- a) Using a detection limit as the MML is inconsistent with the intent of HB 3515 which requires that an MML be set at a level which is protective of public health and the environment. If the MML is artificially established at a level different than what is determined to be protective of public health and the environment the credibility of the MML could be compromised.
- b) Establishing an MML at a detection limit would require the Department to continually adjust the MML as detection technology improved. This would mean that the MML would continually be shifting instead of remaining at a constant value.

4) MMLs and MCLs

A further concern was whether the state should be establishing a MML different than the Federal Maximum Contaminant Level (MCL)? Setting a MML at a level different than the MCL would confuse the public and send a message that the state did not consider the MCLs to be protective of human health and the environment.

Response: The basic purpose of the MML is different from the MCL. The MML is a protective measure use in a program to prevent contamination from continuing. and is an environmental action standard designed to protect the beneficial uses of the water. The federal MCL is a treatment standard applied to one use, drinking water.

The contaminant level establish by the MML process reflects the state's view on the protection of public health and the environment as opposed to the federal view. In addition, the federal MCL and Oregon's MML target different aspects of water use. The federal drinking water standard applies only to water to be treated and used for drinking. The federal standard, therefore, includes factors other than public health in its determination. The MML on the other hand must protect all waters of the state for many environmental attributes including human health and protect those uses for both present and future beneficial uses. The MML therefore, is a prevention standard and must be protective of public health and the environment only and should not include factors unrelated to protection which are variable depending on technology and available funds.

The testimony during the public hearing process touched on several issues besides cancer risk.

5) Use of MMLs as Clean-up Standards

Some concern was expressed by many of those testifying that the MMLs would also be used by the department as general groundwater standards and be used as a clean-up standard for point and non-point source contamination problems.

Response: The Department intends on using MMLs as triggers for the establishment of groundwater management areas. If clean up standards are needed the Environmental Quality Commission and the Department will rely on the authorities already available to them to establish general groundwater standards. At present the Department's Environmental Clean-up rules use background levels of substances as a benchmark for clean-up activities. (OAR 340-122-090 (5)).

6) Application of MMLs as Groundwater Standards

The request was made to replace Oregon's point source groundwater standards found in OAR 340-40-080 with established MMLs. Additionally, a request was made to coordinate surface water quality standards with the MMLs.

Response: The MMLs were intended as triggers for the declaration of groundwater management areas and are not general groundwater quality standards. The Commission does have authority to establish general groundwater quality standards through its rule making authorities. If at some point the Commission chooses to establish general groundwater quality standards the proposed reference levels will be taken through the public hearing process to provide the public the opportunity to comment on any proposed groundwater quality standards.

7) Agency Coordination and Notification of SWMG and State Agencies

A question was raised as to whether the Strategic Water Management Group (SWMG) and other state agencies had been informed of the committee's activities. Also of interest was whether different state agencies involved in establishing a groundwater management area coordinate between themselves so policy decisions made by the different agencies are consistent.

Response: Both the SWMG and other state agencies were afforded the opportunity to comment on the proposed rules. Copies of the Technical Advisory Committee's report and the EQC staff report requesting authorization to hold public hearing on the rules proposed by the Committee were provided to members of SWMG and other state agencies at the same time as members of the Environmental Quality Commission received their copies. Several agencies did take the opportunity to comment and their comments are summarized in Attachment E. The Department's main role is to maintain and protect Oregon's high quality waters for all present and future beneficial uses. To fulfill this mission, DEQ needs to coordinate and cooperate effectively with other state agencies in addressing groundwater issues. Oregon State Agencies have thus far done a superb job of coordinating a number of groundwater projects. These include activities in the Northern Malheur County and Lower Umatilla Basin groundwater management areas, the Wellhead Protection Program, and numerous other groundwater sampling surveys.



The Department has relied on, included, and used the services of many of the state natural resource agencies including; the Water Resource Department, the Health Division, the extension service, experimental stations, universities, local soil and water conservation districts, soil conservation service, the Department of Agriculture, and the Strategic Water Management Group representing the 12 state natural resource management agencies in Oregon. The Department fully intends to continue and improve the coordination efforts with other local, state, and federal agencies.

8) Effect on Water Rights

Water Rights and how they will be affected by the establishment of MMLs and groundwater management areas were a major concern. People testifying were very concerned that they may lose the use of their groundwater as a result of a contamination problem in the area.

Response: Although an important issue the proposed rules do not deal with water rights. The proposed rules establish a method and criteria for determining a MML to be used as a trigger level in establishing a groundwater management area. Any affects on water rights will be dealt with during the development of a groundwater management plan for the area which will include participation by local representatives.

The state does have the authority to limit groundwater use through several other authorities. If the Water Resources Department determines a well is either creating or contributing to a contamination problem, under ORS 537.775 they can require abandonment of the well or other actions as necessary to alleviate the contamination problem. The Water Resources Department also has authority to regulate the use of groundwater in critical groundwater areas ORS 537.730. This authority encompasses both water quality and water quantity concerns.

9) Resources for Setting MMLs and Cost of Developing MMLs

Several comments questioned whether the state should expend additional resources on establishing its own standards when the federal government has already done the research and established a standard. Also questioned was the cost of developing MMLs including the hiring of a toxicologist.

Response: The proposed rules do not establish a requirement to perform new research, nor does the Department intend on conducting research studies. The rules do allow the Department to review and compare studies already completed to determine whether they meet the criteria outlined in the proposed rules. The proposed rules require a procedure to choose among a priority of data sources which already exist and not to develop original research data.

The financial impact statement provided to the secretary of state covered those costs directly associated with the establishment of MMLs and not the cost of declaring a groundwater management area.

Several people reviewed the establishment of a groundwater management area as a direct cost. The Department does not believe the cost of a groundwater management area should be included as part of the financial impact of establishing a method and criteria for setting MMLs in groundwater. The setting of an MML will not necessarily result in declaring a groundwater management area or several areas could be declared depending on the extent and level of the contamination in the state.

Although the cost of declaring a groundwater management area is not considered part of the proposed rules a brief outline of costs associated with the declaration of a groundwater management area is provided below. The Department has only completed one groundwater management plan and the following costs are based on the development of that plan.

The state expended about \$500,000 over a three year period on development of a groundwater management plan for the Northern Malheur county area. This cost included aquifer studies, groundwater monitoring and characterization, identification of pollution sources, and the development of a management plan (cost include expenditures by all state agencies involved in the process). To provided continued groundwater monitoring and assistance to the area an additional \$100,000 per biennium will be required. Some of these cost should be offset by grants awarded to these areas to develop best management practices.

The cost reflected in the financial impact statement are for retaining a toxicologist. The costs were determined by taking the funds currently being used to retain a toxicologist already employed by the department and assuming a second toxicologist can be hired at the same level for developing MMLs.

10) Financial Impact Statements

It was suggested that the EQC direct the Department to develop guidelines and criteria for the Department to use for the preparation of Financial Impact Statements.

Response: The Department does follow guidance provided by the Attorney General's office in developing Financial Impact Statements. All Financial Impact Statements are reviewed for consistency and completeness by the Department's finance section.

11) Public Notice/Response Time

Many people at the La Grande public hearing were concerned that not enough time had been allowed to adequately review and comment on the proposed rules. In addition, many thought the Department gave inadequate notice of the public hearing and requested that the hearing record be kept open longer.

Response: The Department attempts to communicate notices of public hearings to as wide an audience as possible through the use of several types of media.

- a) The Department always announces public hearings in the Secretary of State Bulletin. The announcement for these public hearings appeared in the November 1st, 1990 bulletin.
- b) News release of public hearings are also provided to all news media through the Department's public relations mailing lists. It is up to the individual news media to pickup and run the news releases. The news release concerning these public hearings were mailed several weeks before the hearing. The Department regrets the fact that some news media did not receive the news release. The Department did check its mailing list and verified that those news media missing the news release were on the mailing list and should have receive the news release.
- c) A third way the Department publicizes public hearings is through mailing of public hearings announcements to interested parties on Department's mailing lists. The Department keeps mailing lists of individuals and associations who have expressed an interest in receiving information on certain subjects, such as groundwater MMLs. The Department also includes on its mailing lists any individuals and associations which the Department knows will be interested or affected by proposed

activities. The Department can not identify all potentially affected or interested individuals on certain subjects, therefore, it does relies heavily on associations to get the word to their membership of pending actions and public hearings.

Although the hearings officer is not able to extend the comment period at a public hearing, people were encourage to send in their written comments. The hearings officer assured those at the public hearing that all comments received by the Department, even those receive after the close of the comment period, would be made available to the Environmental Quality Commission (EQC) if received before the Commission took up the issue at a future meeting in early 1991.

12) Clarity of Rules

Some individuals thought the rules were either not specific enough or were too complex.

Response: The Technical Advisory Committee, which developed the proposed rules, attempted to draft rules which could be easily followed while giving enough guidance and flexibility to the Department so the rules could be implemented. The Committee report stated that they thought this goal had been met.

13) Unique Areas

Several comments were made that the rules should recognize unique areas and local conditions.

Response: Although, these particular rules do not deal with designating areas of concern or groundwater management areas the Groundwater Act (HB 3515) does require local committees to be formed to help the state determine the causes and effects of a contamination problem. The state studies and characterizes the area and its aquifers before making recommendations for a management plan. The Department then works with the local committee to develop a management plan suitable to the local conditions while addressing the contamination problems.

14) Technical Make-up of Committee

A concern was expressed that the technical advisory committee was not made up of all technical people, therefore, could not knowledgeable address some of the issues.

Response: Because the establishment of MMLs affects many different fields and aspects of groundwater the legislature chose to include professionals from many different fields of expertise, all of whom would see the problems in a different way. The Department believes these individuals developed a workable set of rules to guide the establishment of MMLs.

15) Concern about Focus of MMLs on Carcinogenic Substances

One person questioned whether the Department should be as concerned about substances which cause cancer. His research showed that all cancers except lung cancer were on the decline.

Response: The Department's responsibility is to protect the state's water quality for all present and future beneficial uses of the water. The Department is concerned about all substances which may degrade the quality of water in Oregon.

16) Definition of Groundwater

A comment was made that there was not a definition of "groundwater" and one should be provided.

Response: The Department follows the definition of groundwater provided in ORS 537.515 which is defined as follows. "Groundwater means any water, except capillary moisture, beneath the land surface or beneath the bed of any stream, lake, reservoir or other body of surface water within the boundaries of this state, whatever may be the geological formation or structure in which water stands, flows, percolates or otherwise moves."

17) Regulation versus Technical Assistance

An individual stressed that the Department should be more concerned about developing solutions to pollution problems rather than simply regulating the public.

Response: The Department has stressed development of solutions to non-point source contamination problems in the development of groundwater management plans and supports the investigation and development of Best Management Practices (BMPs) through supporting projects requesting state and federal grants for development of BMPs.

18) Substance Regulation

One person questioned why the Department is proposing to regulate substances in water many times more stringently than the same substances we eat. He was referring to nitrogen in the groundwater and the typical amounts of nitrogen found in many vegetables.

Response: Many factors are taken into account when determining the hazardousness of a substance as standards are developed. These factors include the chemical form a substance must be present in to be hazardous; who the affected population is which will be affected; how the substance affects the target population, and the conditions under which a substance is hazardous.

In the case of nitrogen two forms of the substance are of concern, nitrate and nitrite. Nitrates dissolved in water affect a target population composed of infants below six months of age and pregnant or nursing mothers. Adults receive most of their nitrates through consumption of solid food, however, infants ingest nitrates in liquid form and metabolize it differently than adults. The concern with the consumption of nitrates by infants is its interference with the ability of the blood to carry oxygen to vital tissues of the body resulting in a condition called methemoglobinemia or "blue baby syndrome". For the above reasons a nitrate standard is set at a level considered safe for infants rather than based on adult consumption.

19) Risk Communication

A recommendation was made that the Department attempt to not unnecessarily alarm people when a substance is detected in the groundwater, but is below an established MML.

Response: The Department works through a local advisory committee when addressing contamination in a groundwater management area and approaches the contamination problem by providing accurate information on the contaminants and their potential effects to the public.

20) Synergistic and Cumulative Effects

Several people recommended that synergistic and cumulative effects of substances be considered in developing MMLs.

Response: These topics were discussed in the committee meetings and the consensus (not unanimous) was that not enough was known about these effects and establishing MMLs on this basis would be administratively complicated. The

proposed rules do allow for establishing separate MMLs for degradates of parent compounds provided scientifically valid evidences shows them to be harmful to public health or the environment.

21) Definition of Phrases

The phrases with very broad meanings, such as "scientifically valid evidence", "adverse impact to public (human) health", "adverse impact to the environment", "unreasonable adverse risks" "effect" or "harm" should be defined.

Response: The Department believe defining these phrases should not be done, but left up to the Environmental Quality Commission to determine on a case by case basis. The diverse and varied considerations involved in determining the meaning of these phrases does not allow for a strict well defined definition and are essentially policy decisions to be made by the Commission.

22) Who Delineates a Management Area

A question was raised as to who would define the aquifers and perform and pay for the monitoring and analysis.

Response: The Department works in conjunction with the Water Resources Department to define aquifer units. The Department determines which areas to investigate and performs the monitoring and analysis with the help of several other state agencies, including the Department of Agriculture. Funding for these activities is provided by the legislature through the approval of the Department's budget.

23) Public Notification of Contaminated Areas and Exceedance of an MML

The proposed rules should include a requirement to notify the public of contamination problems if the MMLs are exceeded and should define what happens after an MML is exceeded.

Response: These proposed rules are to establishing a method and criteria for setting an MML and are not intended to establish procedures for declaring areas of concern or groundwater management areas. Steps for declaring these areas are outlined in the Groundwater Act of 1989 (HB 3515) and ORS 's 448.268, 468.696 to 468.698, and 536.141 to 536.169. The Department anticipates proposing rules to establish groundwater management areas in the future. This requirement would be better placed in those rules.

The Department does make every effort to inform the public of contamination problems in a groundwater management area. The Department also provides all sampling results to the owners and users of the wells they sample.

24) Background Levels

MMLs should not be set at naturally occurring background levels, this may result in different standards in different aquifers.

Response: There appears to be some confusion on whether allowing for natural background levels is establishing a second MML for that specific aquifer. The MMLs are to be set at a level protective of public health and the environment and do not allow for establishment of multiple MMLs. The allowance of background levels above an MML is really a variance from the MML, the MML itself is not changed or modified. This separate process is needed because it would be unreasonable to require reduction of a substance below its naturally occurring level in the groundwater. If the natural occurring level of a substance is above the MML this would indicate that some beneficial uses of the groundwater can not be provided unless treatment of the water is possible.

25) Contaminant Detection

Contaminant detection at any level should trigger some additional groundwater investigation and monitoring.

Response: HB 3515 provides for two levels of contaminate detection in the groundwater. The groundwater management area is triggered when contaminants in the groundwater reach 50% of a MML. A groundwater area of concern is established if a contaminant is detected in the groundwater but is below the 50% level of a MML. The establishment of a local committee is provided for and the development of a groundwater management plan is recommended so that the contamination does not reach the 50% level. However, activities under the area of concern are voluntary where activities associated with a groundwater management area are required.

26) Program Priorities

The Department should not ignore certain areas of polluted groundwater on the basis of program priorities. Instead, all areas of contamination should be addressed.



Response: The Department does not intend on ignoring any areas of groundwater contamination within the state, however, the Department does have limited resources and must prioritize its work to efficiently make use of those limited resources. Prioritizing will require that certain areas be addressed at a later date than other areas.

27) New Division for Proposed Rules

The proposed rules should be renumbered into a new Division and not integrated into existing groundwater rules.

Response: Division 40 was established specifically for rules pertaining to groundwater. The proposed rules do pertain to groundwater and should remain in the groundwater division rules.

28) Substantially Comply with Rules

The Department should not be allowed to "substantially comply" with the rules on mailing notices to interested parties and should comply with the rules as they are presented.

Response: The "substantially comply" wording was intended to allow the Department to continue the MML process once it had mailed the required information to a mailing list especially established for the purpose of informing those interested parties about the initiation of an MML process. The Department makes every effort to keep the public informed of its activities and did not intend to imply it wished to avoid informing the public activities connected with the establishment of an MML.

29) Health Advisories

There is a concern that the Department is initiating a program for health advisories that is in conflict with programs already established and will not be consistent with other agencies.

Response: The Department has used in the past and would like to continue to use the Health Division's expertise on human health related issues, including development of human health advisories, risk assessments, and identifying appropriate treatment technologies. The Health Division provides DEQ valuable groundwater test information and sample notification services. The Department intends on working closely with the Health Division on developing consistent and accurate health advisories.

30) Time Limit to Modify a MML

The 180 day time limit should be maintained for adjusting a MML when information justifies a need for a change in the MML.

Response: The Department does not believe it will have the resources available to address changes to the MML on such a short time frame and recommends coordinating the reviewing the MMLs with the tri-annual review of water quality standards.

31) Definition of "Contaminant"

It was suggested that the definition of "contaminant" be retained because it was defined as such in HB 3515.

Response: The Department agrees and will retain the definition of contaminant as defined in the proposed rules and HB 3515.

32) Definition of "Detection Limit"

The definition of "detection limit" should be further defined.

Response: As the detection limit is dependent on the substance being measured and the detection technology being used, the Department does not believe a more specific definition of "detection limit" is useful.

33) Test Methods

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846 should also be cited under the proposed rule OAR 340-40-105 (2).

Response: The two methods cited in the proposed rules under OAR 340-40-105 (2) were not intended to be a complete list of acceptable test methods, but referenced only as examples of appropriately accepted methods. Other methods which have equivalent requirements and acceptance can also be used.

34) Multiple MMLs

Several people requested the use of multiple MMLs for a substance and/or allow the MML to be based on local conditions or connected with EPA's aquifer classification system.

Response: Although the proposed rules do not specifically prohibit the establishment of multiple MMLs for a substance, the Technical Advisory Committee did discuss the use of multiple MMLs. The Committee concluded that in some instances it may be beneficial to set multiple MMLs, however, "if multiple MMLs were established with any significant frequency, the administration of the Oregon groundwater protection program could easily become very costly, complicated, and burdensome." The Department agrees with this view point and would recommend against the establishment of specific rules allowing multiple MMLs.

During the initial establishment of the groundwater program, EPA's aquifer classification system was reviewed and rejected. Both Oregon's Groundwater Protection Act ORS 468.692 and the general groundwater policies (OAR 340-40-020) require the protection of the state's groundwater. The Department is therefore, required by law to protect all of the waters of the state for present and future beneficial uses.

35) Group B Carcinogens

There was some concern that EPA's group B carcinogens would not be retained as substances which caused cancer.

Response: The Department is proposing to retain the technical advisory committee's recommendation that EPA's group B carcinogen reference be removed from the rules.

36) Establishment of Scientific Advisory Committees

There was concern expressed that if a scientific advisory committee was established to advise the Department on setting MMLs, that the environmental community be represented.

Response: The proposed rules do not require the formation of a scientific advisory committee to advise the Department on establishment of MMLs. If such a committee were formed, the Department would pursue a balanced committee representing all of the critical interest in groundwater, including the environmental community.

37) Need for Congruency Between Policy Statements in the Groundwater Act and OAR 340-40

It was requested that the policy statement contained in the Groundwater Protection Act (ORS 468.692) be incorporated into the general policy statements of OAR 340-40-020 because it is a stronger statement and contradicts those found in the OAR's.

Response: The Department does not believe the general groundwater policy statements and the Groundwater Protection Act contradict each other. Both statements declare that the goal of the state is to prevent groundwater contamination and to protect groundwater for present and future beneficial uses.

38) Consider but not Require the Use of EPA's Quality Criteria for Water

A request was made to consider, not require, the use of EPA's Quality Criteria for Water when setting an MML based on environmental factors.

Response: The Department believes the wording in the proposed rules under 340-40-125 (2) (b) (B) does allow the Department to consider other sources of environmental information when setting an MML.

STATE OF OREGONDEPARTMENT OF ENVIRONMENTAL QUALITYINTEROFFICE MEMORANDUM

DATE: December 4, 1990

TO: Environmental Quality Commission

FROM: Mary Halliburton, Hearing Officer for the Portland  
and La Grande Hearings *M/H*  
Rick Kepler, Hearing Officer for the Medford Hearing

SUBJECT: Public Hearings on Proposed Groundwater Protection  
Rules: Methods and Criteria for Setting Maximum  
Measurable Levels for Contaminants in Groundwater.

On September 21, 1990 the Environmental Quality Commission authorized the Department to take to public hearing proposed rules specifying the methods and criteria to be used for future establishment of maximum measurable levels for contaminants in groundwater.

A public notice was sent to the Secretary of State to be published in the November 1, 1990 Bulletin (Attachment H). Additionally, the notice was sent to 380 persons on the Department's mailing list for "groundwater issues" advising them of a hearing scheduled for November 16, 1990 in Portland. In response to a request for additional hearings from Oregon Food and Shelter, hearings also were scheduled for November 20 in Medford and November 28 in La Grande, and a second notice was mailed to those on the Department's mailing list (Attachment H).

The hearings were conducted as scheduled with the record for public comment to remain open through November 30, 1990. Following a statement of purpose by the Hearing Officer, Rick Kepler presented an overview and summary of the organization and content of the proposed rules developed by the Groundwater Advisory Committee. He also highlighted the changes to the Committee's rule proposal recommended by the Department.

Memo to: Environmental Quality Commission  
December 4, 1990  
Page 2

Following a brief question and answer period to provide clarification about the proposals, the public hearing was open to receive comment. At the opening and close of each hearing, it was announced that the record would remain open to receive written testimony postmarked by November 30. At the La Grande hearing considerable concern was expressed that insufficient time was provided to submit comments subsequent to learning about the rule proposal and attendance at the hearing. The Hearing Officer stated that although the official comment period could not be extended by the hearing officer, anyone with comments or concerns was encouraged to submit them as soon as possible. All written material submitted prior to taking action would be made available to the Environmental Quality Commission although late comments might not be part of the hearing record.

Ninety two individuals and groups provided testimony. Thirty-one presented oral testimony and sixty-one submitted written testimony. Eight persons provided both oral and written testimony. A list of the primary issues and comments on the proposed rules is presented in Table D-1.

A summary of the oral and written testimony is presented in Attachment E. Copies of the written testimony also are being made available to the Environmental Quality Commission and are available upon request. A tape of each hearing is available to the Commission.

The Department staff response to the testimony is presented in Attachment C.

TABLE D - 1

Issues	Respondents <sup>(1)</sup>	
	A. Oral	B. Written
1. Risk Level Associated with setting MMLs for carcinogenic substances.		
A. Support Risk Level Criteria for MMLs in rules at or below 1:1,000,000; and/or want most stringent MMLs, even if set below detection level.	5	1,6,13,14,15,18,19,20,21,23,25,31,38,41,42,44,49,51,54,55,56,59,60,61
B. Do not support specified Risk Level in rules; prefer flexible rule language; recommend alternate language.	1,2,3,7,8,9,10,11,13,14,15,16,17,18,19,22,24,26,27,28,29	2,4,5,7,9,10,11,12,13,17,20,22,24,26,27,28,19,30,32,34,35,36,37,39,40,43,46,49,50,52,57
2. Concern about use of linear rather than threshold model for determining cancer risk.	1,3,7,8,9,10,11,13,14,15,16,17,18,19,21,22,24,26,27,28,29	2,4,9,10,11,12,17,22,29,30,32,34,35,36,40,43,46,48,52,57
3. Concern that MMLs could be set below present detection levels and violate intent of Groundwater Protection Act.	3,7,8,9,11,13,14,15,16,17,18,19,22,24,26,27,38,29	2,8,9,10,11,12,17,20,22,26,27,28,29,30,32,34,35,36,37,40,43,46,52,57
4. Concern that MMLs could be different than MCLs (federal drinking water standards) and this could create confusion and conflict.	1,3,7,8,9,10,11,13,14,15,16,17,18,19,22,24,26,27,28,29	2,7,9,10,11,12,13,15,16,17,20,22,24,26,28,29,30,32,34,35,36,39,40,43,46,48,52,53,57
5. Concern that MMLs may be used as clean-up standards.	2,7,8,9,10,11,13,14,15,16,17,18,19,22,24,26,27,28,29	2,5,6,9,10,11,12,17,20,22,26,27,28,29,30,32,33,34,35,36,40,43,45,46,47,48,57,58
6. Recommendation that the MMLs serve as Groundwater Standards; be addressed with surface water quality standards proposals.		3
7. Questions DEQ's coordination effects and/or recommendation that DEQ coordinate with other state and local agencies when establishing MMLs and groundwater management area.	2,4,8,9,14,17,24,	2,3,4,5,8,28,32,33,34,39,40,43,46,53,57
8. Concern that rules may affect water rights and people may lose use of their groundwater as result of a Groundwater Management Area designation.	2,7,8,9,10,11,13,14,16,17,18,19,22,24,26,27,28,29	2,5,7,9,10,11,12,15,20,22,26,27,28,29,30,32,33,34,35,36,40,43,46,48,57
9. Concern that additional resources will be expended on setting MMLs different than MCLs; money could be better spent.	4,13,15,16,17,22,26	13,29,35,36,47,52
10. Financial Impact Statements.		29,47
NOTE: (1) "Respondents" refer to numerical listing of the person providing oral or written testimony as presented in Attachment E.		

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Issues	Respondents <sup>(1)</sup>	
	A. Oral	B. Written
11. Concern that inadequate notice and/or insufficient time was made available for comment.	8,9,10,11,19,20,22,23,25,27,30	30,40,46,52
12. Concern that rules are too complex or not specific enough.	10,27	4,13,47,58
13. Recommendation that rules recognize unique areas and local conditions. (See also Issue #34.)	12,15,20,24,31	47,48,58
14. Concern about technical background of Groundwater Committee.	13,22,26	29,35,36
15. Concern about focus of MMLs on carcinogenic substances.	19	
16. Need for Definition of Groundwater.	19	
17. Concern about focus of DEQ on regulation versus problem solutions.	22	
18. Concern about regulating substances in water more stringently than natural occurrence of substances in food.	30	
19. Recommendation that care be taken when advising people of contaminants found in groundwater so as to not alarm them.	6	
20. Recommendation that synergistic and cumulative effects be considered in developing MMLs.	20	1,6,18,19,21,31,38,41,44,49,54,55,59,61
21. Recommendation for Additional Definition of Phrases used in Rules.		13,39,47
22. Question about who delineates a Groundwater Management Area and pays for monitoring and analysis.		13
23. Recommendation that rules require public notification of areas where MMLs exceeded, and define what happens after MML exceeded.		13,51
24. Recommendation that management programs protect other aquifers from high naturally occurring background levels.		13
25. Recommendation that contaminant detection at any level should trigger additional investigation.		13
26. Recommendation that all areas of contamination be addressed as Groundwater Act requires.		19,21,41,44,49,55,59,61
27. Recommendation that a new division within the OARs be created for these rules.		29
28. Recommendation that the Department be required by rule to mail notices to interested parties and not be allowed to "substantially comply".		3,29
<b>NOTE:</b> (1) "Respondents" refer to numerical listing of the person providing oral or written testimony as presented in Attachment E.		



Issues	Respondents <sup>(1)</sup>	
	A. Oral	B. Written
29. Concern that Department initiating program for health advisories beyond its statutory authority.		29
30. Recommendation that the Department be required to revise MMLs within 180 days of new information becoming available.		29
31. Recommendation that definition for "contaminant" in HB3515 be retained in rules.		39
32. Recommendation that "detection limit" be defined.		39
33. Recommendation that other types of test methods, such as those referenced for solid waste programs be allowed by rule.		50
34. Recommendation that multiple MMLs for a substance or an MML based on local conditions be provided for by rule.	20	47,48,50
35. Recommendation that Group B carcinogens be recognized as substances for which MMLs are needed.		14,15,18,21,41,49,54,56,59,61
36. Recommendation that any future advisory committee for MML development be broadly acceptable to critical interest, including environmental groups. Some also recommend this also should be specified by rule.		14,15,21,41,49,54,59,61
37. Recommendation that existing Groundwater definitions and policies on Division 40 be revised to be congruent with those in Groundwater Protection Act.		61
38. Recommendation that EPA's Quality Criteria for Water be considered but not a requisite in setting MMLs.		61

NOTE: (1) "Respondents" refer to numerical listing of the person providing oral or written testimony as presented in Attachment E.

TABLE D - 1

D - 5

## SUMMARY OF ORAL AND WRITTEN TESTIMONY

## A. ORAL TESTIMONY

PORTLAND HEARING, November 16, 1990. Three persons presented testimony as follows:

1. David B. Chandler, Toxicologist, Oregon Poison Center, Oregon Health Sciences University.

Referring to a minority report he and Lolita Carter prepared and presented to the Department on September 10, Dr. Chandler expressed concern about the risk assessment approach detailed in the proposed rules for setting the MMLs. Dr. Chandler states that because the risk assessment process is based on statistics and there is no biology in setting the risk levels, it is inappropriate to reject use of a maximum concentration level (MCL) as an MML because the level of risk it is based on may be less than 1 in a million.

Instead of stating a specific risk level to be obtained, he suggests the language be changed within OAR 340-40-125 (1)(a) (i) to read: "For substances of concern or contaminants which are carcinogens there is scientific valid evidence to support a conclusion that public health is unreasonably at risk." This language would enable more restrictive or less restrictive risk levels to be set based upon scientific evidence.

Dr. Chandler also suggests that the rule language for OAR 340-40-125 (2)(a) which deals with criteria for setting MMLs where no MCL currently exists be modified to read: "For substances of concern or contaminants that are carcinogens, the Department must determine that there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk."

Dr. Chandler also comments on the statements within the Committee report on linear versus threshold based models for extrapolation of risk assessments. Dr. Chandler notes that recent papers suggest several events are necessary to change a cell from a normal to a cancerous cell. There are repair processes with a cell to handle "insults" that the linear model does not take into account. The threshold based model beginning to gain support within the toxicological community suggests there are some "minimum" dose levels that can be handled by an organism and there are repair processes within the cell that can handle exposure to compounds that may cause injury. Dr. Chandler questions why carcinogens are excluded from the category of contaminants for which a threshold response dose is proposed.

Dr. Chandler hopes that the Department will support the risk assessment changes which relate to unreasonable risk.

2. **Clinton Reeder, representing the Oregon Wheat Growers League.**

Mr. Reeder, as Chair of the Groundwater Advisory Committee, stated he was available to answer questions if any should arise though he was representing the Oregon Wheat Growers League in his testimony. He also indicated that he was providing written testimony and was only covering the highlights of it at the hearing.

The League supports the comments made by David Chandler and agrees with his assessment of the need for a more flexible reference in the rules relative to the 1 in a million risk level. The League represents a large number of growers who are involved with nonpoint source potential for groundwater. The League has had a Conservation Awards program since the 40's and is looking at strengthening the water quality portion of that program to provide media coverage and better educate the growers about groundwater issues. Mr. Reeder offered that the League is willing to work with the Department and EQC to obtain voluntary compliance and protect the groundwater.

He stated for the system to be functional and maintain public support, it has to be enforceable and flexible. He believes this type of system is in place with the proposed rules. Groundwater problem areas can be identified and programs developed to deal with them.

The League also advises caution be used prior to any standards established being used as "clean-up" standards. Careful consideration needs to be given before their use as cleanup standards since the advisory group is not knowledgeable about the implications and ramifications of the values as cleanup standards.

He also noted that farmers will be increasingly affected by both groundwater regulation and land use requirements and it is important for the Department to make sure it adequately coordinates with other agencies so those who are responsible for managing the water and land resources know that the agencies are together on their requirements and its clear who the farmers are suppose to deal with when water and land management issues arise.

Also, its not clear what affect the groundwater standards setting and enforcement procedures will have on currently established water rights. Standards setting and enforcement should not interrupt a farmers use of water for which he has

a right. The economic consequences if an interruption were to occur could be bankruptcy. If it becomes necessary to disrupt a water right because of groundwater quality issue, the Department must consider some type of compensation program.

The MMLs should be based on credible, verifiable, repeatable scientific evidence to get good strong support from the public and those directly affected and to obtain the funding necessary to conduct the program. The League would like to work with the Department toward that end.

3. **Terry L. Witt, Executive Director, Oregonians for Food and Shelter.**

Mr. Witt noted that his organization has been involved in the groundwater protection process since the inception of the development of the Groundwater Act at strategy meetings and during the legislative drafting.

His organization supports groundwater protection and high quality groundwater and wants to see it remain that way. It represents over 20,000 farmers, foresters, and chemical users. They support the minority report presented by Drs. Chandler and Carter and ask that the language proposed by them seriously be considered.

Additionally, he offered comments about the issue of maximum measurable levels. He was part of the legislative lobby during the legislative session which worked to include the terminology. The term **Maximum Measurable Level (MML)**, was purposely used. The 'Operative' word is measurable. It was not intended to be used to trigger an action unless the contaminant could be measured using current valid analytical methods. Extrapolation to a value that at some "undetectable level" might cause harm was not intended.

Also, Mr. Witt suggested that the MCL levels developed for use as federal drinking water standards be used instead of developing separate MML for the same contaminant. He noted that a MML lower than an MCL would cause confusion.

**MEDFORD HEARING, November 20, 1990. Three persons presented testimony as follows:**

4. **Robert Noelle, Water Quality Superintendent, Medford Water Commission.**

The Medford Water Commission serves as steward for a groundwater supply that provides drinking water for over 78,000 valley residents. They feel a comprehensive

groundwater protection program is long overdue. The Groundwater Protection Act constitutes a major step forward. They offer several comments for the EQC's consideration.

It seems that rules require the Department to examine all federal rules and critically review EPA's scientific reasons for establishing MCLs for each contaminant. This process is likely to be time consuming, expensive and may result in conflicting standards and water quality goals. They are concerned that inconsistencies may develop between the Health Division and DEQ regulations that would complicate/confuse regulatory compliance actions. They would like to stress coordination among state regulatory agencies is essential and more emphasis be given to interagency agreements that limit would conflicts.

5. Gary Stevens, member of Groundwater Technical Advisory Committee.

Mr. Stevens noted that one area of controversy in particular existed among the committee regarding the cancer risk. He noted that some have recommended that the federal MCLs be used as MMLs in lieu of a value that would provide no greater than 1 in a million cancer risk. He noted that the adoption of some MCLs as MMLs may compromise the Committee's charge which was to establish a process for setting MMLs that are be protective of public health and the environment. Some of the MCLs trade off a higher cancer risk with possible presence of other virus and pathogens which cause greater health risk. He supports a process that does not compromise public health for another reason, especially economics. He notes that if the contaminants for which there are MCLs are found in any quantity, the areawide concern of the citizens will likely be sufficient to cause an action equal to that which might be taken if the carcinogen level found was higher than the MML. Thus, it's a safety measure to set MMLs at one in a million cancer risk level.

Mr. Stevens also supports the concept of local action when it comes to identifying and solving the groundwater problems.

6. Max Vannoy, Interested Citizen.

Testified that people are affected by how federal or state level officials handle a situation depending upon how knowledgeable the people are. Those that are not knowledgeable would be fearful of their water and the resulting action can't be projected or determined. Thus, identification of problem areas would have to be handled with a lot of care so as to not alarm the people. The emotional health of people would have to be dealt with since it can also effect their health.

LA GRANDE HEARING, November 28, 1990. Twenty-five persons presented testimony as follows:

7. Terry Witt, Executive Director, Oregonians for Food and Shelter.

Mr. Witt stated that OFS is a nonprofit organization representing over 20,000 concerned farmers, foresters, urban users, and citizens who recognize need to make sound decisions on matters related to responsible agri-chemical use, natural resources and the environment.

OFS has taken an active role throughout the entire development and passage of the Groundwater Protection Act and through the rule development process through attendance at the technical advisory committee meetings. The members are committed to the wise protection and use of groundwater and other natural resources. They are also concerned about the economic health of the state's major industries, and individuals and businesses who rely on the availability of high quality groundwater. They have the right to responsibly manage their operations in an efficient and safe manner using moderate, lawful tools of technology without unwarranted government intervention. Mr. Witt stated that it takes an economically healthy business to afford the high cost of being a good environmental steward, to conduct research and to pay employee payrolls and taxes which provide a major source of revenue for state agencies such as DEQ.

He offered his thanks to Fred Hansen for granting OFS's request for two additional hearings in areas more accessible to agriculture and to staff and the Advisory Committee chair on the their work in developing the rules.

He related that the future for groundwater is bright and there is positive news. He noted that USEPA recently announced the results of their well water survey. Greater than 99 percent of the drinking water wells surveyed did not have residues of pesticides and nitrates above levels considered protective of human health. The same level of time should be spent communicating the good news.

He recommends the proposed rules be fine-tuned in several ways to provide a sound balanced scientific basis for establishing maximum measurable levels and offers comments on four points as follows:

First, OFS strongly supports the minority statements submitted by Drs. Chandler and Carter, both of the Technical Advisory Committee. OFS recommends the Commission adopt the recommended language changes to provide a level of flexibility when dealing with risk associated with

contaminants believed to be human carcinogens under specific exposure conditions. The 1 in a million risk factor that is currently proposed would create substantial conflict between the federal drinking water standards and the states groundwater regulation. The state could take enforcement action at a contamination level more stringent than the level determined to be protective of public health and determined and ok to drink by the USEPA. This would create public confusion and anxiety.

Second, through OFS's participation in the development of the legislation, Mr. Witt notes that the term "maximum measurable level" was carefully selected. DEQ's examination of the legislative record will reveal that the level or MML to be established as the trigger for groundwater management area activity must be a number capable of being detected using current validated analytical methods. It was not intended nor is it acceptable to operate a regulatory program based upon compliance with levels which cannot currently be measured or confirmed, using today's analytical technology. Mr. Witt stated that MMLs were not meant to include indirect methods of assessment such as numbers calculated based upon a detection of materials in organisms which are then multiplied by some bioaccumulation factor. This would be like proposing MML at an ever changing level of nondetectable thereby chasing the vanishing zero. Mr. Witt stated that the regulated community must have the capability of defending its rights. The burden should not be shifted to now require citizens to prove their innocence.

Third, OFS is also concerned about use of the MMLs as cleanup standards. The enabling legislation is clear that MMLs are only to be used to declare a groundwater management area.

Fourth, maintaining the quality of groundwater is of no value if a citizens water rights are taken away in the process. The activities associated with the protection of groundwater due to non point source activities under this act should not compromise n owners previously established water rights.

8. **Jim Harris, farmer from Pendleton and Agricultural Chemicals Chairman for the Oregon Wheat Growers League.**

Mr. Harris stated he wished to reiterate that the OWG concur with the statements made by OFS and the minority report submitted by Drs. Chandler and Carter, dated September 10, 1990. He read into the record the two language changes they submitted:

- A. OAR 340-40-125 (1) (a) (i) "For substances of concern or contaminants which are carcinogens, there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk."

- B. OAR 340-40-125 (2) (a) "For substances of concern or contaminants that are carcinogens, the Department must determine that there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk."

He also asked that the record for written comments be kept open to December 1, 1990 to allow people at this hearing to review the material at get their comments to the Department.

9. Larry Starr, Chairman, Union County Wheat League.

Mr. Starr stated that though he believes his remarks apply to many people in agriculture, his remarks are on a personal basis as a landowner, irrigator and long term farmer. He supports testimony of Oregon Wheat Growers League, Oregonians for Food and Shelter and Jim Harris. The proposed regulations should not affect currently established water rights. The rule language changes proposed by David Chandler and Lolita Carter should be adopted.

He is concerned about supposedly scientific reports referencing different numbers. The MMLs should not be used as cleanup standards without careful review of appropriate application. Strategies for groundwater quality protection need to be economically and technically reasonable with present available technology. Interagency coordination should take place prior to imposing regulation on water users and property owners if more than one agency is involved. An example is 3-4 different descriptions of wetland by different agencies. He requests an extension of beyond November 30th for comments.

10. Larry Cribbs, representing the La Grande Union County Chamber of Commerce.

Mr. Cribbs expressed that water and environmental protection are important to people in the area, especially because it doesn't rain a great deal in Eastern Oregon. Thus, they may be more concerned with wise use and protection of groundwater than those in western Oregon.

Mr. Cribbs serves on several different advisory groups and committees. He recommends the minority statement be seriously considered. People in Eastern Oregon live in world of application, not of theory or rule. Rules should be written so they are not open to varying interpretation depending upon one's bias. All should understand what the rules mean... not what they think they mean.



He requested that the message be taken back that if people are notified of a meeting in Eastern Oregon they will attend and they would like adequate notice.

11. **Dennis Myhrum, Northeast Regional Manager, Oregon Farm Bureau.**

Mr. Myhrum stated that the Oregon Farm Bureau is supportive of the intent of the legislation and its goal to prevent contamination of groundwater. Many of the 10,700 members are reliant upon groundwater for their daily needs and the continuation of a safe a plentiful groundwater is vital to the economic survival of ranchers and farmers, but to the entire region. The Oregon Farm Bureau is supportive of the report submitted by Drs. Chandler and Carter. They are supportive of consistent interpretation of the rules, and urge the Department to maintain consistency with the federal rules in regard to groundwater quality. This would help ensure program success and reduce the regulatory burden on the affected public.

They also support the protection of water rights and feel they should be addressed more completely prior to rule adoption. The activities associated with the protection and cleanup of groundwater under this Act should in no way compromise a land owner's previously established water right. It is also important the term measurable and maximum measurable be based upon a regulatory compliance program with levels that can be measured using today's technology. A program based upon numbers that cannot be measured would not be acceptable.

12. **Phillip Geertson, farmer and property owner in Adrian.**

Mr. Geertson stated that a unique geological condition exists in the area. An impermeable, blue claystone layer underlies a layer of topsoil gravel and sand. The area is a desert. The top layer had no water in it before irrigation began to occur. The area that is now being classified as groundwater is percolated water from farming operations. It is not fit to be consumed and will never be.

If the rules are established such that it has to be made drinkable, it will prohibit all use of chemicals and fertilizers which will make farming uneconomical and they would have to shut down. If this were to occur, andy they didn't irrigate, eventually there would be no groundwater.

The rules need to address these unique situations and proper procedures to work with these types of problems need to be established.

13. **Barry S. Fujishin, Board of Directors, Malheur County Farm Bureau.**

The Farm Bureau represents over 270 farming units in Malheur County. The fate of the area is tied to clean groundwater. The source of drinking and livestock water is groundwater.

The Farm Bureau is in general agreement with the majority of the report of the Technical Advisory Committee with some exceptions as follows:

- A. **MMLs based on one in a million risk level versus the MCL.** MMLs should not deviate from USEPA maximum contaminate levels (MCLs) for drinking water. For the great preponderance of contaminants, the MMLs should be identical to the federal drinking water standard. The only case where they should be different is where valid scientific evidence indicated that the federal standard is not protective of human health. Alternatively the rules propose that MMLs be different any time a carcinogen or substance of concern poses a theoretical cancer risk of one in a million if the federal standard has not been set at that same level. Setting the standard using this approach would require Oregon to enforce groundwater standards or set MMLs that are 200 times more strict than the federal standard. Two message would be sent to the general public.. Oregon does not believe the federal standards is protective of public health and confusion.

This would pose problems for municipal water providers if they provide water that meets the federal standard but at levels of contaminants above the MMLs. The proposed risk level of one in one million would be in violation of House Bill 3515 which says that MMLs must be measurable. Groundwater management areas could be declared when contaminants are below levels of detection technology. For an area to be declared a groundwater management area the contaminants in the declaration area must be measurable and a levels that pose dangers to public health.

MMLs should not be based on subjective or theoretical levels, such as one in a million nor on indirect measurements or statistical extrapolation. A goal of the Technical Advisory Committee (TAC) was to develop a process whereby everyone knows the game for establishing MML that would provide for equality and uniformity in implementing the program.

- B. **Use of MMLs.** Mr. Fujishin is concerned that even with the recommendation by the TAC the MMLs may be used as clean up standards, and it will be difficult, if not

impossible, to view the two standards differently. MMLs are held up as the measure of progress for cleanup since they are the values that trigger the designation of the management area in the first place.

- C. **Cost of developing MMLs.** The Malheur County Farm Bureau is also concerned with the cost of the plan for development of MMLs. The DEQ identified a cost of \$175,000 per biennium for a toxicologist and support staff to do 16 MMLs. If the MMLs were established based on the federal drinking water standard existing staff might suffice.
- D. **Property and Water Rights.** The Farm Bureau agrees with the recommendations of the TAC where a plan developed in a groundwater management plan must make economic sense, be voluntarily cost effective, or cost neutral. They also want to emphasize that the protection and cleanup must not compromise water rights senior to the declaration of a groundwater management area or deny owners a beneficial use of an established right in protecting quality or remediating contamination. A designation of a groundwater management area should not impact property rights and should consider adverse effects on property values in its implementation.
- E. **Linear and Threshold Theory.** The discussion of these theories does not add anything to the report and should be deleted. He believes it is a misrepresentation that linear theory has broad acceptance.
- F. **Technical Advisory Committee.** Mr. Fujishin expressed concern that the committee was not made up entirely of technical people. The topic is too important to be decided by majority vote, or consensus among members of differing polarized views on levels of risk that is tolerable in living in a given environment, drinking the water or eating the food. Instead, the topic should be addressed by technical people in a scientifically objective manner, incorporating scientific evidence use by the EPA and other agencies.

In conclusion, Mr. Fujishin stated that the majority of the Malheur Farm Bureau's concerns can be addressed by the Commission adopting the modifications proposed by David Chandler and Lolita Carter.

#### 14. **Mac Kerns, Interested Citizen.**

Mr. Kerns expressed concern that farmers not lose chemicals and fertilizers as tools. Mr. Kerns supports the changes recommended by Drs. Chandler and Carter. He is concerned how

the rules may be applied. If a groundwater problem is identified, he would like to make sure the different agencies involved are coordinated so those affected aren't confused. He also does not want a designation of a problem area or cleanup to infringe upon any vested water rights.

He also believes the standards should be based on scientific data and tied to the federal safe drinking water standards. He doesn't think the standards should be the same as cleanup standards. Mr. Kerns would like the date for submittal of comment to be extended by at least two weeks.

15. **Mike Barlow, Vice President, Malheur County Soil and Water Conservation Board.**

Mr. Barlow expressed that he supports comments made by Oregonians for Food and Shelter, the Farm Bureau, Barry Fujishin and Phillip Geerston. He expressed that his major concerns are in the area of water rights and property values and the economic impact. He invited the Department to hold hearings in the Malheur county Ontario, Vale, and Nyssa area in the future.

16. **Nico Hopman, Farmer and Ontario Groundwater Management Area Committee member.**

Mr. Hopman expressed that he concurs with views presented by Barry Fujishin and Oregonians for Food and Shelter. He also pointed out that the West primarily developed through agriculture which has allowed spinoffs for recreation and hydroelectric power since many of the dams were put in by agriculture. It was about 20 years after the dams were put that we began seeing a decrease in temperature. The road for agriculture needs to be left open. Scientific data suggests the urban and city areas, particularly the industrial areas, are creating more of an environmental problem to the planet than agriculture, even though agriculture may be creating some water quality problems.

17. **Kit Kamo, District Manager, Malheur County Soil and Water Conservation District and Chair, Malheur County Technical Subcommittee for Water Quality.**

Ms. Kamo expressed support for Barry Fujishin's comments, the minority statement prepared by Drs. Chandler and Carter and the OFS testimony.

18. **Jack B. Jensen, Western Farm Service.**

Mr. Jensen expressed support for the position taken by OFS. His interest is to maintain a quality of resources so they can continue to work with the resources and not have taken away from them.

19. Jim Brown, Pendleton Grain Growers (PGG).

PGG represents about 2500 growers in a five county area in northeastern Oregon and southeastern Washington. PGG supports protection of Oregon groundwater. They have invested large amounts of money for new equipment and facilities designed to protect the environment and will continue to do so in the future by installation of containment facilities for liquid fertilizers and pesticides and purchasing equipment designed to reduce the amount of rinsate generated by spraying operations. In order to generate revenues for capital, they need a known baseline to target efforts toward.

They currently have a sliding target they can't catch up to. Detection technology has exceeded their ability to correct current situations and anyone's ability to accurately predict what the effects of parts per billion of some chemicals are on the population. He notes that the incidence of cancer is decreasing except for lung cancer. Decreases in stomach cancer have come at a time when use of chemicals has multiplied several fold. He states that his own research has shown that lung cancer in women from smoking and skin cancer from exposure to ultraviolet light are the only areas where incidence of cancer are increasing. MML levels must be at or above current detection levels.

It is not realistic to expect the industry to meet a sliding scale where there is little evidence to prove that the residues that are measurable are connected to cancer or any other diseases. Coordination between state and federal programs must exist. It is important to the state's ability to produce safe high quality foods at a price people can afford to have the standards based upon solid scientific data rather than on personal opinions of regulators. The risk of people not having enough to eat outweighs any risk associated with ingestion of food or water that may possibly contain certain chemicals at currently detectable levels.

PGG's mission statement includes stewardship of the natural resources while maintaining a positive balance between the environment and the economic well-being of agriculture. PGG supports the statements made by Terry Witt, OFS.

20. Brian R. Spencer, Interested Citizen and property owner in Summerville, Baker County.

Mr. Spencer expressed that something has to be done to get information out to the people. He feels it's almost like the state doesn't want people to know about these of meetings.

They put something in the paper as a the last minute and few people get the word. He's certain that if the media were really used -- TV, radio, and papers, and the information was made available so people knew what was being proposed, more information would be made available to the Commission.

He hopes that the message is taken back that the rules be kept fair for both sides of the state, since activities that occur in western Oregon do not apply in eastern Oregon.

In his perusal of House Bill 3515 he doesn't find a definition of groundwater. At a meeting with the Water Resources Board, they were using "wastewater" as a term and no one had a definition of it. A lot of the wastewater definition they were using would apply to western, not eastern Oregon.

21. **Jeolee Hickey, Northeast Timberworkers Resource Council.**

Mr. Hickey expressed that though no one wants to see the environment trashed, they don't want to see the application of environmental regulations so restrictive or implemented in such a manner that they are economically unfeasible for an area.

He stated his problem is not with the DEQ, but rather with the Legislature that put the bill into effect. He regrets not having input on how the law was written.

He recommends that the "linear theory" be dropped and replaced with specific contaminant levels that are cancer causing.

He believes that the stringent laws are the result of 20 years of Democratic power in the state house and Governors and environmentally oriented people who do not care about costs.

He supports the statements made by OFS and wants the deadline for comments extended by another 15 days to allow people to express their anger and frustration over the implementation of the Act.

22. **Dave Leppert, Geologist.**

Mr. Leppert expressed he recognizes the need for standards but he is concerned about the whole thing because they won't be constrained by technological or economic considerations.

He doesn't believe in the linear theory... it's like saying one cigarette causes cancer. How many minutes does a farmer have to spend in the sun to develop cancer.. what type of cancer does it relate to. If these types of standards were applied to highway safety, we would have to shut down every road.

Though he was at a meeting in Ontario and signed a list, he has never received any notification about other meetings, including this one.

He doesn't believe the state should be spending a lot of money on redefining contaminant level standards that the federal government has spent millions of dollars on.

He supports a time extension to allow time for additional written comments. It will take several days to review materials made available at the hearing.

He is troubled by DEQ's sole emphasis on regulating things and states there is no emphasis on finding solutions to problems. The DEQ should be helping develop cost effective remedies.

He supports comments made by Barry Fujishin. Based on his reading, he has learned that people have discovered that certain chemicals (like dioxin for example) are not as bad at extremely low levels as once thought.

23. Dan Nichol, Interested Person.

Mr. Nichol expressed concern there was inadequate time between the hearing and the close of the public comment period to provide comments on what was learned at the hearing. It sends a message to the public and he suggests better notice be given in the future.

24. James M. Burns, representing the Chamber of Commerce and the Business Agriculture and the Legislative Committee for the Milton-Freewater area.

About 350 farmers are represented on the Business Agriculture Committee. He expressed that the implementation of any and all water resource rules and regulations should stay within a basin and with local control. Any loss of water rights and penalties should be realistic and should be set by the local control body. The Water Resource Commission should be an advisory board and a help to local basin and subbasin groups.

Eastern Oregon's biggest problem is that there are so few people against so many, yet eastern Oregon comprises 3/4 of the land mass of the state. What happens to water in western Oregon is different than what happens to water in eastern Oregon since the eastern part of the state depends on groundwater and not rainwater.

He advocates use of the federal drinking water standards and removal of reference to carcinogen levels. If the state can't do that, the minority report of Chandler and Carter should be implemented.

He expressed agreement with the OFS comments. He supports the state hold hearings all over the state.

25. **Katy Spencer, KCMB radio in La Grande.**

Ms. Spencer expressed that to her knowledge the radio station had not received any public service announcements regarding the hearing. Their radio station broadcast area is 10,000 square miles. She expressed it was very important to give more than one day's notice about hearings in the newspaper but also give notice to radio stations since not everyone subscribes to a newspaper.

She also requested an extension be given for people to provide responses to the public notice.

26. **Craig Crawford, Interested Citizen.**

Mr. Crawford expressed he concurs with Terry Witt of OFS, Barry Fujishin, and Dennis Myhrum Oregon Farm Bureau.

27. **Doug Tippett, Rancher and Farmer.**

Mr. Tippett expressed support to comments made by Terry Witt of OFS and asked for an extension since everyone seems to be in the dark.

He stated that in reading through the document it doesn't look to bad, but try to understand it. It seems to give the person in charge of it full authority to do whatever they want and it scares him. It's not specific enough. The public is entitled to more time to respond.

28. **Larry Hamilton, Northwest Timber Workers Resource Council.**

Mr. Hamilton expressed support of comments made by Terry Witt, OFS. He also asked that information on the subject in the future be sent to their coordinator, Mrs. Cassie Botts.



He also requested a two week time extension to provide additional comments.

29. **Ron LeFore, Apple Grower in Milton-Freewater.**

Mr. LeFore supported comments made earlier by OFS and hopes that the Commission will seriously consider comments made by agriculture. As an apple grower, he has been financially affected by hearsay and information that hasn't been scientifically proven.

30. **Arleigh G. Isley, Rancher and Extension Service Agent.**

Mr. Isley commented on the fact that he is amazed that the state would be inclined to restrict contaminants in water to a greater degree than all the things we would eat. He stated there are more cancer causing agents and at higher levels in vegetables than most of those we are concerned about in groundwater. For example broccoli has more nitrogen than any drinking water tested in Oregon. Also, the diets of vegetarians has 60 times more nitrogen than we have identified as being appropriate for drinking water. He questions why.

He also suggests that state agencies contact the extension service to get information disseminated.

31. **Dale Counsell, Chairman, Union Soil and Water Conservation District.**

Mr. Counsell expressed support for local control within counties to make things work.

B. WRITTEN TESTIMONY

1. Mary O'Brien, Northwest Coalition for Alternatives to Pesticides, letters dated August 30, 1990 and September 14, 1990.

Ms. O'Brien requests that the Commission consider the implications of her observations as summarized below and be aware of shortcomings in the Groundwater Committee's report and proposed rules.

- A. She recommends that Oregon move from a traditional environmental policy based on the assimilative capacity approach to the precautionary principle and prevention of toxic discharge. She expresses that the committee's proposal contribute to sanctioned environmental degradation. The precautionary principle would apply to bioaccumulative synthetic chemicals and its corollary is prevention of waste discharges through clean production. Clean production involves the analysis of entire production systems for the application of the substitution of raw materials and alternative products, processes and clean production technology.
- B. The process proposed by the committee fails to address cumulative impacts. Estimation of safe contamination toxin by toxin fails to account for additive or synergistic effects of multiple toxins and their chemically related degradates. Since the data necessary to generate numbers for cumulative effects haven't been gathered multiple groundwater contaminants are illogically and unscientifically considered to act independently and without cumulative effects.
- C. The process proposed by the committee fails to address data gaps. These gaps may include a toxin's immune suppressive effects or threats to nerve functioning, testing for birth defects, reproductive effects, cancer, effects on infants or on chemically sensitive people. Ignorance and failure to adequately test chemicals are rewarded with contamination limits that are potentially non-protective and no news is considered good news. The assimilative capacity approach requires proof be offered of damage before a number is assigned limiting allowable contamination.

She also remarks that a statement in the Committee's report included after the last meeting is inaccurate. "One cancer in a million" does mean that it is estimated that approximately one additional person in a million people will contract cancer from a particular source (such as from drinking a certain amount of groundwater) that is contaminated with a specific carcinogenic compound for a certain number of years. She provides a copy of the citation she states was made in error.

2. David Chandler and Lolita Carter, September 10, 1990. Technical Advisory Committee Minority Statement.

Drs. Chandler and Carter stated their minority report is presented because certain issues have not been adequately addressed in the final Groundwater Technical Advisory Committee report. With the intention of presenting additional viewpoints and information to the Commission, they commented as follows on specific issues and provided a copy of the modified rule language they propose:

- A. Conflicts with Safe Drinking Water Act. Rejection of MCLs in favor of setting an alternate value for use as an MCL at risk level of 1 in a million is inappropriate. The DEQ will be regulating groundwater 20 to 200 times more restrictively than the Oregon State Health Division (OSHD) regulates drinking water. This sends a message that the public cannot rely on the OSHD or the EPA to assure them safe potable water supplies. If the EPA declares an MCL is safe for public health, can the EQC determine otherwise? A risk assessment is a mathematically derived value judgment, not valid scientific evidence. They suggest the following be substituted: OAR 340-40-125 (1)(a)(i): For substances of concern or contaminants which are carcinogens, there is scientifically valid evidence to support a conclusion that public health is unreasonable at risk.
- B. Issues on Carcinogenic Compounds. It is inappropriate to reject "federal drinking water standards for class A or class B carcinogens because they may pose a risk greater than 1 in a million. They believe the proposed rule is too restrictive and propose the language shown above for OAR 340-40-125(1)(a)(i) and alternate language for OAR 340-40-125 (2)(a): For substances of concern or contaminants that are carcinogens, the Department must determine that there is scientifically valid evidence to support a conclusion that public health is unreasonable at risk.

They state that the use of classifications of carcinogens within the rules is premature and it is better not to specify the classification of carcinogens or suspected carcinogens that are to be regulated in this section of the rules.

- C. Threshold Theory against Linear Theory. The Threshold Theory states that a substance is toxic above a threshold amount greater than zero. The Linear Theory says any amount of a substance above zero is toxic. Any discussion of the theories begs the real issue which is whether "nutrient necessities", (such as that for arsenic or salt) should be considered toxic concentrations.

The Linear Theory does not take into account the biology of the organism exposed or the route of exposure. It assumes that any amount of the substance above zero will cause cancer. Use of the linear model would allow the designation of an MML below detection limits which is contrary to House Bill 3515. Setting an Maximum Measurable Level below the detection limit is equivalent to establishing a zero level which is not measurable. This circumvents the process in initiating a Groundwater Management Area. Alternatively, setting the level of risk to the detection level for that chemical provides the regulated public certainty that a contaminant will be accurately and precisely measured before the expense and inconvenience of regulatory action is imposed.

The section on "threshold effect" in the Committee report is not based on substantive discussions of the topic at committee meetings and does little to assist in the interpretation or enforcement of the rules.

- D. Use of Maximum Measurable Level as Clean Up Standards. Throughout the Committee deliberations it was assumed that the MMLs would not be used as groundwater clean up criteria for the groundwater rules or other DEQ regulations. Instead, the rules would be used to determine where/when Groundwater Management Areas are to be established due to contaminated by non point sources. At the June 1990 meeting the Committee realized the potential overlap between the MMLs and the clean up standards which could be imposed on "Principle Responsible Parties" under CERCLA, RCRA and the Oregon Superfund regulations. The MCLs already protect public health. If the MMLs were used as cleanup standards, landowners could unjustly loose their land based on the requirement for overly restrictive cleanup criteria.

- E. Cooperation with other State Agencies. The House Bill 3515 calls for the Strategic Water Management Group (SWMG) to appoint a technical advisory committee to develop criteria and a method for the EQC to apply in adopting MMLs of groundwater contaminants. Initially there was confusion about who the Committee was to report to-- SWMG or the EQC. Though the SWMG deferred to the EQC, it is important that the other agencies of SWMG be informed before the rules are presented to the public in the hearing process. Some of the proposed rules will impact either the rules or the operation of other agencies, including Agriculture, Forestry, Health Division, Water Resources Department, Department of Geology and Mineral Industries. The Committee report was not circulated to those agencies prior to submittal to the EQC nor have their comments been incorporated by the DEQ staff in its report.
- F. Water Rights. The protection of groundwater and possible subsequent clean up of contaminated groundwater should in no way compromise water rights senior to the declaration of a Groundwater Management Area or clean up project, nor deny owners of those rights the beneficial use of an established water right in an effort to protect groundwater or remediate contamination. Water in Eastern Oregon is as valuable as the land. The proposed rules do not specifically document water rights as a concern, but should be to assure the public that water rights will not be disturbed.
3. John Neely, Eugene, letters dated October 25, November 4, 13 and 14, 1990. (Testimony is still being deciphered)

Mr. Neely requested a copy of HB 3515. He questioned whether inserting "substantial compliance" into the rules would enable the Department to avoid mailing notices to the public. Mr. Neely noted that public testimony could be limited on setting MMLs by establishing a method and criteria in rule form rather than guidance. More public input is needed in the MML setting process because scientific data can often be diverse and contradictory and the technicians personal perspective can bias the results. He then gave an example of where this happened with regards to fecal coliform values.

Mr. Neely thanked the Department for the information he requested and also for holding additional hearings on the proposed rules. He recommended that the maximum measurable levels be coordinated conjunctively with the Water Quality Standards, now out for public hearings. He then made comments on the proposed Water Quality Standards.

Mr. Neely wished to supplement his testimony of November 4, 1990 by noting the interconnection between surface and groundwater. It is his belief that the discharge from the Springfield regional sewage treatment plant to the Willamette River was polluting the groundwater down gradient in the River Road-Santa Clara area and requested a review of their NPDES permits. He also noted the Water Resources Commission has the authority to control other holes which contaminate groundwater and that HB 3515 allows the domestic use of 15,000 gallons of water a day which could be discharged through a tertiary treating septic tank system for transport of the effluent to groundwater and that if a groundwater management area is declared that connecting to a sanitary sewer should require a permit for exfiltrating raw sewage.

Mr. Neely writes about the Water Quality Standards now out for public comment and focuses on sulfate and chlorides. He is also concerned that regional sewer plants and their associated sewer lines maybe contaminating groundwater.

4. David H. Stere, Directory Resources Planning Section, Office of State Forester, Forestry Department (DOF). Letter dated November 7, 1990.

Mr. Stere questions whether the general public will find the rules readable or understandable. DOF supports the "minority" perspective on the issues which conflict with the proposed rules. Specifically, DOF notes that differences in perspective include the majority's recommendation and proposed rules setting MMLs for carcinogens at a risk level that is "less than or equal to one additional cancer case in a million humans". This contrasts to the less restrictive risk level recommended by the minority calling for "scientifically valid evidence to support a conclusion that public health is unreasonable at risk" notes that the risk level may effect restrictions on forest chemical applications if the pesticides are determined carcinogenic and are found to enter groundwater.

A second issue is the choice of a theory for regulating chemical levels in groundwater. The minority report rejects the assertion that the linear theory is superior or more accepted than the threshold theory whereas the majority report and DEQ support the linear theory that any amount of a substance above zero is toxic to some degree.

Third, the DOF expresses concern that the committee/DEQ failed to offer its report to potentially affected agencies before submitting it to the EQC. The Department had previously requested information of these and all future DEQ actions from DEQ.

5. Clinton B. Reeder, Oregon Wheat Growers League (OWGL),  
Written testimony dated November 16, 1990.

In addition to the oral testimony presented at the Portland hearing, Mr. Reeder presented written testimony summarized below:

The OWGL supports the protection of groundwater quality. They have an annual ongoing conservation award program which provides recognition of well engineered and implemented conservation and water quality protection measures on farms across the state. It also provides a learning opportunity since they conduct an annual conservation tour to select winners in each county. Their Water Issues Task Force, established in 1988 is committed to working with appropriate other parties to develop and implement an effective groundwater protection program.

The OWGL supports most of the Oregon Groundwater Quality Technical Advisory Committee report. They think the process followed by the committee assured reasonable consideration of relevant issues and fairly presents the general consensus of the committee. They also support in principle the recommendations presented by the DEQ to simplify and provide common definitions among the various regulations. They support a protection scheme that is both reasonably enforceable and flexible, so it can be adapted to recognize improved understanding of water and its relationship to aspects of the environment. They encourage the EQC to seriously consider the comments concerning the report presented by Drs. Chandler and Carter, dated September 10, 1990. In general, the OWGL supports the substitute language they suggest in their letter.

The OWGL recommends the groundwater protection program: a) not adopt a single inflexible risk standard, such as is recommending the committee's report; b) not use the protection standards as clean up standards without a good deal of soul-searching as to whether or not such will be reasonable and appropriate; c) be implemented in a manner that assures coordination among the agencies involved to minimize confusion and frustration of individuals subject to the regulations; and d) protect established water rights.

Where it is absolutely and unavoidably necessary that established water rights be reduced, reasonable compensation should be provided to the current water right holder for any negative economic consequences to him for any loss of established water rights.

They are pleased to see the schematic of the groundwater protection process appended to the report. They encourage the EQC to continue to provide visual aids to enhance public understanding.

They support the explicit reference in Section 340-4--135 to the potential for appropriate modification of the MMLs, including consideration of metabolites and degradates when and if credible data indicates they might be of concern.

They support repeated references in the report to scientifically valid information and notations that laboratory procedures be verifiable and conducted under established quality control procedures. It is imperative that the MMLs be established and modified only upon presentation of clearly credible data.

OWGL notes that Oregon wheat farmers have voluntarily paid an assessment for each bushel of wheat sold to help pay the cost of ongoing research to enhance productive and conservation minded use of the natural resource. They will continue to do so to assure continued utilization and protection of the resources for the benefit of their families and to contribute to the well being of the general public.

They ask that as the EQC develops rules and strategies they bear in mind that the program will succeed best if it blends reasonable concern for the environment with concern for the economic realities faced by those subject to regulation. They are ready to support efforts, including assisting in public education, to encourage voluntary compliance if the regulations are both ecologically and economically reasonable and feasible.

6. Joel E. Pagel, Wildlife Biologist, Letter dated November 16, 1990.

Mr. Pagel presented comments on present and proposed levels of 2,3,7,8-TCDD (Dioxin) stating these levels are unsafe for human and animal contact. Detectable levels of TCDD below 10 parts per trillion are believed to induce embryotoxicity on raptors. Falcons and eagles within Oregon are believed to be affected by concentrations of these chemicals within their eggs. Some level below current detectable levels may be safe, but any further release of dioxin or concentration of TCDD in ground or surface water is hazardous until methods which determine concentration of parts per quadrillion or smaller is available at a cost efficient level.



He also expressed that the draft plan does not address synergistic effects between contaminants. As can be shown in laboratory environments, 2 or more chemicals (organochloride contaminants) may have reactive qualities above those of the single chemical. The effects of this "chemical stew" has not been adequately addressed in the literature available to toxicologists and should be considered prior to legally permitting persistence of carcinogens and contaminants in groundwater.

7. **Michael L. Turner, Technical Services Manager, Bear Creek Operations, letter dated November 19, 1990.**

Recommends DEQ support the language changes proposed by Drs. Chandler and Carter. Mr. Turner believes uniform national standards are the most logical and provide a sufficient margin of safety for the general public. Independent standards complicate the situation and cause unneeded controversy. They interpret the proposal to call for enforcement actions in Oregon that are 200 times more stringent than Federal Standards. This seems arbitrary considering the massive scientific effort behind the federal Clean Water Act.

8. **Jim Brown, Agronomy & Feed Division Manager, Pendleton Grain Growers, letter dated November 20, 1990.**

Mr. Brown expressed support for protection of Oregon groundwater and noted that large sums of money have been invested for new equipment and facilities designed to protect the environment. They will continue this investment in the future by reducing the amount of rinsate generated by purchasing new spraying equipment and by constructing containment facilities for fertilizers, pesticides and fertilizer reinsate. They, however, need a known baseline to target their efforts rather than a sliding target they can't catch up to. Detection technology has exceeded their ability to correct current situations and anyone's ability to predict the effects of parts per billion on the population.

Mr. Brown notes that cancer incidence are decreasing except for lung cancer. The levels or baseline must be at or above current detection levels. Coordination between state and federal programs must exist. Also, the programs must be base upon solid scientific data and no the personal opinion of regulators is important to produce safe, high quality foods at a price people can afford.

9. Jean Jepsen, Dobyys Pest Control, letter dated November 20, 1990.

Expressed support for the protection of Oregon's groundwater, but strongly feels that landowner water rights should not be infringed upon by the activities associated with the protection of the standards and landowners should not lose their water rights. He strongly supports the statements of Drs. Chandler and Carter. Their recommendations stated in the minority report should be considered before new regulations are set. The MMLs were intended as a tool to be used for the declaration of a groundwater management area and should not be used in a fashion they were not intended. A determination that cannot be measured by today's means does not make sense. Groundwater is a precious commodity it should not be jeopardized or tied up in a lot of red tape due to misinterpretation of words.

10. Chalres Holt, Dobyys Pest Control, letter dated November 20, 1990.

Expressed support for the protection of Oregon's groundwater, but strongly feels that landowner water rights should not be infringed upon by the activities associated with the protection of the standards and landowners should not lose their water rights. He strongly supports the statements of Drs. Chandler and Carter. Their recommendations stated in the minority report should be considered before new regulations are set. The MMLs were intended as a tool to be used for the declaration of a groundwater management area and should not be used in a fashion they were not intended. A determination that cannot be measured by today's means does not make sense. Groundwater is a precious commodity it should not be jeopardized or tied up in a lot of red tape due to misinterpretation of words.

11. James R. Jepsen, letter dated November 20, 1990.

Expressed support for the protection of Oregon's groundwater, but strongly feels that landowner water rights should not be infringed upon by the activities associated with the protection of the standards and landowners should not lose their water rights. He strongly supports the statements of Drs. Chandler and Carter. Their recommendations stated in the minority report should be considered before new regulations are set. The MMLs were intended as a tool to be used for the declaration of a groundwater management area and should not be used in a fashion they were not intended. A determination that cannot be measured by today's means does not make sense. Groundwater is a precious commodity it should not be jeopardized or tied up in a lot of red tape due to misinterpretation of words.

12. John W. Jepsen, letter dated November 20, 1990.

Expressed support for the protection of Oregon's groundwater, but strongly feels that landowner water rights should not be infringed upon by the activities associated with the protection of the standards and landowners should not lose their water rights. He strongly supports the statements of Drs. Chandler and Carter. Their recommendations stated in the minority report should be considered before new regulations are set. The MMLs were intended as a tool to be used for the declaration of a groundwater management area and should not be used in a fashion they were not intended. A determination that cannot be measured by today's means does not make sense. Groundwater is a precious commodity it should not be jeopardized or tied up in a lot of red tape due to misinterpretation of words.

13. Larry R. Rains, P.E., Acting Manager, Medford Water Commission, Letter dated November 20, 1990.

Mr. Rains commented that a comprehensive groundwater protection program for Oregon is overdue and the program is a major step forward in resource preservation. He expressed concerns regarding the availability of resources to determine MML as proposed by the rules. A simpler, more straightforward approach would leave more resources for mitigation, testing, monitoring and cleanup which are the most essential parts of the program. He interprets the rules as requiring the Department to critically review the federal standards setting process for every contaminant for which MML are established. It could be time consuming, expensive and may result in conflicting standards or water quality goals. A more appropriate action would be to accept all current and currently proposed EPA drinking water MCLs and limit the review process to eliminate duplication of EPA investigation.

He comments that:

- A. The proposals should identify a means to prevent conflicting standards where a drinking water MCL may be exceeded when the MML or 50% of the MCL is not. Otherwise, inconsistencies may develop between OHD and DEQ regulations that will further confuse and complicate regulatory compliance actions.
- B. In implementing the Advisory Committee recommendation for testing all of the State's aquifers, who will define the aquifers, perform and pay for the monitoring and analysis.

- C. The rules should include requirements for the public to be notified and the contaminant levels to be reported if the MMLs are exceeded.
- D. If the MML are set at the natural occurring background, different MMLs could result for the same contaminant depending on the source aquifer. The groundwater management programs should protect other area aquifers from contamination by high levels of naturally occurring contaminants.
- E. For certain contaminants, detection at any concentration should trigger some additional investigative monitoring, including the ability to establish a groundwater management area and to determine the scope of potential contamination. By the time contaminants reach 50% of the MML, it may be too late to prevent contamination exceeding drinking water MCLs.
- F. The rules are vague on what happens after the MML is exceeded. Who is responsible for cleanup and mitigation? The interrelationship between this rule and enforcement and mitigation rules should be addressed.
- G. Terms that have very broad meaning, such as "scientific evidence" and "effect on the environment" should be defined.
- H. The use of an absolute one in a million risk factor for all MML development is very inappropriate. It restricts flexibility to establish responsible levels and legitimizes a standard which may not be acceptable for all MMLs.

14. Judith A Hobbs, Cascadia Landscape Design, letter dated November 20, 1990.

Supports the proposed rules and comments that:

- A. The MML must be based on health and environmental considerations.
- B. Oregon must not adopted the "lax" federal standards intended for pollutants in treated municipal drinking water.
- C. An MML should be set below detection if health and environmental considerations warrant.
- D. MMLs should be set for chemicals known to cause cancer among lab animals (group b carcinogens)

- E. The MMLs must be no higher than those associated with one in a million.

Commented that prevention of groundwater is infinitely less costly than cleaning the contaminants out of groundwater and the most stringent rules possible are necessary. Any scientific Advisory Committee established to assist DEQ determine MMLs must be broadly acceptable to interest groups, including Oregon's environmental community.

15. Jerome Hobbs, letter dated November 20, 1990.

Expressed same concerns and recommendations as letter by Judith Hobbs which is summarized above.

16. C. K. and Lucile Peck, letter dated November 20, 1990.

From observing other regulatory programs that tend to become self-governing entities that implement their own rules, they oppose MMLs for groundwater contaminants higher than the federal drinking water standards. It would be unrealistic and difficult to comply and may be a reason the majority of Oregonians are becoming fed up with costly new and changing programs and voted for Measure 5.

The Peck's express that they own and operate a farm with cattle that use a tiny creek for water. No one uses the water for drinking water but theoretically it could be considered contaminated. How could they be expected to comply since wildlife contaminate the water? They express that it's usually dry so it would take a long time for fertilizers and pesticides used on crops to reach the stream. They don't want a person's established water rights to be placed in jeopardy by any new legislation.

In reading a hand out titled Efficient water Use and Riparian Area Management on Public Lands, they note a quote on page 6 which states that "public lands are established and managed to produce public benefits, including economic return to the state and local governments. Private lands are managed primarily for economic output or other individual benefit. They asked that those writing regulations reevaluate how public lands are sometimes managed and the economic output of private land since private lands contribute economic return through taxes, and agriculture provides thousands of jobs. They recommend to those who like to eat to be thankful for "private" land and those dedicated enough to husband it. Farmers are the original preservationists.

17. Charles and Wayne P. Kizer, Kizer & son, Inc, letter dated November 20, 1990.

Kizer & Son, Inc is a small family farm corporation in grass seed and some wheat production. The Kizer's note that a safe and abundant underground water supply is available and important with the best tasting water about 20 feet depth. Higher volume needs require deeper wells that often have a "mineral" taste. They do not believe there is any reason for government intervention in either quality or quantity of their water supply, though this may not be true of all water supplies.

They agree with the minority statement of Drs. Chandler and Carter which would use language allowing some flexibility in determining risks from suspected cancer causing contaminants. The contemporary fascination with a government mandated risk free society is not possible more desirable and it's hard to imagine anything that does not present a risk to something else.

Acceptable risk is harder to mandate since what is acceptable to one may be unacceptable to another. They do not want the government setting the risk they may take in driving a car which is presents a much greater than one in a million chance of being killed.

Sometimes it may be appropriate for the government to set limits on the risks of one persons actions on someone else. It is important the limit be measurable and objectively determined and stationary. They ask they not be required to hit a moving target or one that is invisible. They want the MML standard to be used only for declaring a groundwater management area.

18. Mary I. Fenner, letter dated November 20, 1990.

Expressed that Oregon cannot afford to sacrifice people's health to continued poisoning of the environment from harmful pesticides and industrial pollutants. She recommends:

- A. The MMLs be based on health and environmental considerations alone,
- B. The federal standards are too lax and were designed to address treated municipal drinking water standards,
- C. MMLs should be set below detection if health and environmental considerations warrant,
- D. The MMLs should not be higher than those associated with one in a million risk of cancer and

- E. MMLs should consider the toxicity of related degradates and the cumulative cancer risk of contaminants, not each one separately. It is not acceptable to allow the state to ignore certain areas of polluted groundwater on the basis of program priorities.

19. Sharon Chestnutt, letter dated November 20, 1990.

Expressed that keeping the groundwater clean and free of pollutants should be a high priority and must insist that the health of citizens and wildlife who depend on groundwater for drinking come before the convenience of polluters. The MMLs must be based on health and environmental concerns above economic considerations and should be set below detectable levels is health and environmental concerns warrant, as in the example of 2,3,7,8-TCDD or dioxin.

Chemicals which are shown to cause cancer in other species should be classed as human carcinogens for the purpose of establishing MMLs and the MML should be no higher than a one in a million risk for cancer. The risk factor should also address the cumulative effects by all contaminants in an aquifer. In fact the drinking water should pose no risk.

MMLs should also consider the toxicity of a chemical but also the breakdown products of chemical and inert ingredients in its formulation. Local communities and the public in all areas of the state where groundwater pollution is detected need to be informed. She states we cannot set pollution priorities. The most stringent rules must be applied to protect our groundwater resource. Once polluted, it is difficult or impossible to clean up.

20. Jim Carr, Senior Forester, Land & Timber Division, Menasha Corporation, letter dated November 21, 1990.

Mr. Carr expressed concern that overly stringent regulations or unreasonable standards for water quality may restrict his ability to effectively manage forestland. He asked that: a) MMLs be used only as a means to declare a groundwater management area and not as a cleanup standard or regulation by state agencies, b) the MML be closely associated with federal drinking water standards to promote uniform enforcement. One in a million risk factor standards for suspected cancer causing contaminants could trigger action at level that pose no threat to public health, c) when standards are set for MMLs, they should be measurable under today's technology and not set as "non-detectable", since the later can change as technology changes, and d) recognize groundwater protection is not to regulate every source of water consumed by citizens but to provide a level of

confidence that their water is safe to consume. Protection or cleanup of groundwater according to the groundwater Protection Act should have no bearing on established water rights and should not be used to restrict a citizen's water right.

21. Greg Beal, RN, Trillium Valley Farm, letter dated November 21, 1990.

Commented in favor of strong rules and development of alternatives to practices that pollute groundwater. Wants points made by the N.W. Coalition for Alternatives to Pesticides considered. Notes that prevention is less costly than cleaning up pollution and considers strict rules essential to protecting Oregon's groundwater and keeping Oregon at the forefront of environmental issues.

22. Paul Morehead, letter dated November 21, 1990.

Expressed support for the protection of Oregon's groundwater, but doesn't want to see water rights compromised by excessively stringent rules and regulations. It is not acceptable to the majority of citizens to have an "all or nothing" policy and go from no rules to dictatorial policies.

He supports the minority statements submitted by Drs. Chandler and Carter to allow flexibility in dealing with the risk associated with cancer causing contaminants and to prevent the groundwater rules conflicting with the federal drinking water standards.

He expressed concern that people within the DEQ feeling Oregon's reputation is on the line, so we must be dictatorial to show the rest of the country how environmentally aware we are. Mr. Morehead states that the MMLs are to used only for the declaration of a groundwater management area and not as cleanup standards.

He notes that the word "measurable" was carefully chosen as the trigger for a management area at or above the current level of validated, analytical detection.

Mr. Morehead is very concerned with what he sees as a determined effort by environmental groups and agencies to make rural life in Oregon and the Pacific Northwest impossible by taking timber, grazing rights and now water rights away. People within the agency should realize the only reason they are being paid is because commodity users in the private sector are turning natural resources into dollars to keep the state and country going. If people in regulatory agencies make this traditional life possible, we will be doing ourselves in.



23. Nancy Helget and Peter Fels, letter dated November 23, 1990.

They live in a rural area of eastern Oregon where water is a critical resource and groundwater is already becoming contaminated. Expressed that strong controls are important to protect the agricultural economy but also for the health of people, today and tomorrow. An essential part of the proposed rules is the emphasis that safety is the primary concern over temporary economic benefit.

24. Alvin O. Connor, letter date stamped November 23, 1990.

Mr. Connor expressed he doesn't believe any more stringent rules on water quality than has been deemed safe by public health as ok to drink. Some flexibility in dealing with risk factors associated with cancer causing contaminants as recommended by Drs. Chandler and Carter are needed.

25. Dawn Sinnott, letter dated November 23, 1990.

Commented in favor of adopting strong rules to protect groundwater and doesn't believe that commercial interests have the right to pollute water in Oregon. Practices of those who pollute must change. Recommends against adopting "lax" federal standards and wants MMLs to be no higher than those associated with one in a million risk of cancer.

26. William and Lillian Hull, letter dated November 25, 1990.

Though they support the protection of Oregon's groundwater and an adequate supply of high quality water is important, maintaining the quality is of no benefit if water rights are taken away and they can't use it. They strongly support the minority statement submitted by Drs. Chandler and Carter and urge the Commission to make their recommended language changes. They expressed concern about the conflict and stringency of adopting a risk factor of one in one million. They also expressed concern about the potential use of MMLs as cleanup criteria. The enabling legislation in 1989 clearly states that the MMLs are to used only for the declaration of a groundwater management area. Also, the term "maximum measurable level" was carefully selected and must be a number at or above the current level of validated, analytical detection. They expressed it is not acceptable to operate a regulatory program based upon compliance with levels which cannot be measured with today's technology. They request changes be made to the Groundwater Protection Act to comply with the above statements for the good of all Oregon people in allowing them to carry on their business of raising cattle and farming.

27. **Ed Hemenway, President, Oregon Dairy Farmers Association, letter dated November 26, 1990.**

The Association represents 650 Oregon dairy farmers. They support the protection of Oregon groundwater and recognize the importance of an adequate supply and high quality for private and commercial beneficial uses. Protection of the groundwater, however, is of little benefit if their water rights are taken away in the process. They cannot support any activity associated with the protection or cleanup of groundwater under this Act that will compromise an owner's previously established water right. Ranchers and grower's livelihoods depend on future availability.

They do not support establishment of MMLs below the current level of analytical detection. The level or MML that triggers a Groundwater Management Area was to be a number at or above the current level of validated, analytical detection. It is not acceptable to operate a regulatory program which can impose severe enforcement penalties and management restrictions on individuals based on compliance with levels that are below current measurement technology. This is the same as chasing the "vanishing zero" and the regulated party does not have an opportunity to defend itself.

They do not want to see the MML use as clean-up standards by DEQ or other state agencies. They support the minority statement of Drs. Chandler and Carter and urge the Commission to make their recommended language changes to the proposed criteria to allow some flexibility when dealing with the "risk" associated with cancer causing contaminants.

Use of a rigid "one in a million" risk factor would create conflict with current federal drinking water standards. This would cause enforcement action by the state at levels more stringent than levels determined to be acceptable to drink by the federal government. Mr. Hemenway notes that we can find solutions to the identified problem in Oregon without enacting rules which will cripple Oregon's dairy farmers and other responsible industries.

28. **A. Troy Reinhart, Executive Director, Douglas Timber Operators, Inc. (DTO), letter dated November 26, 1990.**

DTO supports protection of Oregon groundwater, however, maintaining it is of no benefit if water rights are taken away they can't use it. The activities associated with protection or clean-up should not compromise an owner's previously established water right.

They support the minority statement submitted by Drs. Chandler and Carter and urge their proposed language changes be made. Using a one in a million risk factor would create conflict between the federal drinking water standards and the state's groundwater regulations and would allow enforcement by the state at a contamination level 200 times more stringent than the level determined to be protective of public health and okay to drink.

They expressed concern about use of the MMLs as cleanup standards since the enabling legislation clearly states that the MMLs are to be used only to declare a groundwater management area. Also, the term "measurable" was carefully selected to specify that the level or MML to be used as the trigger for a groundwater management area must be at or above the current level of validated analytical detection. It is not acceptable to operate a regulatory program based on compliance with levels that cannot be measured using today's technology.

29. R. J. Hess, Manager, Environmental Services, Portland General Electric Company (PGE), letter dated November 26, 1990.

PGE commented as follows:

- A. The Groundwater Technical Advisory Committee developed policy statements that follow the legislation and which make the purpose of each rule easy to understand. To be consistent with the direction in HB 3515 and follow precedence in other DEQ rules, the proposed rules should be renumbered into a new Division rather than integrated into existing groundwater rules, Division 40. The General Policy Statements pertain only to the establishment of MMLs.
- B. In reference to Attachment D, #4, the Advisory Committee clearly determined it was the responsibility of the public to assure their name and address were on the mailing list for Notice of Intent to Propose Contaminants for Adoption of MMLs. "A good faith effort on the part of the DEQ is not a reasonable excuse for missing mailing a notice to some interested parties. The Department does not allow the regulated public to "substantially" comply with the rules, thus the Department should be required to comply with the regulations the way they are written.
- C. In reference to Attachment D, #5, PGE believes the DEQ and EQC cannot reject the federal standard as "not protective of human health". The DEQ must be made to have specific, valid scientific evidence to show that an MCL is not protective in order to reject it as an MML.

The EQC must also have the expertise to determine that the data are critical to rejecting the "Federal Standard" as not protective of human health. The EPA, the Safe Drinking Water Act's MCL has been shown to be protective of human health and EPA goes through a rigorous scientific and public review process in developing an MCL. PGE supports the changes to the proposed rules OAR 340-40-125 (1)(a)(i) and (2)(a) as suggested by Drs. Chandler and Carter.

- D. In reference to Attachment D, #6, PGE believes the regulated and general public will accept Health Advisories from the Oregon State Health Division (OSHD) with more confidence than from the DEQ. The DEQ is not the primary health agency of the State. DEQ runs the risk of having provided health advisories that are not consistent with the OSHD or with EPA. PGE is concerned that DEQ is initiating a program for health advisories that is in conflict with already established programs in other areas of government. The EQC should determine if the expenditure of resources to duplicate other programs is a wise use of resources and evaluate alternative uses of these resources. DEQ does not have the statutory authority to determine human health criteria nor does the EQC have the expertise to determine whether information on the health advisory is scientifically valid in the same manner that the federal process does for the EPA.
- E. In reference to Attachment d, # 8, it is important to the regulated public to have adjustments made to MMLs as soon as possible if valid scientific information is available to justify a change in the MML. If it takes almost 3 years until a MML can be made more lenient, it will cost the regulated public undue hardship to pay for unnecessarily restrictive MMLs and cost the Department unneeded staff time and monitoring costs to administer the program, especially if the MMLs are used as cleanup standards. The Committee discussed this issue at length and concluded that 180 days was a reasonable time for the Department to be responsive to the public, both the special interest groups and the regulated sector.
- F. PGE recommends the EQC look at the make up of the Groundwater Technical Advisory Committee as required by HB 3515. The interest groups involved were designated by the Legislature. Only two members of the Committee represented the public that would ultimately be regulated by the rules. Therefore it was very difficult to establish a balanced view between the protection of

public health and the environment with the protection of the economic stability of the regulated public. When the "other fellow" will have the economic responsibility for the overly protective burden, it is easy to be overly restrictive and demand conservative standards. For example, regarding a choice of risk which is a value judgement, not a scientifically valid data base, large expenditures of monies for compliance will be required for compliance to meet a "one in one million risk of additional cancer" as a criterion for carcinogens. This would not be necessary if a flexible, reasonable and prudent regulation is put in place which allow the risk to reflect the real hazard for each substance of concern.

- G. The financial statement for the proposed rules is inadequate. Though the DEQ claims no substantial costs will occur, the need for additional staff to implement the program is identified, including the need for a toxicologist and support staff at \$175,000 per biennium. Though high, it may be insufficient to retain a qualified toxicologist. Also, the proposed rules will have additional costs for Land Use Goal 11. Costs for developing a single MML should be quantified since this is a new program. The costs to the regulated public and to the DEQ to establish an ambient data base for proposing a MML and to regularly monitor groundwater for compliance have not been addressed properly. Organic compound test are expensive and will be a significant cost. Even though the DEQ states that the development of a groundwater management area will need to make economic sense to be implementable and successful with the plans being either voluntary, cost effective to implement or cost neutral, the costs have not been estimated by the Department.
- H. In working with the DEQ's Clean-Up Division, experiences have shown the value of having valid scientific evidence and data and having laboratories with quality assurance and control for specified EPA procedures. DOE commends the Committee for specifying the requirements for data collection in the proposed rules.
- I. The EQC should carefully consider establishing a set of guidelines and criteria for the DEQ to use for Financial Impact Statements for proposed rules. The Department and the public would be able to judge the adequacy of the financial statement.

PGE supports rules that are scientifically defensible and protect public health and the environment. Limited financial resources in Oregon require a balance between social, environmental and economic needs.

30. Ann D'Ewart, President, Oregon CattleWomen Inc., letter dated November 28, 1990.

Expressed support for the protection of Oregon groundwater. Her family home is served by a spring for drinking water so an adequate supply of high quality water is important and essential. Their livelihood is tied to cattle and their health is a prime concern. Good water quality is no benefit if citizens' water rights are taken. The activities associated with the protection or cleanup under the Act should not compromise an owner's rights. She is concerned about the potential use of MMLs as clean up criteria or as regulation by the state agencies. The 1989 legislation is clear. MMLs are to be use for declaring a groundwater management area only. She supports Oregonians for Food and Shelter, the minority statement submitted by Drs. Chandler and Carter and Barry Fujishin. More time is needed to digest and understand the material and a more complete mailing and/or notification process is needed.

31. E.T. Robinson, Healthward Ho!, letter date stamped November 23, 1990.

Expressed that water is earth's most precious resource and because it has been so abundantly available it has been exploited. The testimony relates that an acquaintance with bladder cancer was told that it was likely due to the city water in southern California. Practices which threaten to pollute the water need to be called to question. Prevention is more effective than after the fact clean up. The cumulative effects of disparate substances may be much greater than the sum of each one. We need to move as fast as possible to protect the resource including taking steps to remove human activity in Bull Run, Little Sandy watershed and finding ways to adopt composting toilets into our resource management.

32. Terry L. Witt, Executive Director, Oregonians for Food and Shelter, letter dated November 28, 1990.

Mr. Witt submitted a written copy of his verbal testimony presented at the November 28, 1990 hearing in La Grande. His testimony is summarized below:

Mr. Witt states that OFS is a nonprofit organization representing over 20,000 concerned farmers, foresters, urban users, and citizens who recognize need to make sound decisions on matters related to responsible agri-chemical use, natural resources and the environment.

OFS has taken an active role throughout the entire development and passage of the Groundwater Protection Act and through the rule development process through attendance at the technical advisory committee meetings. The members are committed to the wise protection and use of groundwater and other natural resources. They are also concerned about the economic health of state's major industries... individuals and businesses who rely on the availability of high quality groundwater and the right to responsibly manage their operations in an efficient and safe manner using moderate lawful tools of technology without unwarranted government intervention. Mr. Witt stated that it takes an economically healthy business to afford the high cost of being a good environmental steward, to conduct research and to pay employee payrolls and taxes which provide a major source of revenue for state agencies such as DEQ.

He thanks Fred Hansen for granting OFS's request for two additional hearings in areas more accessible to agriculture and to staff and the Advisory Committee chair on the their work in developing the rules.

The future for groundwater is bright and there is positive news. USEPA recently announced the results of their well water survey. Greater than 99 percent of the drinking water wells surveyed did not have residues of pesticides and nitrates above levels considered protective of human health. The same level of time should be spent communicating the good news.

He recommends the proposed rules be fine-tuned in several ways to provide a sound balanced scientific basis for establishing maximum measurable levels and offers comments on four points as follows:

First, OFS strongly supports the minority statements submitted by Drs. Chandler and Carter, both of the Technical Advisory Committee. OFS recommends the EQC adopt the recommended language changes to provide a level of flexibility when dealing with risk associated with contaminants believed to be human carcinogens under specific exposure conditions. Using the 1 in a million risk factor that is currently proposed would create substantial conflict between the federal drinking water standards and the states groundwater regulation. The state could take enforcement action at a contamination level more stringent than the level determined to be protective of public health and determined and ok to drink by the USEPA. This would create public confusion and anxiety.

Second, through OFS's participation in the development of the legislation, Mr. Witt notes that the term "maximum measurable level" was carefully selected. DEQ's examination of the legislative record will reveal that the level or MML to be established as the trigger for groundwater management area activity must be a number capable of being detected using current validated analytical methods. It was not intended nor is it acceptable to operate a regulatory program based upon compliance with levels which cannot currently be measured or confirmed, using today's analytical technology. Mr. Witt stated that MMLs were not meant to include indirect methods of assessment such as numbers calculated based upon a detection of materials in organisms which are then multiplied by some bioaccumulation factor. This would be like proposing MML at an ever changing level of non detectable thereby chasing the vanishing zero. Mr. Witt stated that the regulated community must have the capability of defending its rights. The burden should not be shifted to now require citizens to prove their innocence.

Third, OFS is also concerned about use of the MMLs as cleanup standards. The enabling legislation is clear that MMLs are only to be used to declare a groundwater management area.

Fourth, maintaining the quality of groundwater is of no value if a citizen's water rights are taken away in the process. The activities associated with the protection of groundwater due to nonpoint source activities under this Act should not compromise an owner's previously established water rights.

33. Larry Starr, Chairman, Union County Wheat League, letter dated November 28, 1990.

Mr. Starr presented verbal testimony presented at the November 28, 1990 hearing in La Grande and written testimony is summarized below:

Mr. Starr states that though he believes his remarks apply to many people in agriculture, his remarks are on a personal basis as a landowner, irrigator and long term farmer. He supports testimony of Oregon Wheat Growers League, Oregonians for Food and Shelter and Jim Harris. The proposed regulations should, in no way, affect currently established water rights. The rule language changes proposed by David Chandler and Lolita Carter should be adopted.

He is concerned about supposedly scientific reports referencing different numbers. The MMLs should not be used as cleanup standards without careful review of appropriate application. Strategies for groundwater quality protection need to be economically and technically reasonable with



present available technology. Interagency coordination should take place prior to imposing regulation on water users and property owners if more than one agency is involved. An example is 3-4 different descriptions of wetland by different agencies. He requests an extension of beyond November 30th for comments.

34. **Dennis Myrhum and Marshall Coba, Oregon Farm Bureau, memo dated November 28, 1990.**

Mr. Myrhum presented verbal testimony at the November 28, 1990 hearing in La Grande and written testimony summarized below:

Mr. Myrhum stated that the Oregon Farm Bureau is supportive of the intent of the legislation and its goal to prevent contamination of groundwater. Many of the 10,700 members are reliant upon groundwater for their daily needs and the continuation of a safe a plentiful groundwater is vital to the economic survival of ranchers and farmers, but to the entire region. The Oregon Farm Bureau is supportive of the report submitted by Drs. Chandler and Carter. They are supportive of consistent interpretation of the rules, and urge the Department to maintain consistency with the federal rules in regard to groundwater quality. This would help ensure program success and reduce the regulatory burden on the affected public.

The Farm Bureau also supports the protection of water rights and feels they should be addressed more completely prior to rule adoption. The activities associated with the protection and cleanup of groundwater under this Act should in no way compromise a land owner's previously established water right. It is also important the term measurable and maximum measurable be based upon a regulatory compliance program with levels that can be measured using today's technology. A program based upon numbers that cannot be measured would not be acceptable.

35. **Barry S. Fujishin, Chairman, North Malheur County Groundwater Advisory Committee and the Malheur County Farm Bureau, letter dated November 28, 1990.**

Mr. Fujishin presented written and verbal testimony at the November 28, 1990 hearing in La Grande summarized below: The Farm Bureau represents over 270 farming units in Malheur County. The fate of the area is tied to clean groundwater. The source of drinking and livestock water is groundwater.

The Farm Bureaus in general agreement with the majority of the report of the Technical Advisory Committee with some exceptions as follows:

- A. **MMLs based on one in a million risk level versus the MCL.** MMLs should not deviate from USEPA maximum contaminate levels (MCLs) for drinking water. For the great preponderance of contaminants, the MMLs should be identical to the federal drinking water standard. The only case where they should be different is where valid scientific evidence indicated that the federal standard is not protective of human health. Alternatively the rules propose that MMLs be different anytime a carcinogen or substance of concern poses a theoretical cancer risk of one in a million if the federal standard has not been set at that same level. Setting the standard using this approach would require Oregon to enforce groundwater standards or set MMLs that are 200 more strict than the federal standard. Two message would be sent to the general public.. Oregon does not believe the federal standards is protective of public health and confusion.

Problems would be posed for municipal water providers if they provide water that meets the federal standard but is has levels of contaminants above the MMLs. The proposed risk level of one in one million would be in violation of House Bill 3515 which says that MMLs must be measurable. Groundwater management areas could be declared when contaminants are below levels of detection technology. For an area to be declared a groundwater management area the contaminants in the declaration area must be measurable and a levels that pose dangers to public health.

MMLs should not be based on subjective or theoretical levels, such as one in a million nor on indirect measurements or statistical extrapolation. A goal of the Technical Advisory Committee was to develop a process whereby everyone knows the game for establishing MML that would provide for equality and uniformity in implementing the program.

- B. **Use of MMLs.** Mr. Fujishin is concerned that even with the recommendation by the TAC that the MMLs not be used as clean up standards, it will be difficult if not impossible to view the two standards differently. In practice the MMLs will become the standard for cleanup. MCLs are held up as the measure of progress for its cleanup they are the values that triggered the designation of the management area in the first place.

- C. **Cost of developing MMLs.** The Malheur County Farm Bureau is also concern with the cost of the plan for development of MMLs. The DEQ identified a cost of \$175,000 per biennium for a toxicologist and support staff to do 16 MMLs. If the MMLs were established based on the federal drinking water standard existing staff might suffice.
- D. **Property and Water Rights.** With regard to the recommendations of the TAC where any plan developed in a groundwater management plan makes economic sense... be voluntary cost effective or cost neutral. The Farm Bureau agrees but wants to emphasize that the protection and cleanup should in no way compromise water rights senior to the declaration of a groundwater management area or deny owners a beneficial use of an established right in an effort to protect quality or remediate contamination. A designation of a groundwater management area should not impact property rights and should consider adverse effects on property values in its implementation.
- E. **Linear and Threshold Theory.** The discussion of these theories does not add anything to the report and should be deleted. He believes it is a misrepresentation that linear theory has broad acceptance.
- F. **Technical Advisory Committee.** Mr. Fujishin expressed concern that the committee was not made up entirely of technical people. The topic is too important to be decided by majority vote, or consensus among members of differing polarized views on levels of risk that is tolerable in living in a given environment, drinking the water or eating the food. Instead, the topic should be addressed by technical people in a scientifically objective manner, incorporating scientific evidence use by the EPA and other agencies.

In conclusion, Mr. Fujishin stated that the majority of the Malheur Farm Bureau's concerns can be addressed by the Commission adopting the modifications proposed by David Chandler and Lolita Carter.

- 36. **Kit Kamo, District Manager, Malheur County Soil & Water Conservation District, Written Statement presented at the La Grande Hearing, November 28, 1990.**

Submitted a written statement of her verbal testimony presented at the November 28, 1990 hearing in La Grande. The District supports Barry Fujishin's testimony and the minority statement of Dr.s Chandler and Carter.

37. Joe Glicker, member of the Technical Advisory Committee, letter dated November 28, 1990.

Mr. Glicker's comments are as a member of the Advisory Committee and not on behalf of his employer. He notes that during the course of the Committee's deliberations, one of the most troubling issues concerned "acceptable risk" for carcinogenic compounds. It is a difficult issue not only because of the variety of value judgments associated with setting an acceptable risk for anything, but also because the science upon which the carcinogenic risk assessments are based is so uncertain.

The resulting regulatory policy decisions at the federal level and, hence the federal standards that are the basis for the MMLs, are made using very conservative risk assessment assumptions. For example carcinogens are assumed to have no threshold below which there is no adverse health effect, though certain classes of carcinogens do have such thresholds based on increasing evidence. Also, the federal standards for carcinogens are set using "theoretical worse case risk assessment" which by definition provides a 95% probability that the true risk is actually less than this value. As pointed out in an article prepared by D. Bull of EPA's Science Advisory Board and attached to the testimony, the effect is that federal standards developed under the current regulatory process are based on inflated estimates of the actual calculated risks.

Mr. Glicker states that the problem is compounded if the cancer risk assessment is arbitrarily set at greater than one in a million. Though EPA often ends up setting the level at the one in a million, in some cases the estimated risk assessment number is greater or less depending on factors of the "risk management step" which follows the "risk assessment steps". A correct reason for DEQ to reject the federal drinking water standard is that is that the federal standard is not protective of human health. However, to better reflect the status of the scientific risk assessment process, so that the federal drinking water standard is not necessarily and arbitrarily rejected, Mr. Glicker recommends the following alternate language:

"For substances of concern or contaminants which are carcinogens, the federal standard represents an estimated risk greater than the range of one in ten thousand to one in a million." OR

"For substance of concern or contaminants which are carcinogens, the federal standard represents an estimated risk greater than approximately (or alternatively, "in the range of") one in a million."

38. Margaret S. Abell, letter date stamped November 29, 1990.

Ms. Abell suggests that under OAR 340-40-105-11, for pollutants known to be unsafe below current minimum detection, the level for the MML should be at the detection level. Also, for OAR 340-40-135 (4), toxic degradates should be considered in the MMLs and the cancer risk for all contaminants in an aquifer must be determined and added together in determining the "red" level.

39. Kimber Johnson, Chair Oregon Water Utilities Council, letter dated November 29, 1990.

The Oregon Water Utilities Council (OWUC) of the American Water Works Association is an organization of utilities providing potable water to people in Oregon. The OWUC believes the declaration of "areas of groundwater concern" and "groundwater Management areas" are of critical importance to those who use groundwater and they are concerned that the method used to set MMLs will allow the values to be set too high. An area of groundwater concern should be triggered at the lowest level that can be justified and reasonably measured with an upper limit set at the drinking water MCL concentration. Any effort to develop MMLs by the State should be restricted by an upper limit of the current and evolving drinking water standards. There should be greater reliance on the MCLs. They support statewide monitoring and assessment of water quality and believe the public needs to know more about groundwater and characteristics. Identification of aquifers, how the public gets their water and how the water is used is an important activity \that should be addressed.

The "one in a million" risk factor used by EPA as a standard should not be codified in state rules. Newer concepts are being developed which will more appropriately describe risks. Newer concepts like "unreasonable risk to health" (URTH) is an example of evolving discussions. This is also presented in Section IV of the Committee Report discussions.

OWUC believes several key definitions are missing and need further discussion as follows: "scientifically valid (evidence)", "adverse Impact to public (human) health", "adverse impact to the environment", and "unreasonable adverse risks", "effect or harm..."

The definition of "contaminant" proposed by the Committee should be retained. HB 3515 defines "contaminant". The existing definition in OAR 340-40-010 (5) is inappropriate.

Further definition is needed to identify the minimum detectable limit. "Detection limit" should identify the

instrumentally detected minimum value that can be determined by laboratory practices.

If the goal is to prevent contamination and have groundwater at such a quality that it is similar to drinking water, reference to OAR Chapter 333, Division 61 of the Health Division rules should be made. The federal maximum contaminant levels (MCLs) are presented in these rules and will be continually updated and expanded as needed.

The OWUC is concerned that MMLs could be developed that are more restrictive or less restrictive than MCLs that potable purveyors must follow. The Committee missed the opportunity to fully discuss the criteria and the intent of cleanup activities should a potable water aquifer become contaminated. Instead they focused on the method.

OUWC supports the ongoing statewide monitoring assessment program called for by HB 3515. Cooperative efforts with Water Resources and Geology Departments should be a high priority.

It may be possible to cleanup contamination more effectively if areas of groundwater concern can be established at a lower level of contamination concentration, but there is a need for basic information on ambient qualities. OUWC supports efforts to develop a groundwater quality information repository and believes that physical characteristics and characteristics of the aquifer should be included.

40. Kay Markgraf, Legislative Chairman, Baker County Livestock Association, letter dated November 29, 1990.

Expressed appreciation of the decision to hold a hearing in Eastern Oregon and asks that before the next hearing that written material be made available in each county so one could review it before the hearing. The extension offices, library or courthouse might be ideal locations for such a purpose. This would improve the quality of the hearing.

They support the minority report statement of Drs. Chandler and Carter. They are concerned about the inconsistencies with the federal Safe Drinking water Act, the inflexible manner in which carcinogenic compounds are handled, and the stated desire of DEQ to use the MMLs as cleanup standards.

41. Tom Bender, Architect, letter dated November 29, 1990.

As a board member on the local water district in Nehalem and as an architect frequently involved with projects depending upon groundwater use and quality he is strongly opposed to any changes in the following:

- A. OAR 340-40-125... MMLs should be set below detection if health and environmental considerations warrant and technology is not available to detect it at levels considered health hazardous. There is no incentive to develop monitoring equipment of necessary sensitivity if allowable levels are determined by accuracy of existing equipment. MMLs must be no higher than those associated with one in a million risk of cancer and should be based on health and environmental considerations alone. There is no justification for polluters to cause health hazards to others and the cost of pollution prevention is a real cost of the activities involved.
- B. OAR 340-40-105 (1) Group B carcinogens must be considered to be carcinogens for MMLs. The proof of safety should be upon the chemical manufacturer one laboratory animal risk is demonstrated.

He also supports additions to the rules as follows:

- A. OAR 340-4--135 (4) An MML must consider the toxicity of related degradates of the pollutant. This should not be optional.
- B. OAR 340-40-108 (1) The Oregon Groundwater Protection Act requires the State to declare yellow or red light areas and involve local communities in addressing the problem in all areas with polluted groundwater. The state shouldn't ignore certain areas on the basis of "program priorities"
- C. Regarding Pages 20-21 of the Advisory Committee Report, any scientific advisory committee established to assist DEQ determining MMLs must be broadly acceptable to critical interests including Oregon's environmental community.
- D. The cancer risk for all contaminants in an aquifer must not cumulatively exceed one in a million cancers. It is not acceptable to delay mandatory reduction of pollution in situations where more than one pollutant are near action levels and their health hazard sum is greater than the level which would trigger action if a single pollutant.

Prevention is far less costly than removing contaminants one in the groundwater particularly where a number of individual wells or other water sources are involved and treatment cost is prohibitive.

42. **Bob Kern, letter postmarked November 30, 1990.**

Mr. Kern attended the hearing in La grande and wrote to express disappointment that nobody from the environmental community testified. He expressed that the agricultural and timber interests main concern was economic impact, water rights and property values.

From his perspective, the agricultural and timber interests are not concerned with the environmental quality of Oregon. If left unchecked, history shows us that man will destroy almost everything from greed and ignorance. He has seen green masses of pollutants in the Snake River above Farewell Bend, devastation caused by drought and overgrazing on southeast Oregon public and private land, unfair claim to water rights over the basic needs of water need by fish and wildlife, and the destruction of streams by timber interests. Quoting from Bob Packwood about setting aside wilderness land, he notes what we set aside now will not be half enough in fifty years. Since it's the same with water, he urges the DEQ to not compromise water quality to anybody. Strict standards are needed.

43. **Mark Simmons, letter dated November 30, 1990.**

Mr. Simmons expressed that he is concerned with maintaining quality drinking water but sees no need for Oregon to adopt MML standards much stricter than those already in place. He strongly supports the minority statement submitted by Drs. Chandler and Carter and urges the EQC to make their recommended language changes.

44. **Kris Nelson, Public Education Manager, Heliotrope Natural Foods, letter dated November 30, 1990.**

States they believe sufficient evidence exists to determine whether the federal standard is protective enough of human health and the environment. It's time the MMLs account for the synergistic effect of all cancer-causing toxics and the breakdown substances of toxics. For example aldicarb breaks down to aldicarb sulfoxone, but the draft MML only takes into account aldicarb and not the synergistic effect of them. It is unacceptable to overlook yellow or red light areas of polluted groundwater using "program priorities ". We cannot afford to compromise the fundamental issue that prevention of groundwater contamination is so much less costly than trying to clean up polluted groundwater. When interviewed for their publication the Heliogram Barbara Roberts stated that " Whether its runoff, industrial waste or how we farm, I think the water supply is one of the most crucial issues in Oregon. If we contaminate aquifers, it's not something you correct overnight. We can't ignore the aquifer as one piece of that puzzle."



45. **Bruce M. Niss, Deputy Director, Bureau of Water Works, City of Portland, letter dated November 30, 1990.**

The Bureau believes the draft rules meet the letter and spirit of Sections 18, 19, 24, and 25 of HB 3515 and other portions of the bill that utilize MMLs as action levels. Their primary concerns whether they can in fact be prevented from becoming defacto cleanup standards as OAR 340-40-100 states. They are unaware of any set of clean up standards or process for determining such standards that will prevent the MML from being used as such. Thus the Department should initiate a process, including introduction of any necessary legislation to establish cleanup standards for remedial action.

46. **Don Sands, PureGro of La Grande, letter dated November 30, 1990.**

As manager of the PureGro Company, he is dedicated to protecting our groundwater resources and his people are being trained and upgraded on their capabilities to protect the environment and people from any release of his products in an unlabeled use. He endorses the entire testimony of Mr. Witt and Oregonians for Food and Shelter. He supports and endorses the minority statement from Drs. Chandler and Carter. Oregon should not try to out do or go beyond EPA standards. He believes in a greater element of local input and control in any abatement and or cleanup program with DEQ and or other state agencies as support staff. He is concerned the MMLs not be used as cleanup standards since this goes beyond the intent of the legislation. He wants the MMLs to be measurable and doesn't think the legislation gave licence to write rules that leave the baseline ever moving.

He asks that better notice of hearings be provided in the future.

47. **Charles R. Knoll, Manager, Environmental Quality, Teledyne Wah Chang Albany, letter dated November 30, 1990.**

Expressed that the rules about the establishment and use of MMLs are difficult to understand and hopes that the final rule will be easier to understand and implement so as to help DEQ in the goal of protecting and improving groundwater quality.

Mr. Knoll states that implementing a program for establishing MMLs and setting up programs to achieve the MMLs for designated Groundwater Management Areas will require additional DEQ staff and outside participation. This will be at an additional expense not only to DEQ but statewide and the consequences of this have not been addressed.

He expressed concern there will be only one level (MML) or concentration for a particular contaminant and there will be no consideration to the location and type of aquifer as provided in EPA's classification system. He questions whether it is reasonable to believe that improving an aquifer to achieve the MML or natural background levels is a proper or useful environmental goal even if economics have not been considered?

He states that the rules are unclear regarding their intent. There is not a definition of terms. The justification of the proposed rules states the MMLs are not intended to be used as clean up standards for point sources, but are to be applicable to non point sources. If for some reason the MMLs were to be used for clean up standards, then decisions for remedial action could be delayed until another feasibility study were completed and the economic as well as environmental cost for such a delay could be significant.

48. Doug Dougherty, Owner Manager, Wm. M. Dougherty Logging Inc., letter dated November 30, 1990.

Mr. Dougherty supports the protection of Oregon groundwater and the testimony presented by Oregonians for Food and Shelter presented at the La Grande hearing. He agrees that unless there is valid scientific reason to reject the federal drinking water standards, they should remain as they are. He asks why MMLs shouldn't vary in each county due to the different types of industry. For example counties or cities that use rain water versus ones that primarily use well water and the ranching and timber communities versus the cities should all have different levels. They should form a local committee to carry out the law in their particular area.

Since the economic stability of each community is linked directly to its industry each community should be individually taken in to consideration when determining regulations. DEQ should go out by community and by industry to write regulations.

Also, creating laws that would take away his previously established water rights would adversely affect his livelihood and the economic stability of his community. He urges the EQC to thoughtfully consider everyone before final adoption of the "fuzzy MMLs".

49. Kathleen Simpson Myron, Resource Policy Assistant, Oregon Trout, letter dated November 30, 1990

Oregon Trout, representing about 2200 members, is a statewide, non-profit fisheries conservation organization dedicated to the protection, preservation and restoration of Oregon's native fish populations and their habitats. They have the following comments:

Waters of Oregon are a valuable resource. It is their perception that all the waters of the state are part of a connected water cycle/system. Pollutants allowed to enter a local groundwater system run the risk of polluting additional groundwater as well as surface waters. Polluted waters also pollute soils and degrade aquatic and riparian habitat. Macroinvertebrates which form an integral part of the food chain for fish are found in the immediate aquatic/riparian zones and below stream channels and for miles underground on either side of streams. An article, "A parallel universe lies under the world's rivers", is attached. They recommend caution in management, since humankind has only barely begun to become aware of some of the intricacies of the natural system. Management must have as its goal non-pollution so that non-degradation can be achieved.

Since we have one earth and one water system we must do whatever is needed to prevent pollution or to clean up what is polluted. The 1989 Oregon Groundwater Protection Act includes important provisions to instigate actions to prevent or reduce pollution through a progressive alert system. The cost of implementation must not only be computed in terms of dollars, but also the cost must consider quality of life protected and maintained on an ecosystem level and on a global level.

For these reasons, Oregon Trout supports MMLs of contaminants which:

- A. Are derived from environmental and health considerations;
- B. Result in clean drinking water (unpolluted water)--OAR 340-40-125;
- C. Are intended and designed to result in no more than one in a million risk of cancer though a goal of no cancer would be preferable-- OAR 340-40-125;

- D. Considers Group B carcinogens or chemicals known to cause cancer in lab animals as carcinogens-- OAR 340-40-105 (1);
- E. Which would be below detection and instigate red light action for health and environmental considerations such as in the case of such contaminants as dioxin which is unsafe at unmeasurable levels; and
- F. Would be based on the cumulative effects of pollutants and their degradates.

Oregon Trout supports OAR 340-40-108 (1) requiring the state to address the problem in all areas with polluted groundwater. Because the state's waters are ultimately various parts of one connected system, and because these waters belong by statute to the people of Oregon, rather than to any one special interest group, industry, or individual, any and all areas found to contain polluted groundwater must be accorded the same processes to prevent continued pollution at either the "yellow" or "red" light level. A message that not all groundwater is valuable and subject to protection would be sent if there was a failure to treat all areas of the state equally with regards to pollution prevention.

Oregon Trout recommends that any scientific advisory committee charged with working with the DEQ to establish MMLs be comprised in the main, of members acceptable to environmental groups as well as to the other concerned entities. Advisory committees must answer not only to the agencies they advise, but also to public interest groups.

All of us who depend on the waters of Oregon for whatever purpose have a moral charge to see that future generations receive them in an unpolluted state. Without the rules, pollution of groundwater will continue. Through some will find it more expedient not to pay the business operating cost of preventing pollution, all inhabitants will pay to carry out a cleanup of that pollution with no guarantees that it will be 2100 percent effective. Prevention is less costly. Oregon Trout supports MMLs which will accomplish prevention.

50. Terrence T. Virnig, Regional Environmental Engineer, Chemical Waste Management (CWMNA), Inc., letter dated November 30, 1990.

The testimony represents joint comments by Waste Management of North America (WMNA and Chemical Management of the NW. CWMNW owns and operate a hazardous and toxic waste treatment, storage and disposal facility near Arlington.

Concerning OAR 340-40-105 which describes methods for sample analyses for confirming the presence of contaminants, CWMNW recommends that the Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, Office of Solid Waste and Emergency Response, EPA, Third Edition, November 1986 or latest edition be cited in addition to those indicated in 40 CFR 136 or in Standard Methods. The methods of SW-846 are on the leading edge of technology. They offer specific rule language which includes these methods.

Also, they recommend the rules address the discussion in the "Issues and Recommendations section of the Committee Report on Multiple MMLs for a given Substance (Page A-31, #7). Groundwater quality and beneficial uses vary greatly and the MMLs in many cases need to be adjusted accordingly and flexibility for multiple MMLs is realistic and should be written into the rules. They suggest the following language:

"340-40-120 (4) Whenever a single statewide MML for a given substance would clearly cause undue hardship if applied universally to all environments, the EQC will consider establishing multiple MMLs for the substance, each applying to particular, definable, reasonably easy to identify environments."

51. Jean R. Cameron, Policy Director, Oregon Environmental Council (OEC), letter date stamped November 30, 1990.

OEC summarizes their involvement in working with DEQ to develop protective groundwater policy for the last five years. They wish to congratulate the Committee and Chair for their work to develop the rules. Specific comments are made on the following:

- A. The OEC supports several policy concepts built into the proposed rules. One is the ability for the Department to be proactive in setting MMLs for contaminants which have not yet but are likely to show up on Oregon's groundwater. Also they support the concept that contaminants may be proposed for MMLs by the public and

not just by the Department. They also support the concept of a prioritizing "screen" for setting MMLs, but encourage the Department to advise the EQC periodically which contaminants proposed for MMLs were not chosen because of lack of resources.

They support a policy of selecting standards based on protection of human health and the environment without consideration of economic feasibility. There is a remaining debate on the use of one in a million risk standard as noted in the minority report by Drs. Chandler and Carter. OEC believes their argument that MCLs based on this risk factor will result in public concern about the safety of drinking water standards fails to recognize that such concern already exists. Many citizens already understand that MCLs are based in part on economic feasibility associated with the public water system delivery costs and are not as stringent as they could be if environment and health were the only criteria. HB 3515 calls for MMLs to be protective and preventive and to be used as triggers for action to stop further contamination. While this action is certain to have some economic consequences, it is likely to be less severe than action associated with remedial action after MCLs or other less stringent standards are reached or exceeded. This is why the Department has been cautioned not to use the MMLs as cleanup standards. Use of the one in a million risk standard errs on the side of caution to prevent the human and economic costs associated with cancer.

OEC supports the policy of:

- A. Issuing health and environmental advisories with each proposed MML,
- B. The concept of adopting area specific MMLs where this seems reasonable to protect environmental values unique to any area, and
- C. The use of the linear theory of risk assessment where carcinogens are concerned on the basis that no minimum threshold levels are known for carcinogens.

They encourage the Department to stay advised as the theory and practice of cumulative assessment paradigms improve, even though there is current difficulty associated with evaluation cumulative impacts of multiple substances. OEC encourages the Department to petition EPA to develop guidelines or standards for review of cumulative impacts.

In responding to the issues of "incorporation of other state agencies" and "water rights" as outlined in report of Drs. Chandler and Carter, OEC believes these to be non issues. Other state agencies have ample opportunity for review and comment during the public comment period. While water use restrictions may be an outcome of action plans ultimately developed in response to the declaration of a groundwater management area, the function of these rules is to establish the method and criteria for establishing MMLs and refers Drs. Chandler and Carter to Sections 54 to 57 of HB 3515.

52. Dave Leppert, Geologist/Sales Engineer, Teague Mineral Products, letter date stamped December 3, 1990.

Mr. Leppert's letter is a follow-up to the testimony he provided at the La Grande hearing. It summarizes his educational background and his last five years' work on development of environmental applications for the minerals his firm produces. He has received a grant from EPA to research removal of lead from drinking water with clinoptilolite zeolite. He has provided input to an engineering firm on the final design of a water treatment plant.

He expresses that he only obtained a copy of the draft rules at the La Grande hearing and questions why he was not on the mailing list since he has attended several meetings in Ontario last winter and signed attendance sheets. He feels attempts to inform the public about the proposed rules have been totally inadequate.

He recognizes the needs for standards but is concerned about how they will be used. His main concerns are as follows:

- A. He doesn't understand how standards "would not be constrained by economic or technological considerations" because first, analytical techniques must be considered and it is simply irresponsible to ignore the economic picture. Also, it costs more to do analyses the lower the level of detection.
- B. He has never believed in the linear theory of risk. It also seems ridiculously low to try and reduce cancer risk to less than one additional cancer per million people since he doubts this low rate can be determined with even an order of magnitude precision and studies are extrapolated from very high doses with rats or other animal. Also, there are many types of cancer and there is no definition of what type of cancer is being

taken into consideration. All cancer or only those normally considered fatal. With the advances in treatment for cancer, fatality rate certainly isn't a valid criteria. He would guess an hour or two per day of sunlight would give a farmer a considerably higher than on/million chance of skin cancer. To realistically set a precedent of using one/million as the acceptable risk rate, all highways and timber operations would have to be shut down.

- C. Though in part the DEQ might justify reviewing federal contaminant levels, in practice it could become extremely expensive. EPA spent millions of dollars to establish the levels and we could bankrupt the stat and still not have enough data to determine MMLs, particularly if we are going by the one/million cancer rate criteria.
- D. In reference to DEQ's plans to hire a toxicologist and spending about \$170,000/year, he questions whether it is reasonable to expect to be able to do one or two experiments and resolve the conflicts between different studies. The proposals disregard economic considerations.
- E. He estimates that a person living on a-type granite, black shale, phosphatic shale or many other rock types will be exposed to enough radiation to exceed one/million risk rate.

He has dealt with numerous different DEQ people over the last several years and is amazed at DEQ's primary emphasis on regulatory aspects, not finding solutions to problems. If the millions of dollars spent to determine MMLs and monitor groundwater were spent on working with farmers and other industries to develop cost effective methods of minimizing the problem the money would do more good.

He would like to see the DEQ stay out of directly researching these things, since DEQ would have the same problems as he has seen EPA have. EPA could have avoided some problems had they consulted with him and kept him better informed on a project they worked one. Thus, he has no confidence in DEQ's ability to hire a toxicologist and accurately determine MMLs. If DEQ cannot directly provide research funding, he is sure they could do a lot to ensure that funding is available through other government programs. At the last meeting he attended on the groundwater management program in the Ontario area, DEQ presented guidelines/goals which though well intentioned were totally unreasonable. Despite making his comments known in writing, he never received any further information or response.



53. Michael R. Skeels, Administrator, Health Division, letter dated November 30, 1990.

Dr. Skeels comments that the proposed method and criteria present three basic issues for the Health Division and he desires to have a discussion and develop an understanding and consensus between the Division and Department before the rule hearings begin. The three issues he proposes for discussion are:

- A. The basic purpose and use of the MML and whether it is primarily an environmental action threshold or a public health standard.
- B. The relationship of the MMLs to drinking water Maximum Contaminant Levels enforced by the Division, and
- C. The respective roles of the DEQ and Division and opportunities for coordination and cooperation between the agencies in groundwater protection.

54. Dr. Madronna Holden, letter dated November 28, 1990.

Commented that the federal Drinking Water Standards should not be used as MMLs since they were not developed to apply to groundwater. The MML should be set below the detection level whenever health considerations warrant. Chemicals known to cause cancer in lab animals should be considered carcinogens for MMLs, and the MMLs should be no higher than one in a million. The MML should take into account cumulative effects and toxicity as the chemical degrades.

Dr. Holden suggests that any scientific advisory committee established to help propose MMLs should be representative of a variety of critical interests, including Oregon's environmental and medical communities. MMLs must be set according to health and environmental and not economic criteria. Cost benefit analysis is totally inappropriate where health standards are being set.

55. Kay Rumsey, letter dated November 27, 1990.

In response to proposed rule 340-40-108, Ms. Rumsey questions why it should be permissible to ignore pollution in some areas but not in others, since the harm is just the same.

In response to proposed rule 340-40-125, MMLs should not be based on expensive to the polluter. While polluters may benefit from less stringent regulations, the people and the environment assume the risk. Costs of preventing pollution would be passed on to the consumer which will be less than the cost of damage inflicted by contaminated water. Zero risk should be the goal.

In response to proposed rule 340-40-135 (4) MMLs should take into consideration the degradation products of chemicals that are as toxic or more toxic than the parent compound. The cancer risk should reflect the multiple risk factors.

In Eugene, pentachlorophenol from the Baxter plant is contaminating soil at the site. If the soil is contaminated, it should come as no surprise that groundwater is also contaminated and groundwater moves. PCP contains a number of dioxins, including 2,3,7,8-TCDD, which can cause damage to animals at levels below current detection. This needs to be taken into consideration when MMLs are set. Also, cumulative impacts such as that which might occur if PCP and TCDD occur together need to be taken into account to reflect the increased risk from exposure to multiple chemicals. MMLs need to address health problems in addition to cancer, such as that caused by nitrates in groundwater and those that cause sterility in men. Environmental effects should be considered since we are dependent on the health of the planet.

56. Penny Hunting, letter dated November 28, 1990.

Writes that Oregon must not adopt lax federal standards intended for pollutants in treated municipal drinking water, the MML should be set below detection if health and environmental considerations warrant, and chemicals known to cause cancer among laboratory animals must be considered to be carcinogens for MMLs.

57. James F. Enger, NORPAC Foods, INC., letter dated November 29, 1990.

Norpac Foods represents 252 farmers irrigating and harvesting 60,000 acres in the Willamette Valley. They support maintenance and protection of Oregon groundwater. An adequate supply of high quality water is important and essential since these acres are irrigated, but it is of no benefit if their water rights are taken away and they can no longer use it.

They support the minority report of Drs. Chandler and Carter and recommend the EQC adopt the language they propose which would allow some flexibility in dealing with the risk associated with cancer causing contaminants. They are also concerned about the conflict between current federal drinking water standards and the states groundwater regulations if "one in one million" risk factor is established. They are concerned about the use of MMLs as clean up standards or any other regulation by state agencies. The term "measurable" was intended to mean that which is at or above the level of validated, analytical detection. It is not acceptable to propose to set an MML at the ever changing level of "non-detectable".

58. David Livesay, Hydrogeologist; Stuart Brown, Hydrologist; Dennis Shelton, Toxicologist and John Martinsen, Hazardous Waste Engineer, CH2M Hill, letter dated November 29, 1990.

CH2M Hill works for EPA, state environmental agencies and private industry throughout the US. The federal drinking water standards are now adopted explicitly by the National Contingency Plan as remediation cleanup goals. The respondents are concerned that future proposed MMLs may similarly be misapplied and don't want Oregon to follow this trend. They offer the following:

The language regarding the use of MMLs is confusing and contradictory. On page A-12 of the report there is a discussion about the sole use of the MMLs a values for triggering establishment of Groundwater Management areas, yet in other parts of the text on page A-24, reference is made to all groundwater users being subject to enforcement actions relative to the standard. Further, discussions on page A-27 states that formal rules is the preferred approach so that the groundwater protection program has some teeth. This suggests the MMLs will be used for enforcement action. Text specifically limiting the applicability of the MMLs may be useful to clarify the intent.

MCLs were formulated for a narrow application, specifically safe drinking water quality. These standards were not meant to be extrapolated to all groundwater. The application of MCLs as MMLs does not distinguish between aquifers with respect to quality or use. It is not appropriate to apply a drinking water standard to an aquifer used for industrial purposes.

59. Debbie and Dave Pickering, letter dated November 28, 1990.

The respondents note they are co-owners and managers of Fog End Farm producing organically grown fruits and vegetables for local market since 1981 who depend on groundwater for irrigation and drinking. Rules concerning the production of organic crops prohibit the use of restricted pesticides including those commonly used by farmers and vegetation managers. Their ability to grow organic food would be affected if their groundwater supply was to become contaminated. Thus, they want the EQC to adopt rules that prevent groundwater pollution and take immediate action to stop pollution when detected.

They are in favor of rules which would set MMLs based on health and environmental considerations, not economic ones. The goal should be to strive for a zero cancer risk and chemicals that cause cancer in lab animals must be considered carcinogens. Any amount of chemicals that are carcinogen at any level should trigger action if detected, Since groundwater aquifers are complex systems, setting standards intended for treated municipal water supply is not appropriate. Degradates of pollutants that are toxic and cumulative cancer risk must be considered in setting MMLs. The state must address groundwater pollution in all affected areas and not on program priorities that would ignore certain areas. Any scientific advisory committee set up to assist DEQ in determining MMLs must be broadly acceptable to interests, including the environmental community. The EQC needs to adopt rules that prevent further degradation of groundwater.

60. **Truman C. Carter, letter date stamped November 30, 1990.**

Last summer Mr. Carter saw dead trees along a ditch that were killed by spraying of streamside vegetation. He is concerned about the dominant role that economic concerns have played in decisions made by the EPA, DEQ and other governmental institutions. They should be dedicated to protecting our environment. The most stringent rules are needed to prevent pollution of Oregon's groundwater.

61. **Brett A. Fisher, Groundwater Campaign Coordinator, Northwest Coalition for Alternatives to Pesticides (NCAP), letter dated November 30, 1990.**

The proposed rules raise the question about how polluted Oregon will allow its groundwater to become before alternatives to pollution practices are figured out. The 1989 Groundwater Protection Act calls for changing polluting practices before pollutants reach levels that may endanger human health and the environment. NCAP comments that the following must not be changed:

- A. 340-40-105 (11) and 125. The MMLs must be based on health and environmental considerations alone. Statements that it will cost a lot if I don't get to pollute must not be allowed when establishing MMLs.
- B. 340-40-125. Oregon must not adopt the lax federal standards for pollutants in treated municipal drinking water which are less protective of human health and the environment than intended under the Oregon Groundwater Protection Act. The federal standards only consider humans, not other organisms dependent on water.

- C. 340-40-105 (1) Chemicals known to cause cancer among laboratory animals (Group B carcinogens) must be considered to be carcinogens for MMLs. Human suffering recorded as lives lost in epidemiological studies is not acceptable before we decide to keep a potentially dangerous chemical out of groundwater.

The following must be strengthened:

- A. The rules need to be explicit and specify that an MML shall be set below detection if considerations of protecting human health and the environment warrant. Levels of dioxin which are unsafe at levels below detection is given as an example.
- B. It is not acceptable for polluters to cause cancer in other people, so the rules should specify MMLs to be set below levels associated with a risk of one additional cancer in one million humans.
- C. An MML must consider the toxicity of related degradates of the pollutant, not just allow it.
- D. The cancer risk for all contaminants in a given aquifer must cumulatively be below levels associated with a risk of one additional cancer in one million humans. A management area should be triggered if collectively they cause one cancer in a million.
- E. Program Priorities (OAR 340-40-108 (1) should be amended to reference the Groundwater Protection Act requirement for the state to declare areas of groundwater concern and management areas in all areas with polluted groundwater. It is not acceptable that the DEQ limit work on groundwater problems to one area a year as proposed nor is it acceptable for the rules to ignore certain areas on the basis of program priorities.

The testimony raises the question as to when the Department will get around to working on other known groundwater problems from nonpoint sources and establish MMLs for aldicarb and Telone?

- F. A section should be added to the rules that any scientific advisory committee established must be broadly acceptable to critical interests including Oregon's environmental community since scientists are never value-free and many make judgments with biases.

Other comments are offered on DEQ's recommendations as follows:

- A. Referencing the EQC September 21, 1990 Agenda Item J Staff Report, Page 4, No 2., the EQC and DEQ are not limited to applying the numerical reference levels (MMLs) only to nonpoint source pollution. NCAP agrees that an inherent conflict will likely arise if MMLs are used for nonpoint source groundwater pollution and not for programs for managing point sources. Also, use of MCLs as existing groundwater quality standards adopted by the EQC in 1989 conflicts with requirements of the Groundwater Protection Act which provide for a higher level of protection an the Existing Groundwater Protection Rules. The numerical groundwater quality reference levels (NGQRL) that are based on federal drinking water standards should be replaced with MMLs to prevent conflict.
- B. Referencing the same staff report Attachment D, Nos 2 and 3, the policy and definitions of the Oregon Groundwater Protection Act should be replace those in the existing groundwater protection rules to prevent conflict.
- c. Referencing the same staff report Attachment D, No. 5, NCAP recommend that the rule proposals be modified to allow DEQ to consider but not be bound to using the numerical reference levels in EPA's Quality Criteria for Water, 1986" for protection of aquatic life.

OREGON GROUNDWATER QUALITY  
TECHNICAL ADVISORY COMMITTEE  
MINORITY STATEMENT

September 10, 1990

To Oregon Environmental Quality Commission, William Hutchison, Chairman  
Strategic Water Management Group, Gail Achterman, Chairman

From <sup>DEC</sup> David Chandler, Ph. D., Toxicologist  
*J. Carter* Julia Carter, Ph. D., Aquatic Ecologist

This minority statement is being submitted because we believe that certain issues have not been adequately addressed in the final report of the Groundwater Technical Advisory Committee required by HB 3515 of the 1989 Oregon Legislature. The Committee is presenting a creditable report to the Environmental Quality Commission; this statement presents additional information to assist the Commission in its deliberations. We have the following comments on specific issues:

1. CONFLICTS WITH THE SAFE DRINKING WATER ACT

The federal Safe Drinking Water Act promulgates Maximum Contaminant Levels (MCLs) for potable water supplies. These MCLs are the "federal standard" as that term is defined in HB 3515. The federal Environmental Protection Agency (EPA) conducts a thorough and extensive scientific analysis and solicits public comment before setting MCLs which have been determined to be protective of public health. The final MCLs assume that the most critical population drinks 2 liters of water per day for adults who weigh 70 kilograms and live for 70 years, and 1 liter of water per day for children up to 10 years of age.

The risk levels associated with the establishment of the MCLs may be range from one in ten thousand to one in one million (10E-4 to 10E-6), generally one in one hundred thousand (10E-5). The MCLs for carcinogens (Class A and B) are set as close to zero as technically and analytically possible with quality assurance and quality control for the analytical procedures as well as availability of laboratories.

If the DEQ administers "federal standards" (MCLs) as Maximum Measurable Levels (MMLs), then Groundwater Management Areas will need to be formed when the contaminant in the groundwater is 50 % of the Maximum Contaminant Level (MCL). This is a valid message that any groundwater used as drinking water needs protection. It also may create problems for public water suppliers whose groundwater sources are at or above the 50% level of the MCL.

As the proposed rules now read, if the Maximum Contaminate Level is at a risk level of 1 in 10E-4 or 1 in 10E-5 rather than 1 in 10E-6, the EQC MUST reject the MCL as not acceptable for a Maximum Measurable Level because it does not protect public health even though the MCL defines safe drinking water as protective of human health. Therefore, the EQC will be required to set a MML at least 10 to 100 times more stringent than EPA drinking water standards. The DEQ will be regulating groundwater 20 to 200 times more restrictively than the Oregon State Health Division (OSHD) regulates drinking water assuming the process declaring a Groundwater Management Area at 50 % of the MML is applied.

This is a powerful message to the general public that they cannot rely on the OSHD or the EPA to assure them safe potable water supplies. We believe it is imperative that the DEQ rules be consistent with the OSHD for rules relating to groundwater quality.

If the EPA declares on the basis of scientific evidence that the Maximum Contaminate Levels (MCLs) are safe for public health, can the EQC determine otherwise? Again, we feel that setting a specific risk level at 1 in 10E-6 is not wise. Any risk assessment is a mathematically derived value judgement, not valid scientific evidence. That value judgement may or may not be accepted by the general public. Rejecting the EPA MCLs will create a false sense that the OSHD rules are not protective of human health, and that neither public nor private water supplies are safe to drink. Additionally, it creates an issue concerning interagency regulatory authority which will make it difficult for the regulated public to meet. We suggest that the following be substituted for the proposed rule to avoid this issue:

**OAR 340-40-125(1)(a)(i): For substances of concern or contaminants which are carcinogens, there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk.**

## 2. ISSUES ON CARCINOGENIC COMPOUNDS

The Committee report proposes in OAR 340-40-125(1)(a)(i) that "federal standards" for class A or B carcinogens which pose a risk greater than 1 in 10E-6 be rejected as non-protective of human health even though the scientific process of the EPA has found them to be safe. This one issue was debated by the Committee more than any other and no consensus was ever reached.

Again, we find this proposed rule too restrictive and propose the following changes:

**OAR 340-40-125(1)(a)(i): For substances of concern or contaminants which are carcinogens; there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk.**

**OAR 340-40-125(2)(a): For substances of concern or contaminants that are carcinogens, the Department must determine that there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk.**

These changes allow for flexibility in the rules and will allow the Department and the Commission to be more, as well as less, restrictive than the 1 in 10E-6 additional cancer criteria of the Committee's report. It also places the onus on unreasonable risk rather than prescribing the "exact" risk which may have little to do with the "real" risk. The use of a 1 in 10E-6 risk level is a value judgement, not a scientific fact, and precludes the ability of the EQC to make any case-by-case decisions for specific chemicals, whenever warranted.

Reference to specific subgroups of compounds, such as the Class A and B carcinogens, is not an acceptable approach to the problem of cancer risk assessment. Currently, there is debate in the scientific community as to the appropriate interpretation of this classification scheme.

The use of these classifications of carcinogens within these rules appears premature. We believe that it is better not to specify the classification of carcinogens or suspected carcinogens that are to be regulated in this section. This will allow for an open forum in the process of setting



Maximum Measurable Levels and thorough discussions based on valid scientific evidence on the risk each contaminant poses.

3. **THRESHOLD THEORY AGAINST LINEAR THEORY**

The section on "Threshold Effect" contained in the Committee report is not based on substantive discussions of this issue during our meetings. Therefore, we disagree with its inclusion in the report or "legislative history" of the proposed rules adds little to assist in the interpretation or enforcement of the rules. Moreover, we disagree with the concept that the Linear Theory has broader acceptance or is superior to the Threshold Theory.

The Threshold Theory states that a substance is toxic only above a threshold amount greater than zero. The Linear Theory says any amount of a substance above zero is toxic. Any discussion on threshold and linear models begs the real issue, which is whether nutrient necessities should be considered toxic concentrations. Arsenic, a carcinogen, may be necessary in the human diet in very small amounts, but is toxic at greater amounts. Even table salt can be toxic and in the context of highly salted foods could be cancerous if consumed in sufficient amounts. The nutrient necessities in these examples are below threshold amounts for otherwise toxic substances, however the EPA sets limits using threshold amounts only when a carcinogen is not involved.

The Linear Theory does not take into account the biology of the organism exposed nor the route of exposure. The linear model assumes that any amount of the substance above zero will cause cancer. This is the driving theory that promotes the 1 in 10E-6 cancer risk. Yet, there is significant uncertainty within this process so that the public can be confused and therefore will not trust either the agencies or the models. The linear model also drives the need for advancement in analytical equipment and techniques which can measure amounts approaching zero, a non-measurable quantity.

Furthermore, the use of the linear model would allow the designation of a Maximum Measurable Level which is below detection limits. HB 3515 requires the Maximum Measurable Level to be measurable. Setting an Maximum Measurable Level below the detection limit is the equivalent of establishing a zero level which is not measurable. Therefore, if a MML were to be promulgated which is below detection, it would circumvent the process in initiating a Groundwater Management Area.

Setting the level of risk to the detection level for that chemical is not an attempt to avoid the maximum protection of the environment or public health and safety. Rather it provides the regulated public certainty that a contaminant will be accurately and precisely measured before the expense and inconvenience of regulatory action is imposed.

4. **USE OF MAXIMUM MEASURABLE LEVELS AS CLEAN UP STANDARDS**

Throughout the Committee deliberations they assumed that the Maximum Measurable Levels would not be used as groundwater clean-up criteria for these groundwater rules or any other DEQ regulations. HB 3515 states these rules apply only to groundwaters at least partially from non-point sources and are to be used only to establish Groundwater Management Areas. However, we are concerned that the regulatory process will result in these levels being used as clean-up standards for groundwater contamination.

In the case of carcinogens, as stated in the Committee report, this will mean that any groundwaters contaminated by non-point sources will be required to clean-up to levels 20 to 200 times more stringent than the drinking water standards that the EPA has determined to be protective of human health (refer to discussion in Section 1 above). This will put an extensive, expensive and unnecessary burden on the DEQ and the regulated public.

The DEQ needs to be internally consistent in its rules. It should not have the same situation controlled by two conflicting regulations, nor should those regulations conflict with any other agency's statutory or regulatory requirements or responsibilities.

It was not until the June 1990 meeting that the Committee realized the potential overlap between the MMLs and the clean up standards which could be imposed on Principal Responsible Parties under CERCLA, RCRA, and the Oregon Superfund regulations. The MCLs already protect public health, thus if the MMLs were used as clean-up standards, it will create situations where landowners could unjustly lose their land based on the requirements for overly restrictive clean up requirements.

#### 5. INCORPORATION OF OTHER STATE AGENCIES

House Bill 3515 in Section 24(1) says the Strategic Water Management Group (SWMG) shall appoint a technical advisory committee to develop criteria and a method for the EQC to apply in adopting Maximum Measurable Levels of contaminants in groundwater. Initially, there was confusion as to whom the Committee was to report: SWMG or the EQC. The DEQ staff requested an opinion from SWMG which deferred to the EQC. While Section 27 of HB 3515 requires the DEQ to provide staff support to the Committee, the responsibility for action rests with SWMG.

It is important to the effective promulgation and implementation of these proposed rules that the other agencies of SWMG be informed before the rules are presented to the public in the hearing process. Some of the proposed rules will greatly impact either the rules or the operation of other agencies including, but not limited to, Agriculture, Forestry, Health Division, Water Resources Department and the Department of Geology and Mineral Industries. To our knowledge, the Committee report was not circulated to those agencies prior to submittal to the EQC, nor have their comments, if any, been incorporated by the DEQ staff in its report.

#### 6. WATER RIGHTS

The issue of water rights was discussed by both the Legislature and the Committee. The protection of groundwater and possible subsequent clean up of contaminated groundwater should in no way compromise water rights senior to the declaration of a Groundwater Management Area or a clean up project, nor deny owners of those rights the beneficial use of an established water right in an effort to protect groundwater quality or remediate contamination. In much of Eastern Oregon, water is as valuable a resource as land. The Committee did not deal with this important issue. Even though it was alluded to OAR 340-40-108(8), the proposed rules do not specifically document water rights as a concern. The protection of water rights is as important as the protection of groundwater quality and should be more completely addressed, if only to assure the public that water rights will not be disturbed.

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The Committee worked diligently to present a credible report to the Commission and Strategic Water Management Group. The individual members committed to their job with enthusiasm and professionalism, and, for the most part, we agree with the Committee's approach. The priorities set out in the proposed rules are appropriate. This minority statement does not reflect disagreements among the Committee, but is rather intended to present additional viewpoints and information to the Commission. It is meant to enhance the information in the Commission's deliberations.

**Enclosure: Modified Rule Package**

**MODIFIED RULE PACKAGE TO SUPPORT MINORITY STATEMENT****METHODS AND CRITERIA FOR ESTABLISHMENT OF  
MAXIMUM MEASURABLE LEVELS  
OF CONTAMINANTS IN GROUNDWATER****OAR 340-40-100 STATEMENT OF PURPOSE**

The rules within this division establish the methods and criteria the Environmental Quality Commission shall apply in adopting maximum measurable levels of contaminants in groundwater resulting from actual or suspected non-point sources or activities to be used in the designation of groundwater management areas.

The maximum measurable levels of contaminants adopted by the Commission using these rules are protective of public health and the environment and existing and future beneficial uses of the groundwater which the natural water quality allows. The Commission recognizes, however, that studies of aquatic and wildlife species are extremely limited. This reduces confidence in the Commission's ability to ensure that maximum measurable levels of contaminants will be protective of those groups in the environment.

The maximum measurable levels established by these rules are not designed to be used as clean-up standards for remedial actions, but to initiate the process of designating groundwater management areas where necessary to preserve groundwater quality.

**OAR 340-40-105 DEFINITIONS:**

Unless otherwise defined in OAR 340-41-006 or OAR 340-40-010, the following terms used in this division shall mean:

- (1) "Carcinogen" means a compound which the United States Environmental Protection Agency has classified as Group A or Group B under the carcinogenic classification procedures described in 51 Fed. Reg. 33992.
- (2) "Confirmed or confirmation" means that a second laboratory quantitatively detects the presence of the contaminant or substance of concern in groundwater by an established analytical technique.
- (3) "Contaminant" means any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance that does not occur naturally in groundwater or that occurs naturally but at a lower concentration. (HB 3515, Section 17 (2)).
- (4) "Detect, detectable, detection or detected" means to measure a contaminant by an established analytical technique in a laboratory using established quality assurance and quality control procedures such as 40 CFR 136.
- (5) "Federal standard" means a maximum contaminant level, a national primary drinking water regulation or an interim drinking water regulation adopted by the Administrator of the United States Environmental Protection Agency ("EPA") pursuant to the federal Safe Drinking Water Act (HB 3515, Section 24 (1)).

- (6) **"Environment" means the air, water and land and the interrelationship which exists among and between water, air, and land and all living organisms.**
- (7) **"Maximum measurable level" means the maximum allowable concentration of a contaminant or substance of concern that is established by the Commission in accord with these rules. Adopted maximum measurable levels are to be used by the Department to initiate the process of designating Groundwater Management Areas within the state of Oregon where necessary to preserve groundwater quality (HB 3515, Sec. 17(3)).**
- (8) **"Natural water quality" means water quality that would exist as a result of conditions unaffected by human-caused pollution. (OAR 340-40-010).**
- (9) **"Non-point source" means diffuse or unconfined sources of pollution where contaminants can enter into or be conveyed by the movement of water into public water. (OAR 340-40-010 (12)).**
- (10) **"Point source" means any confined or discrete source of pollution where contaminants can enter into or be conveyed by the movement of water to public water. (OAR 340-40-010 (14)).**
- (11) **"Protect public health and the environment" means to keep humans and the environment from unreasonable adverse risk, effect or harm, excluding economic concerns.**
- (12) **"Substance of concern" means a contaminant confirmed to exist in groundwater in Oregon as a result of actual or suspected non-point source activities.**

#### OAR 340-40-108

#### GENERAL POLICIES

Groundwater is a critical natural resource providing domestic, industrial, and agricultural water supply; base flow for rivers, lakes, streams and wetlands; and other beneficial uses. Therefore, the following policies are established:

- (1) **Program Priorities:** Groundwater quality shall be protected throughout the state of Oregon. However, the Commission shall concentrate its groundwater quality protection implementation efforts in areas where practices and activities related to the use of one or more substances of concern have the greatest potential for degrading groundwater quality and where potential groundwater quality pollution would have the greatest adverse impact on beneficial uses.
- (2) **Beneficial Uses:** Groundwater shall be protected for both existing and future beneficial uses so that the State may continue to utilize the resource for whatever beneficial uses the natural water quality allows. High quality groundwater shall be maintained for present and future uses.
- (3) **Scientific Evidence:** The Commission shall set a maximum measurable level for a contaminant or substance of concern only when there is sufficient scientific evidence to show that the contaminant or substance of concern will cause adverse effects to public health or the environment.
- (4) **Naturally Occurring Contaminants:** For contaminants that naturally occur in groundwater in concentrations above the maximum measurable level, the Commission shall consider the natural background level to be the equivalent of the maximum measurable level for that groundwater source.

- (5) **Wildlife:** A preliminary assessment by EPA indicates that aquatic criteria are not in all cases protective of wildlife (e.g. mercury, selenium, polychlorinated biphenyls, DDT and possibly chlorinated alkanes, benzene, phenols, and heavy metals in general). However, for contaminants or substances of concern, the Department will rely on the limited information available in EPA's Water Quality Criteria for protection of aquatic and wildlife species as their foundation for recommendations to the Commission until scientifically valid evidence proves this to be inadequate.
- (6) **Method Flow Chart:** A flow chart, Appendix I, graphically describes the methods to be used in establishing maximum measurable levels which may, as appropriate, be used to interpret these rules.
- (7) **Public Support via Education:** Public support of this groundwater protection program is essential to its long term success, and voluntary compliance will likely lead to the least cost program. Therefore, the Commission is encouraged to conduct ongoing public education and demonstration programs designed to inform the public concerning (a) various contaminants, (b) the various elements of the groundwater protection program, (c) how the public can participate in protecting Oregon's groundwater resource.
- (8) **Other Rules and Statutes Unchanged:** Nothing stated in these rules shall change or be changed by OAR 340-40-001 to -080 (General Groundwater Protection); OAR 340, in Division 108 (Spills and Other Incidents); OAR 340, Division 150 (Underground Storage Tank Rules); or OAR 340, Division 122 (Environmental Clean-up Rules).

#### OAR 340-40-110

#### SUBSTANCES REGULATED UNDER THESE RULES

- (1) The Department shall, pursuant to the procedures adopted in accord with OAR 340-40-025, et. seq., propose to the Commission that it adopt a maximum measurable level for each substance of concern.
- (2) The Department may, pursuant to the procedures adopted in accord with OAR 340-40-125, et. seq., propose to the Commission that it adopt a maximum measurable level for any contaminant that:
  - (a) is used or has the potential for use in Oregon; and
  - (b) has the potential to enter groundwater at least partially from one or more non-point sources; and
  - (c) may adversely affect public health or the environment.

#### OAR 340-40-120

#### NOTICE OF INTENT TO PROPOSE CONTAMINANTS FOR ADOPTION OF MAXIMUM MEASURABLE LEVELS

- (1) Notwithstanding any other requirement established by law, the Department shall also notify the public of its intent to consider adoption of a maximum measurable level for a contaminant or substance of concern by mailing, first class, postage prepaid, a single page notice to those interested parties who have previously filed written requests to the Department that they be placed on the Department's mailing list for groundwater issues. It shall be the responsibility of the interested parties to maintain their status on that mailing list.

- (2) The notice shall identify the contaminant under consideration and the current federal standard for that contaminant, if any, and shall state the last date by which interested parties may submit to the Department relevant information regarding that contaminant, which date shall not be less than forty-five (45) days after the date of mailing the notice.
- (3) The Department may consider information which is submitted to the Department in response to the notice, but need not specifically respond to or address this information in development of its proposed maximum measurable levels.

**OAR 340-40-125****METHODS TO ESTABLISH MAXIMUM MEASURABLE LEVELS**

- (1) If a federal standard has been promulgated for any substance of concern (OAR 340-40-110 (1)) or any contaminant (OAR 340-40-110 (2)), the Department shall propose only that federal standard to the Commission for adoption as the maximum measurable level, unless at least one of OAR 340-40-125 (a, b, c) is determined:
  - (a) The Department determines that valid scientific evidence establishes that the federal standard is not protective of human health. To so determine, the Department must declare that at least one of the following applies:
    - (i) For substances of concern or contaminants which are carcinogens, there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk.
    - (ii) For all substances of concern or contaminants, the federal standard has not considered relevant valid scientific evidence which demonstrate that the federal standard does not protect public health;
  - (b) The Department determines that valid scientific evidence establishes the groundwater contaminated to the level of that federal standard is not protective of the affected environment; or
  - (c) The Department determines that valid scientific evidence establishes that the federal standard is not protective of existing and future beneficial uses of the natural groundwater in Oregon.
- (2) In the event that the Department proposes to reject the federal standard for one or more of the reasons described in sub-section (1) above, the Department shall state the reason in its proposal and may propose a maximum measurable level which takes into account the following factors:

**PUBLIC HEALTH FACTORS:**

- (a) For substances of concern or contaminants that are carcinogens, the Department must determine that there is scientifically valid evidence to support a conclusion that public health is unreasonably at risk.
- (b) For all substances of concern and contaminants which are not carcinogens, the substance of concern or the contaminant has been evaluated by a federal agency or a scientifically recognized advisory group and said agency or group has established protective levels for

human health. The Department shall evaluate and rank the available data, conclusions, or recommendations reached by said agencies or advisory groups in the following priority:

- (i) An EPA proposed maximum contaminant level or maximum contaminant level goal;
  - (ii) An EPA federal health advisory;
  - (iii) Assistance from the EPA for a federal health advisory or a maximum contaminant level;
  - (iv) Recommendations from EPA's Science Advisory Board, the National Academy of Science, the International Agency for Research on Cancer, the European Economic Commission, EPA's Cancer Assessment Group, The Carcinogenic Assessment Verification Endeavor Working Group, The National Toxicology Program, other states which follow EPA-like procedures, and other scientifically recognized advisory groups.
- (c) The risk to public health is greater than the risk to the environment.

#### ENVIRONMENTAL FACTORS

- (a) There is scientifically valid evidence that a contaminant or substance of concern in concentrations that are less than the federal standard will cause adverse effects to the environment.
  - (b) The substance of concern or contaminant has been evaluated by a federal agency or a scientifically recognized advisory group and such agency or group has established protective levels for the environment. The Department shall evaluate and incorporate in its proposal the data and recommendations of EPA's Quality Criteria for Water, 1986, unless EPA's "National Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses" or other valid scientific evidence demonstrates compelling evidence that EPA's Quality Criteria for Water, 1986, is not protective of the environment.
- (3) In the event there is no federal standard for a substance of concern or contaminant and valid scientific evidence exists to support the development of a maximum measurable level for that substance of concern or contaminant, the Department may propose a maximum measurable level. If the Department proposes a maximum measurable level under this condition, the Department shall consider the public health criteria and the environmental criteria set forth in sub-paragraph (2) above.
- (4) In the event no federal standard exists and there is insufficient scientifically valid data available to the Department to establish that the public health criteria and the environmental criteria set forth in sub-section (2), of this rule have been met:
- (a) the Department shall request assistance from the EPA to:
    - (i) Set a federal standard when valid scientific evidence warrants; or



- (ii) Initiate research on the federal level to determine if scientific evidence will support establishment of a federal standard; or
  - (iii) Establish a criterion as defined in Section 304 of the Clean Water Act (33 USCA Section 1314 (a)) which is protective of the environment; and
- (b) the Department shall cause to be published a Health and Environmental Advisory as outlined in OAR 340-40-130, for the contaminant.

**OAR 340-40-130****HEALTH AND ENVIRONMENTAL ADVISORIES**

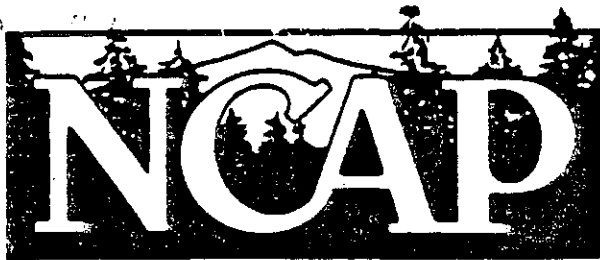
- (1) The Department shall provide Human Health and Environmental Advisories of each Maximum Measurable Level adopted by the Commission. Each advisory shall include, but not be limited to, the following information:
  - (a) Common and technical name, CAS number, chemical identity and synonyms;
  - (b) How it is released to the environment, how it occurs naturally, and its fate in the environment with particular reference to groundwater quality;
  - (c) The occurrence, or potential for occurrence, in groundwater in Oregon;
  - (d) The means of human exposure, fate of the chemical in humans and the human health effects;
  - (e) The environmental effects, including both aquatic and terrestrial organisms;
  - (f) The maximum measurable level established, if any, and the basis for its establishment;
  - (g) How to obtain testing;
  - (h) A brief summary of how to initiate the process of establishing a groundwater area of concern, or groundwater management area;
  - (i) Other information, including but not limited to, reference to the Department's staff report upon which the maximum measurable level was proposed, means of treating contaminated water, and reference to various agencies with information relating to groundwater quality.
- (2) A draft of each Human Health and Environmental Advisory shall be submitted with the DEQ Staff Report when the proposed maximum measurable level is authorized for public hearing.
- (3) The public shall be allowed to comment on the advisory in the public hearing process. The Department will modify the draft advisory, if appropriate, to reflect the public comments.

**OAR 340-40-135****MODIFICATION TO THE MAXIMUM MEASURABLE LEVEL**

- (1) The Department shall follow its established schedule for periodic review of all of its rules to determine that all current maximum measurable levels duly adopted by the Department remain appropriate.

- (2) If a maximum measurable level is based on a federal standard and that standard is duly modified by the authorized federal agency, the Department shall re-evaluate the Commission's adopted maximum measurable level within one hundred eighty (180) days of the date of that federal change. The Department may, after that re-evaluation, either propose to take no action or propose a change to the maximum measurable level, pursuant to these rules.
- (3) The Department may, at any time new or scientifically valid information has become available, propose a change to a maximum measurable level or a new maximum measurable level for any substance of concern or contaminant pursuant to the procedures set forth in these rules.
- (4) The Department may, at any time new or scientifically valid information on degradates or metabolites of a parent compound or interactions there of become available, propose a change to a maximum measurable level or a new maximum measurable level for any substance of concern or contaminant pursuant to the procedures set forth in these rules.

CC JHL



**NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES**

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

**RECEIVED**  
SEP 10 1990

State of Oregon  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
**RECEIVED**  
SEP 04 1990

WATER QUALITY DIVISION  
DEPT. OF ENVIRONMENTAL QUALITY

OFFICE OF THE DIRECTOR

August 30, 1990

To: Oregon Environmental quality Commission

From: Mary O'Brien  
Committee member, Groundwater Quality Technical Advisory  
Committee

I write this memorandum as a member of the Groundwater Quality Technical Advisory Committee regarding our report on the establishment of maximum measurable levels for groundwater contaminants in Oregon submitted to you July 24, 1990 by the Chair of our committee, Clinton Reeder.

The following three observations are not intended as a minority report, because our committee worked carefully to jointly submit recommendations for rules to be followed by the Department of Environmental Quality when determining triggers for response following degradation of groundwater. I simply hope you will consider the implications of these observations even as you approve (or alter) our recommendations.

1. Oregon needs to move from its traditional environmental policy based on the assimilative capacity approach to the precautionary principle and prevention of toxic discharges.

Oregon and the Department of Environmental Quality need to move from their traditional, impossible efforts of trying to guess how many and how much of which toxins can be "safely" dumped into Oregon's rivers, air, soil, and living beings.

The process our committee has proposed for establishing maximum measurable levels of allowable groundwater contamination is not linked with any requirements to systematically and comprehensively analyse industrial, agricultural, urban, and resource management practices for alternative, non-polluting production possibilities. Our committee's proposals therefore ultimately contribute to sanctioned environmental degradation.

One definition of the alternative to the assimilative capacity approach, the precautionary principle, can be found in the Final Document issued by the Nordic Council at its Conference on Pollution of the Seas, held in Copenhagen, 16-18 October 1989:

"The need for an effective precautionary approach, with that important principle intended to safeguard the marine ecosystem by, among other things, eliminating and preventing pollution emissions where there is reason to believe that damage or harmful effects are likely to be caused, even where there is inadequate or inconclusive scientific evidence to prove a causal link between emissions and effects." (Emphases added.)

The precautionary principle would, for instance, apply to bioaccumulative synthetic chemicals such as chlorinated hydrocarbons. The precautionary principle would call for zero discharge of organochlorines to our groundwater.

The corollary to the precautionary principle is prevention of waste discharges through clean production. Clean production can be defined as production systems (e.g., agriculture, industry, resource management) which avoid or eliminate discharge of toxic wastes and use a minimal amount of raw materials, water, and energy. Clean production involves the analysis of entire production systems for the application of the substitution of raw materials, substitution of alternative products, alternative processes, and alternative clean production technology.

2. The process proposed by our committee fails to address cumulative impacts.

Estimation, toxin by toxin, of "safe" contamination of public groundwater obviously fails to account for additive or synergistic effects of multiple toxins and of toxins and their chemically related degradates. Since the data necessary to generate numbers for cumulative effects have not been gathered, multiple groundwater contaminants are illogically and unscientifically considered to act independently and without cumulative effects.

This violates the precautionary principle and is an inescapable failure of the assimilative capacity approach.

3. The process proposed by our committee fails to address data gaps.

If, as is the case with most toxins, no data have been gathered on a toxin's immune suppressive effects or threats to nerve functioning, then such effects are considered to be zero for purposes of deciding what levels of contamination shall be

countenanced without taking action. Likewise, if a toxin has not been adequately tested for birth defects, reproductive effects, cancer, effects on infants, or effects on chemically sensitive people, then the toxin is assumed for the purposes of our proposed process to not cause these adverse effects.

Ignorance and failure to adequately test chemicals are thus rewarded with contamination limits that are potentially non-protective; no news is considered good news.

This is an inescapable failure of the assimilative capacity approach which requires that proof be offered of damage before a number is assigned limiting allowable contamination.

While I do not offer these thoughts as a minority report, I do feel the EQC should be aware of the fundamental shortcomings of our proposed process that tries to estimate how much of each toxin is "safe" to dump in Oregon's water, soil, or air.

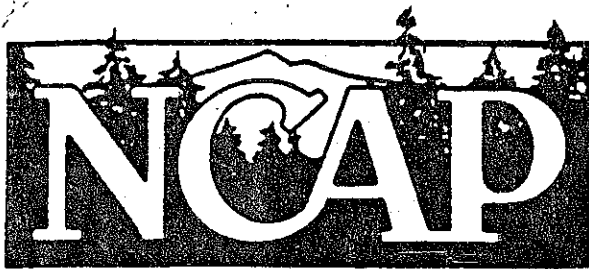
Thank you for your consideration of Oregon's environment.

Sincerely,

*Mary H. O'Brien*

Mary H. O'Brien

cc: Clinton Reeder  
Fred Hansen ✓  
Rick Keppler  
Jean Cameron, OEC



NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES  
P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

RECEIVED  
SEP 19 1990

To: Environmental Quality Commission

From: Mary O'Brien, Member, Groundwater Technical Advisory Committee *MOB*

WATER QUALITY DIVISION  
DEPT. OF ENVIRONMENTAL QUALITY

Date: September 14, 1990

Re: Establishment of Maximum Measurable Levels (MML's) for  
Groundwater Contaminants in Oregon (Report submitted to  
the EQC), p. 13.

I have circled a paragraph that was added to our committee's report after the last meeting of the committee. I do not know who added it, but it is flatly inaccurate. "One cancer in a million" does mean that it is estimated that approximately one additional person in a million people will contract cancer from a particular source (in this case, drinking a certain amount of groundwater that is contaminated with a particular carcinogenic compound for a certain number of years).

Such estimates are really shots in the dark, given our ignorance of the identity or carcinogenicity of most contaminants' metabolites; the interactive effects of multiple toxins in a single aquifer; a person's cumulative exposure to multiple toxic chemicals by routes other than drinking water; the potential for humans to be more, equally, or less susceptible than laboratory animals to the carcinogenic action of a compound; susceptibility of infants and children to carcinogenic substances; etc.

This is why the entire process of deciding how much of numerous carcinogens will be allowed to contaminate groundwater before people meet together to change above-ground behaviors is a practice of dubious rationality.

However, when a phrase such as "one in a million cancer risk" is used, it is intended to convey an estimate that one additional person in a million people exposed to a particular carcinogenic substance will contract cancer.

Some would say that behavior predicated on such estimated numbers of cancer cases is the modern industrialized world's version of the ancient practice of human sacrifice, but I guess that's another issue.

cc: Clinton Reeder

G4

Establishment of Maximum  
Measurable Levels (MML's)  
for Groundwater Contamination  
in Oregon

13

analytical techniques and quality control procedures as defined in the Clean Water Act (40 CFR 136), or procedures having reasonably equivalent reliability.

The analytical techniques in the Safe Drinking Water Act are limited to those parameters which are federal Drinking Water Standards and therefore are limited.

The Clean Water Act has analytical techniques for many more chemicals. Groundwaters of the state are regulated pursuant to the Clean Water Act; therefore, the analytical procedures of that law are appropriate for direct use, or use as procedural guidelines.

The primary concern is that the Oregon groundwater program be based upon valid, reliable analytical techniques conducted in laboratories with acceptable quality assurance programs.

- (b) Carcinogenic Substances: Only those chemicals in Group A or Group B of the EPA carcinogenic groups are to be regulated to one additional cancer in one million people. Group A chemicals are known human carcinogens. Group B chemicals have at least limited evidence of carcinogenicity to humans and/or laboratory animals. All other EPA categories for carcinogens have inadequate data to show they are carcinogenic to humans or other animals, or the chemicals are considered non-carcinogenic.

The Committee did not come to "comfortable full agreement" that the one in a million additional cancer risk was a generally acceptable standard for carcinogens. This standard was "agreed to" and incorporated into the report with considerable reluctance by some Committee members, and should therefore be reviewed carefully prior to adoption by the Commission.

Also, it should be made clear that this standard does not imply that one additional person in a million will contract cancer. It is a probability reference, meaning that every person exposed to the chemical, at the level of exposure associated with the one in a million risk level, has at that level of exposure to the chemical a one in a million chance (likelihood, probability) of contracting cancer due to the exposure.

- (c) Valid Scientific Evidence: The rules clearly state that the Department is to base its determination of maximum measurable levels on accepted valid scientific evidence.

*Oregon Department of Environmental Quality*

## A CHANCE TO COMMENT ON...

### ESTABLISHMENT OF A METHOD AND CRITERIA FOR SETTING MAXIMUM MEASURABLE LEVELS IN GROUNDWATER

Notice Issued: November 1, 1990  
Comments Due: November 30, 1990

**WHO IS  
AFFECTED:**

Potentially all businesses, land owners, residents, industries and local governments in the state of Oregon

**WHAT IS  
PROPOSED:**

The Department proposes to adopt as rules a method and criteria for the establishment of Maximum Measurable Levels (MML's) in groundwater. These MML's will be reference standards used to trigger the declaration of a Groundwater Management Area.

**WHAT ARE THE  
HIGHLIGHTS:**

Oregon's Groundwater Quality Protection Act of 1989 (HB 3515, Oregon Revised Statute (ORS) 536.137) directed the establishment of a Technical Advisory Committee to advise the Environmental Quality Commission (EQC) on a method and criteria for adopting Maximum Measurable Levels. This Committee has recommended that the method and criteria be adopted in rule form. Rules were favored over guidance by the Committee because "Rules will likely assure more uniformity and equity in implementation of the program." The proposed rule will:

- 1) Declare MML's to be protective of public health and the environment.
- 2) Outline a method and criteria for determining what reference number will be used for a MML when a Federal Drinking Water Standard is not used or does not exist.



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.



- 3) Identifies when a Federal Drinking Water Standard can and can not be used as a MML.
- 4) Provides advance notice of when the Department starts the process of establishing a MML.
- 5) Provides for an Advisory to be developed on all substances for which a MML is established.

HOW IS THE  
PUBLIC  
AFFECTED:

MML's are used to declare Groundwater Management Areas for which management plans will be developed by local committees to suggest and implement changes in current practices with the goal of reducing contamination of groundwater resources.

HOW TO  
COMMENT:

Public Hearing -- Friday, November 16, 1990, 10:00 a.m. at the following address:

Department of Environmental Quality  
Main Conference Room (3A) Third Floor  
811 S.W. Sixth Avenue  
Portland, OR 97204

Written comments should be presented to:

Department of Environmental Quality  
Water Quality Division Attn: Richard Kepler  
811 S.W. Sixth Avenue  
Portland, OR 97204  
Telephone: 229-6804

WHAT IS THE  
NEXT STEP:

After the public testimony has been received and evaluated, the proposed rules will be revised as appropriate, and will be presented to the Environmental Quality Commission at one of their regularly scheduled meeting for consideration. The Commission may adopt the proposed rule, adopt modified rules, or take no further action.

ATTACHMENTS:

Statement of Need for Rule Making  
Statement of Land Use Consistency  
Statement of Economic and Fiscal Impact

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: October 22, 1990

TO: PERSONS INTERESTED IN GROUNDWATER ISSUES

FROM: Amy Patton, Manager Groundwater Section

SUBJECT: Additional Public Hearings Scheduled on Proposed Rules to Establish a Method and Criteria for Setting Maximum Measurable Levels in Groundwater

In a memo dated October 5, 1990 the Department announced the scheduling of a public hearing on proposed rules to "Establish a Method and Criteria for Setting Maximum Measurable Levels in Groundwater". Because of requests by the public to hold additional public hearings on the rules, the Department has scheduled two (2) additional hearings. The location and time of the hearings are as follows:

Tuesday November 20, 1990 beginning at 7:00 pm in the Jackson County Auditorium  
10 South Oakdale  
Medford, Oregon 97501

and

Wednesday, November 28, 1990 beginning at 6:00 pm in the LaGrande City Hall Council Chambers  
1000 Adams Ave.  
LaGrande, Oregon 97850

The original public hearing is still scheduled for

Friday November 16, 1990 beginning at 10:00 am in the Department of Environmental Quality's Main Conference Room (3A)  
811 S.W. Sixth Avenue  
Portland, Oregon 97204

Written comments will be accepted through November 30, 1990, send to:

Department of Environmental Quality  
Water Quality Division Attn: Richard Kepler  
811 S.W Sixth Avenue  
Portland, Oregon 97204

Copies of the rules can be obtained by writing the above address or calling Rick Kepler at 229-6804

**STATEMENT OF NEED FOR RULE MAKING**

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

**(1) Legal Authority.**

Oregon's Groundwater Act of 1989 (HB 3515, Oregon Revised Statute (ORS) 468.694) directed the Environmental Quality Commission to establish Maximum Measurable Levels of contaminants in groundwater. ORS 468.015 and 468.020 provide the Commission with the authority to establish the policies, rules and standards necessary and proper in performing the functions vested by law in the Commission, including the policies and purposes of ORS Chapter 468.

ORS 468.692 declares that it is the goal of the state to prevent contamination of Oregon's groundwater resource. It is the public policy of the state as defined in ORS 468.710 to protect and improve public water quality for beneficial uses including: "public water supplies, for the propagation of municipal, recreational and other beneficial uses." ORS 468.710, 468.715, and 468.720 go on to further state that "no waste be discharged to waters of the state without first receiving necessary treatment..."; that "all available and necessary methods" be used to prevent pollution and that waste not be allowed to "escape or be carried into the waters of the state by any means." ORS 468.700(7) includes in its definition of wastes "...substances which will or may cause pollution or tend to cause pollution of any water of the state." ORS 468.700(8) includes in its definition of waters of the state "...underground waters...." ORS 468.735 provides that the Commission by rule may establish standards of quality and purity for the waters of the state in accordance with the public policy set forth in ORS 468.710.

**2) Need for Rule**

Oregon's Groundwater Act of 1989 (HB 3515, Oregon Revised Statute (ORS) 536.137) directed the establishment of a Technical Advisory Committee to advise the Environmental Quality Commission (EQC) on a method and criteria for adopting Maximum Measurable Levels. That Committee has recommended that the method and criteria used to establish Maximum Measurable Levels be adopted in rule form. Rules were favored over guidance by the Committee because "Rules will likely assure more uniformity and equity in implementation of the program."

(3) Principal Documents Relied Upon in this Rule Making.

The following documents are available for review during normal business hours at the Department's office, 811 SW Sixth Ave., Portland, Oregon.

House Bill 3515, Groundwater Protection Act of 1989

Federal Clean Water Act

Federal Safe Drinking Water Act

40 CFR Parts 136, 141, 142, and 143

Guidelines for Carcinogen Risk Assessment, Federal Register Vol. 51, No. 185 September 24, 1986

Groundwater Protection, "The Use of Drinking Water Standards by the States", December 1988, Report to the Chairman, Subcommittee on Hazardous Wastes and Toxic Substances, Committee on Environment and Public Works, U.S. Senate.

Quality Criteria for water 1986, May 1986, Environmental Protection Agency, Office of Water

## LAND USE CONSISTENCY

The Department has concluded that the proposal conforms with statewide planning goals and guidelines.

Goal 2 (Land Use Planning): The use of Maximum Measurable Levels to designate a Groundwater Management Area may require the modification of Land Use Plans during the periodic review process.

Goal 6 (Air, Water, and Local Resource Quality): The proposed rules are designed to more clearly protect and maintain groundwater quality statewide.

Goal 11 (Public Facilities and Services): Establishment of Maximum Measurable Levels may require additional costs both in terms of management and operation activities and for capital improvements if implementation of Best Practicable Management Practices (BPMPs) is required to reduce contamination of the groundwater.

Public comment on any land use issue is welcome and may be submitted in the same manner 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 and federal authorities.

**FISCAL AND ECONOMIC IMPACT OF PROPOSED RULES FOR A METHODS AND  
CRITERIA FOR ESTABLISHMENT OF MAXIMUM MEASURABLE LEVELS OF  
CONTAMINANTS IN GROUNDWATER**

**Introduction**

The adoption of rules establishing a method and criteria for setting Maximum Measurable Levels (MMLs) will not in itself have a substantial financial and economic impact. Most of the costs incurred will be for additional staff time needed to follow the rules for developing MMLs. The rules will guide the process of setting reference levels for declaring Groundwater Management Areas. Groundwater Management Areas are required by ORS 468.698 to be formed when the Department of Environmental Quality finds a contaminant in groundwater which is due in part to non-point sources and has reach a level in the groundwater which is in most cases, fifty percent (50%) of an established MML.

**Fiscal and Economic Impact**

There are few direct costs associated with the establishment of the proposed rules. The Department would be required to establish MMLs whether the method and criteria were in rule form or used as guidance. The associated costs to the Department for adopting the proposed rules are:

- 1) The additional time needed to complete the rule adoption process for establishing an MML.
  - The proposed rules require an additional 45 days be allowed, before the public hearing process begins, for the submission of information pertaining to the establishment of an MML.
  - "Human Health and Environmental Advisories" will need to be prepared which will require additional Department staff time.
- 2) The funds required to prepare and mail the "Notice of Intent to Propose Contaminants for Adoption of a MML" and the "Human Health and Environmental Advisories" will cost approximately \$ 1500.00 per MML.
- 3) The Department has estimated that the timely establishment of MMLs will require a toxicologist and support staff at a cost of about \$175,000 per biennium. Under the proposed rules the Department estimates one toxicologist might be able to propose 8 MMLs per year (16 per biennium). If the Department were to follow

internal procedures to propose MMLs, as many as 12 MMLs per year (24 per biennium) could be proposed. If additional MML's beyond the estimated 16 were desired each biennium, under these proposed rules the Department would need a corresponding increase in the staff available for proposing MMLs. Note: The number of MMLs to be completed will vary depending on the substance, the issues involved and the information available on the substance.

### **Indirect Costs**

Once an MML is established it may be used as a trigger level to declare a Groundwater Management Area. Although beyond the scope of this evaluation, some of the associated costs of declaring a Groundwater Management Area are outlined below.

- There will be costs incurred for the investigating, monitoring, and defining a Groundwater Management Area.
- The introduction of Best Management Practices (BMPs) will have both costs and benefits associated with them.
- There could be some increases in the costs of managing the BMPs.

The management plan developed for a Groundwater Management Area will need to make economic sense to be implementable and successful so the plans are anticipated to be either voluntary, cost effective to implement, or cost neutral.

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 15, 1991

TO: Environmental Quality Commission

FROM: Fred Hansen, Director

SUBJECT: Agenda Item F, January 31, 1991 EQC Meeting

Review of Report to the Legislature on Conditionally Exempt Small Quantity Hazardous Waste Generators.

Background

Attached is the Department of Environmental Quality's report to the Legislature on Conditionally Exempt Small Quantity Hazardous Waste Generators as required by House Bill 3515 (Attachment A). The 1989 legislature, recognizing that conditionally exempt generators (CEGs) have limited waste management options, requested the Department report on waste management and funding options. Conditionally Exempt Small Quantity Generators are businesses that produce less than 220 pounds of hazardous waste or 2.2 pounds of acutely hazardous waste per month and do not store more than 2200 pounds of hazardous waste or 2.2 pounds of acutely hazardous waste on-site at any one time. In preparing this report, the Department worked with several small businesses and advisory committee members.

Significant Issues

- The report discusses management and funding options, however, specific management and funding options are not recommended due to limited information on conditionally exempt generators.
- The report stresses the need to collect additional conditionally exempt generator information before permanent management options are recommended.



Memo to: ENVIRONMENTAL QUALITY COMMISSION  
January 15, 1991  
Page 2

- The report recommends that additional information be collected through proposed generator notification of conditionally exempt generators.

Requested Action

It is requested that the Commission review the draft report, provide guidance for modifications if deemed appropriate, and approve submittal of the final report to the Legislature.

Approved:

Section: Ken W. Brown  
Division: Stephanie Kellock  
Director: Bill Hunt

Report Prepared By: Rick Volpel, HSW

Phone: 229-6590

Date Prepared: January 10, 1991

(RJV:Rick.Volpel:HSW)  
(E:\wordp\CEG.COV  
(1/15/91)

## Conditionally Exempt Small Quantity Generator Report Executive Summary

### BACKGROUND

House Bill 3515, passed by the Oregon Legislature in 1989, requires that the Department of Environmental Quality (DEQ) study management and funding options for hazardous waste produced by conditionally exempt small quantity hazardous waste generators (CEGs). Conditionally exempt hazardous waste generators are, by definition, those businesses that produce less than 220 pounds of hazardous waste in a month. CEGs are not subject to the rigorous waste management requirements of Subtitle C of the Resource Conservation and Recovery Act (RCRA). DEQ is required to report its findings to the 66th Legislative Assembly (1991).

DEQ is also required to contract for a pilot project, for a period not to exceed three years, within the boundaries of the Metropolitan Service District. The pilot project is to provide for the collection or receipt of hazardous waste from conditionally exempt small quantity generators and could be combined with the statewide household hazardous waste pilot project also required by HB 3515.

### REPORT FINDINGS

1. There is too little information on CEGs in Oregon to make specific waste management or funding recommendations.
2. It appears that the typical CEG has a limited knowledge of proper hazardous waste management methods or options.
3. CEG waste management options currently exist for some, but not all types of waste.
4. Many CEGs appear to be managing much of their hazardous waste in an environmentally sound manner such as recycling, treatment or shipment to a hazardous waste facility.
5. A more complete characterization of CEGs is necessary before management or funding options can be seriously recommended (ie: who are CEGs, quantity of hazardous waste they produce, how it is managed).
6. DEQ hazardous waste staff spend between 35 percent and 40 percent of their time assisting CEGs or responding to pollution complaints involving CEGs.

## RECOMMENDATIONS:

DEQ offers the following recommendations:

1. Conduct a variety of conditionally exempt generator pilot projects before proceeding with recommendations for the establishment of permanent collection centers or route services. Data collected during pilot projects would be combined with information gathered through CEG registration/reporting and would be used to make specific future waste management decisions and recommendations.
2. Establish a comprehensive conditionally exempt generator education program to lessen DEQ staff time spent on CEG issues. The education program would include a generator compliance manual, newsletter, information hotline, and generator outreach program. DEQ would work closely with industry trade groups in providing technical assistance and identifying industry groups needing DEQ support. The proposal to increase hazardous waste landfill disposal fees by \$10/ton would assist funding of a technical assistance and any education program. Technical assistance should focus on the generators' need to identify proper management practices and waste reduction techniques. The technical assistance program should begin to concentrate on specific industry segments, as opposed to general options, if it is to be helpful and effective.
3. Register conditionally exempt generators. Registration will allow DEQ to better characterize and target its technical assistance to the CEG universe by identifying separate industry segments and specific waste types produced. Establish a \$50 annual registration fee that would be used to offset some program costs. Information gathered through registration would be used to make future management decisions and provide mailing lists for technical assistance marketing. DEQ proposes that CEGs also complete an annual report on quantities of hazardous waste produced and how it is managed.
4. Promote existing waste management options where available. (Conducted during Pilot Project)

There are several private route collection services already established in Oregon for specific waste types. This option relies on the existing private hazardous

waste collection infrastructure to assist the CEG in managing their waste.

Through surveys and interviews, DEQ would determine what services exist and if they are adequate to support the conditionally exempt generator with reasonable service. If it is determined that inadequate service exists, the DEQ could encourage or evaluate incentives for collection service for specific wastes, businesses or geographical areas.

5. Report to the 1993 Legislative Assembly on the CEG program with additional recommendations on funding and Program Implementation. The report will contain both funding and waste management option recommendations.

Attachment A

**OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY**

**CONDITIONALLY EXEMPT SMALL QUANTITY  
HAZARDOUS WASTE GENERATOR REPORT**

**January 1991**

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## I. INTRODUCTION

The 65th Legislative Assembly found that conditionally exempt generators (CEGs) do not have economically feasible options for the management of their hazardous waste. The Legislature also declared that the widespread practice of households and conditionally exempt generators disposing of their hazardous waste in solid waste landfills and to the sewer presents a potential hazard to public health and the environment, because these facilities may not be designed to accept such wastes from CEGs.

HB 3515 directed the Department of Environmental Quality (DEQ) to provide to the 66th Legislative Assembly a report on management and funding options for hazardous waste generators who are conditionally exempt from the requirements of the Resource Conservation and Recovery Act (RCRA). This report details the problem of hazardous waste disposal in solid waste landfills and sewer systems, describes potential disposal and funding options, and recommends program elements and options to reduce the amount of hazardous waste entering these facilities.

## II. CONDITIONALLY EXEMPT HAZARDOUS WASTE GENERATOR CHARACTERISTICS

Conditionally Exempt Generators produce small amounts of hazardous waste which are exempt from regulation under RCRA if they comply with the following conditions:

- Perform a waste determination on all solid waste to identify hazardous waste produced,
- Produce less than 100 kilograms (220 pounds) of hazardous waste, or 1 kilogram (2.2 pounds) of acutely hazardous waste, per month,
- Store less than 1,000 kilograms (2,200 pounds), or 1 kilogram of acutely hazardous waste, on site, and
- Ensure delivery of the hazardous wastes they produce to one of the following:

A permitted hazardous waste facility,

A permitted municipal or industrial solid waste facility which accepts hazardous waste produced by CEGs, or

A facility which recycles, reclaims, or beneficially uses the waste.



If these conditions are not met, the waste and the generator are subject to the extensive hazardous waste management requirements of Subtitle C of the Resource Conservation and Recovery Act (RCRA).

Conditionally exempt generators in Oregon are primarily found in the following industry groups<sup>1</sup>:

Vehicle Maintenance	48%
Construction	13%
Other Non-manufacturing	22%
Other Manufacturing	9%
Metal Manufacturing	8%

Table 1 on the next page lists some of the common types of businesses that are conditionally exempt hazardous waste generators and the types of waste they can produce.

TABLE 1

TYPICAL CONDITIONALLY EXEMPT SMALL QUANTITY  
GENERATORS AND THE WASTES THEY PRODUCE

Laboratories

High school, college, and commercial may have residues from experiments or off-spec/expired chemicals on shelves.

Printing Shops

Photographic wastes, solvents, inks, and plate etching fluids.

Building Contractors

Waste paints, solvents and caustic cleaners.

Laundries and Drycleaners

Still residues, filter cartridges and solvents.

Vehicle Maintenance

Lead-acid batteries, waste oil, antifreeze, solvents, carburetor cleaner, still bottoms, paints and caustic cleaners.

Metal Manufacturing

Solvents, still bottoms, plating wastes, cutting oils and caustic cleaners.

Furniture and Wood Manufacturing and Refinishing

Solvents, paints and finish removers.

Pesticide Users

Expired or off-spec pesticides, pesticide residues and unrinsed containers.

The primary wastes, by weight, produced by CEGs are<sup>2</sup>:

Lead-acid Batteries	61%
Solvents	18%
Dry Cleaning Filtrate Residues	5%
Photographic Wastes	4%
Waste Formaldehyde	3%
Corrosives	2%
Ignitable Paint Wastes	2%
Empty Pesticide Containers	1%
Pesticide Solutions	<u>1%</u>

Total 97%

As a class, conditionally exempt generators represent about 70 percent of all hazardous waste generators nationally, yet they produce less than one tenth of one percent of all hazardous waste<sup>3</sup>. The Environmental Protection Agency's (EPA) national Small Quantity Generator Survey published in 1985 found that 66 percent of small quantity generator hazardous waste (including conditionally exempt) waste was recycled, treated on-site, or managed at a hazardous waste facility; 15 percent was disposed of in solid waste landfills; eight percent in sewers; and the fate of the remaining 11 percent was unknown<sup>4</sup>.

A Washington state study estimates that 65 percent of all conditionally exempt generator hazardous waste is properly managed by treatment, recycling, or disposal. This study, however, included wastes, such as used oil and discarded lead-acid batteries that are not considered hazardous wastes in Oregon when recycled properly<sup>5</sup>.

Data on conditionally exempt generators in Oregon is very limited, but it is estimated that there are between 4,000 and 13,000 conditionally exempt generators in the state<sup>6</sup>. At present, CEGs are not required to register with the state, but about 550 have done so voluntarily or to obtain an EPA hazardous identification number that allows them to manifest waste offsite to a permitted hazardous waste facility. Many waste management firms require CEGs to register before accepting their wastes for disposal off-site.

According to a 1989 survey of Oregon generators, current generator waste management practices include, but are not limited to, the following<sup>7</sup>:

Recycling	Treatment On Site
Solid Waste Landfill	Evaporation
Sewer System	Burning
Septic System	Hazardous Waste Management Facility
Dry Wells	Illegal Disposal

### III. THE PROBLEM

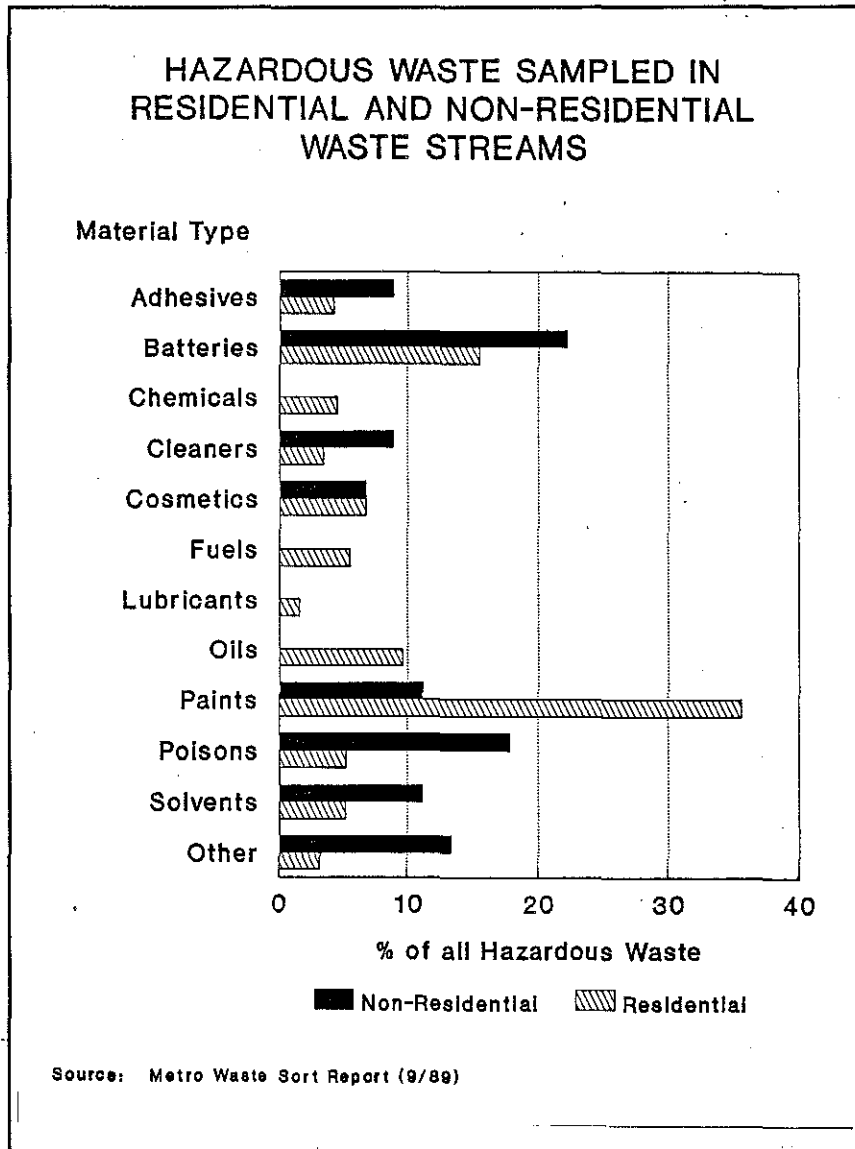
Hazardous waste is usually released to the environment in one of three ways:

1. It is disposed of in solid waste landfills.
2. It is poured down the sewer and to a sewage treatment plant which may or may not be designed to treat it.
3. It is illegally dumped on the ground, allowing it to migrate to groundwater.

The problem of hazardous waste in solid waste landfills is attracting more attention as landfill technology evolves. As older facilities close, long-term management problems with leachate and groundwater contamination from hazardous waste increase. Even though the amount of hazardous waste in solid waste landfills is estimated to be only two tenths of one percent, because of concerns about future liability, some solid waste landfill operators are restricting disposal of CEG waste at their facilities<sup>8</sup>. For example, the Metropolitan Service District (Metro) will not knowingly accept for disposal or processing hazardous materials, which includes CEG waste, although household hazardous waste is currently accepted. In practice, it is hard to differentiate between household and CEG hazardous wastes.

Table 2 describes the types of hazardous waste found in Metro's waste disposal facilities during one waste sort in 1989.

TABLE 2



Nationally, 95 percent of all solid waste ends up in a landfill. Most of Oregon's 100 active solid waste landfills do not meet current environmental design standards: only fourteen have groundwater monitoring systems and only five have engineered leachate collection systems<sup>9</sup>.

Disposal of untreated hazardous waste into a sewage treatment system can upset the treatment process, degrade collection systems,

and result in discharge of toxics to surface waters. There are recorded instances of pipes disintegrating due to the action of corrosive wastes. The local sewerage agency may be unaware of an industrial discharge until a pipe fails. Compromised collection lines can cause wastewater to leak into the soil, causing impacts to groundwater.

Discharge of hazardous waste into the sewer system can concentrate chemical constituents in the treatment sludge, rendering it unmarketable or causing it to become hazardous waste. EPA's new Toxic Characteristic Leaching Procedure (TCLP) rules will result in more wastes being characterized as hazardous, notably sludge from sewage treatment. If waste entering sewage treatment systems is not free of materials that could cause the sludge to become hazardous, significant additional expense will be incurred managing it. Sewerage agencies are responsible for determining what types of wastes can be accepted for treatment and are required to meet increasingly stringent water quality discharge standards. Many are beginning to restrict the types and amounts of material that may be discharged to the sewer.

Illegal disposal of wastes to the land can lead to groundwater degradation. Once waste impacts groundwater, cleanup can be costly and difficult. The expense of hazardous waste disposal and implementation of tighter sewer restrictions may actually increase illegal waste disposal, unless economically feasible disposal options are made available.

In addition to these environmental concerns, exposure to unregulated hazardous waste can be hazardous to the health and safety of landfill and wastewater workers, and can also damage waste handling equipment. Long-term and unsafe storage of these wastes is a risk to health and safety, as well as to the environment.

#### IV. OBJECTIVES OF CONDITIONALLY EXEMPT GENERATOR PROGRAM

The objectives of a conditionally exempt generator program should be:

- To reduce the release of hazardous waste to solid waste streams and the environment.
- To minimize human exposure to hazardous waste.
- To provide reasonably affordable options for small businesses to manage their waste.

- To promote responsibility for waste management decisions among the public, businesses and government.
- To encourage hazardous waste reduction.
- To provide incentives for proper waste management.

#### V. OBSTACLES TO PROPER WASTE MANAGEMENT

There are many reasons why CEGs mismanage their waste:

- They don't know the hazardous waste regulations.

Many CEGs are unsure what hazardous waste is and have not evaluated their waste to determine if it is hazardous. Those who try to understand the regulations may be discouraged by their complexity.

- They do know the hazardous waste regulations.

Present regulations allow CEGs to dispose of their hazardous waste in solid waste landfills. For many generators this is the best and often the only affordable management option available.

- They think the small amount of hazardous waste they generate does not harm the environment.

Generators don't see the direct effects of their disposal practices.

- They don't know their management options.

Many generators do not know that options exist or where to get management information.

- They aren't interested in compliance.

The generator may not feel that hazardous waste management is a priority.

- Reasonably priced management options are unavailable.

Small businesses survive by keeping their operating costs as low as possible. The cost of proper waste management can be relatively high for a small business.

- They don't want to pay for proper waste management unless competitors are paying too.

Competition is great in some small businesses. Economizing on waste management costs can provide a competitive edge.

The obstacles to proper CEG waste management are:

#### A. Limited Disposal Options

Currently, few options for proper waste management are available to conditionally exempt generators. Some contract with route collection companies, but these are available only to a few industries, such as auto repair services and dry cleaners, and are often limited to urban centers. Collection operators need a minimum number of customers for each route and a routine schedule for pick-up. Such services may offer products for sale (e.g., solvent or filters) and often require that customers purchase products in order to have their waste collected. Some collected waste is subsequently recycled, as in the case of used solvents. The availability of route collection usually depends on whether there is a profitable recovery market.

An expensive option for CEGs is to contract with a private waste management firm for disposal, treatment, or recycling at a permitted hazardous waste management facility. Many waste management firms will not service the smaller business, however, and small business owners may not be able to afford this service.

A third and attractive disposal option is sending waste to the local solid waste landfill. This method is cheap and easy. Under current hazardous waste regulations, conditionally exempt generator waste may be disposed of in permitted solid waste landfills. Many CEGs use this option. Hazardous waste is simply placed in the garbage can, picked up by the garbage hauler and taken to the local transfer station or landfill. The generator does not need to manage the waste as hazardous or pay increased cost for hazardous waste management.

Few landfill operators scrutinize waste as it enters the facility, but as operators seek to minimize their future liability for long-term management or cleanup costs, many are beginning to check waste loads and prohibit the disposal of any commercial hazardous waste at their facilities.

Some CEG waste is disposed of by pouring it down the public sewer system. Hazardous waste poured into the sewer system is exempt from hazardous waste regulation. State regulations allow the sewage treatment plant operator to accept hazardous waste for treatment and disposal. The system operator is responsible for ensuring that the waste sent to the plant will not disrupt the



treatment process or damage the system. The U.S. Environmental Protection Agency (EPA) requires that sewage treatment systems have an industrial waste pretreatment program that regulates individual industrial discharges.

#### B. Cost

For many small businesses, survival depends on cost control. Because transportation charges are volume-related, unit costs for properly managed hazardous waste are higher for small generators than for large ones. It is more cost effective to pick up several drums at each stop than to collect a single drum, but conditionally exempt generators cannot take advantage of economies of scale unless they are organized. Costs can range from \$260 to \$800 for each 55 gallon drum, or higher if the source of the waste is unknown and the waste must be tested before disposal or treatment<sup>10</sup>.

#### C. Complexity of the rules

Hazardous waste management rules are very complex and conditionally exempt generators generally have limited staff and technical expertise. The complexity of the rules can become a disincentive to compliance, or the generator may just give up and try to manage waste with only cursory understanding of the requirements. The few current regulations that directly affect CEGs are buried in a mass of rules that apply to all generators. Because they don't know whether they are complying or even recognize they have a problem. CEGs may not ask for DEQ assistance for fear of enforcement action.

#### D. Liability

Some CEGs do not acknowledge responsibility for the hazardous waste they produce, or are unwilling even to admit that they generate hazardous waste. By identifying waste as hazardous, generators must accept some responsibility and liability for its proper disposal. One generator said that any waste being managed in solid waste landfills cannot be hazardous, therefore the generator of the waste is not liable for the generation of hazardous waste. Another generator stated clearly that managing waste as hazardous increases liability. The trend for liability of cleanups of solid waste landfills is starting to shift toward small businesses and, in some cases, individuals.

## E. Lack Of Incentives

The primary incentive to the conditionally exempt generator is cheap disposal at a solid waste landfill. This is currently allowed by regulation, although disposal by large and small quantity generators is prohibited. Some landfill operators are beginning to discourage disposal by CEGs, but this low-cost disposal option is still widely available and unchecked.

Disincentives, such as rules prohibiting disposal of all conditionally exempt hazardous waste in solid waste landfills, and incentives, like subsidized disposal costs, and education programs that stress the environmental and public health effects of hazardous waste mismanagement, can encourage proper waste management. All generators must be made aware that they are legally responsible for the proper management of their hazardous waste and liable for its mismanagement.

## VI. CEG WASTE MANAGEMENT OPTIONS

The two waste management options of collection centers and route service for the conditionally exempt generator are discussed below. The options could be used separately or combined to form a comprehensive management program. A summary of the management options appears in Table 3 on page 15.

### A. CEG HAZARDOUS WASTE COLLECTION CENTERS

The collection centers would primarily be used to collect hazardous waste from CEGs who transport their own hazardous waste to the collection center. Transportation of CEG hazardous waste by the generator is not subject to state or federal transportation regulations at this time. A hazardous waste collection center would operate like a solid waste/recycling collection center. The facility could also serve as a collection site for route drivers collecting waste from CEGs.

The hazardous waste collection center could provide the CEG a waste management option that is not available at this time. By providing an additional waste management option to the CEG, the collection center may reduce the amount of hazardous waste that is disposed of in solid waste landfills and sewage treatment facilities.

It can be very expensive for CEGs to send the small amounts of hazardous waste they generate to a permitted hazardous waste facility. By storing and aggregating waste from several CEGs, collection centers reduce the unit cost of transportation and disposal.

Waste collected at the facility would be consolidated by type and sent to the appropriate treatment, disposal, or recycling facility. Individual generators would save on transportation and handling fees normally charged by waste management facilities. If conveniently located near the generator, the collection center could provide a handy drop-off location for the waste. Waste management assistance could be provided at the center, including help in preparing waste for transportation, identifying waste, and waste management information.

CEGs would transport waste generated at their businesses to the center themselves, and an attendant would check the waste in. Before accepting the waste, the attendant would verify that the generator was in fact conditionally exempt, and would help them register with DEQ if they had not done so. To qualify, generators would certify that they produced less than 220 pounds of hazardous waste a month, stored less than 2,220 pounds of hazardous waste, and produced and stored less than 2.2 pounds of acutely hazardous waste.

The person delivering the waste would have to identify it; for example, "waste acetone used to clean fiberglass equipment" or "used photographic fixer" would be an adequate description. A waste code would be assigned the waste if the generator's identification was adequate (ie: knowledge of process). Such characterization of the waste would eliminate the need for a detailed waste profile and reduce the cost of management.

Unidentified waste delivered to the center would be managed by the center operator and the generator charged for management of the waste.

Operation of a collection center could increase the risk of transportation accidents and hazardous waste releases due to increased vehicle traffic to and from the facility. DEQ believes that this risk is less than that of illegal disposal, or disposal to solid waste landfills and sewage treatment plants. The owner and operator of the collection center will incur some of the generator's waste management liability for the waste.

Location of the collection centers is important: they should bear high concentrations of CEGs. The centers might be located at existing solid waste facilities to lessen delays in the siting process and lower siting costs.

Collection center options include:

1. Existing privately operated hazardous waste treatment, storage and disposal facilities (TSDs)

This approach calls for encouraging the seven facilities operating in Oregon to accept waste from CEGs.

Initially, state or local government may need to provide incentives to private operators, to offset increased operating costs. It is hoped, however, that once this new market becomes established, TSDs could continue this service without subsidy.

## 2. Publicly owned facility

State or local government would site and construct CEG collection centers throughout the state. The operator, public or private, would be responsible for ensuring the waste is properly characterized and managed. Strict government control would be required for operation of the site.

## 3. Mobile collection centers

Mobile collection centers could move throughout the state on a schedule. The center could be as simple as a van or truck equipped to package, classify, and transport waste, or consist of several portable buildings moved less frequently. The center could be operated by either a public entity or a private contractor. The structure would be easily moved from site to site. Operation of the site would be contracted to a private waste management firm.

## B. EXPANDED ROUTE SERVICE

This option would expand existing private collection services to serve a larger customer base and collect wastes that are not currently collected. Route service operators would collect hazardous waste from conditionally exempt generators and transport it to the appropriate recycling, treatment or collection centers.

Currently there are several firms operating in Oregon who pick up waste that has an established recycling market, such as oil, solvents, antifreeze, and car batteries. Liability for the waste is shared between the generator and the route collection firm.

Typically, the route firm sells new or recycled products, such as solvent or antifreeze, and picks up waste for recycling. Some of the waste collected cannot be recycled and must be disposed of properly.

Costs of an expanded route system depend on types of wastes collected, level of participation by the CEG community, the efficiency of the service, and whether a market can be developed for the wastes collected. Any decision to expand route services should consider the economic impact on existing route services.

Expansion of existing route services would result in more hazardous waste being transported on the highways, possibly leading to more transport accidents and waste spills. Again, DEQ believes that this risk is less than that of illegal disposal, or disposal to solid waste landfills and sewer treatment plants.

Route Service options:

1. Collect wastes not now collected

In this scenario, an operator who now accepts certain wastes would be encouraged to collect additional waste types. For example, a route service that takes only solvents from auto service shops might be induced to pick up used lead-acid batteries, antifreeze, and oil. This would have the effect of creating new markets for these materials and better management of the hazardous waste.

2. Route service for industries not now served

Current or potential route service operators would be encouraged to collect from businesses not currently served. An example would be collection routes servicing small printing businesses: there are no established routes collecting their waste inks and solvents.

This option could be enhanced by using trade associations to coordinate development of routes, although care should be taken to avoid favoring one association over a competitor.

3. Enroll new customers

This option aims at ensuring that virtually all CEGs in industries served by route collection participate in the service. For example, the auto service industry and manufacturing businesses use route services to a great extent, and it is estimated that over 60 percent of CEGs in the Portland metro area use route services to collect their spent solvents<sup>11</sup>. Wastes collected by the route services include used lubricating oils, used batteries, and antifreeze. With incentives, demand for route services could increase.

4. Provide assistance to trade associations or regional groups

Many small businesses belong to trade associations or regional business groups. Many of these groups conduct hazardous waste management training for their members. Generally, business groups that have strong associations have higher waste management compliance rates.

TABLE 3

WASTE MANAGEMENT OPTION SUMMARY

<u>A. Collection Centers</u>	<u>Advantages</u>	<u>Disadvantages</u>
1. Use Existing TSDs as Collection Centers	<ul style="list-style-type: none"><li>o Capital cost borne by private sector.</li><li>o Waste management firm has management responsibility.</li><li>o Will not require siting of new facilities.</li></ul>	<ul style="list-style-type: none"><li>o Often not located where needed.</li><li>o Potential facilities are few and may not exist in rural areas.</li><li>o Some public money would be needed as "seed" money.</li></ul>
2. Publicly Owned Collection Centers	<ul style="list-style-type: none"><li>o Sites can be located where need is greatest.</li><li>o Collection facilities can be established using uniform standards.</li><li>o State or local government has control over operation.</li></ul>	<ul style="list-style-type: none"><li>o Large initial capital investment.</li><li>o Public resistance toward establishment of new hazardous waste facilities.</li><li>o Liability may be hard to assign and fix.</li></ul>
3. Mobile Collection Centers	<ul style="list-style-type: none"><li>o Lower capital cost compared with permanent facility.</li><li>o Facility structure can be used at several locations.</li><li>o Smaller size would be better suited for rural areas.</li><li>o Can target specific wastes or businesses.</li><li>o Could be combined with household hazardous waste collection events.</li><li>o Site flexibility; center could be moved near CEG concentration.</li><li>o Ensures CEG waste is packaged and transported safely.</li></ul>	<ul style="list-style-type: none"><li>o Transportation, set-up costs and greater potential for accidents on-site.</li><li>o Additional personnel needed to move the facility.</li><li>o Site may not have as good spill prevention and containment as permanent facility.</li><li>o Added liability for spills on-site or over the road.</li></ul>
 <u>B. Expanded Route Services</u>		
1. Increase Waste Categories	<ul style="list-style-type: none"><li>o Can provide comprehensive route service to collect all CEG waste.</li><li>o Increased waste collection may decrease overall route service costs.</li></ul>	<ul style="list-style-type: none"><li>o May be impractical to pick up small amounts of uncommon types of waste.</li><li>o Route service may be impractical in rural areas, due to distance between generators.</li></ul>
2. New Services for Industries Not Currently Served	<ul style="list-style-type: none"><li>o Can be used with above option (#1).</li><li>o Can target specific industries.</li></ul>	<ul style="list-style-type: none"><li>o State or local governments may be starting a business that cannot exist without subsidy.</li></ul>
3. Enroll New Customers in Industries Now Served by Service	<ul style="list-style-type: none"><li>o Collection system already in place.</li><li>o Wastes are usually recycled.</li></ul>	<ul style="list-style-type: none"><li>o Existing services may not be able to accommodate increased collection business.</li></ul>
4. Provide Funding to Trade Groups to Establish or Enhance Collection Routes	<ul style="list-style-type: none"><li>o Trade associations can organize in non-threatening manner.</li><li>o Collection system could be controlled by members to operate efficiently.</li></ul>	<ul style="list-style-type: none"><li>o Some industries have no trade representation.</li><li>o State assistance may create unfair competition for existing route services.</li><li>o Some trade associations are competing for membership.</li></ul>

## VII. FUNDING OPTIONS

Appropriate funding for any option is critical. Funding options are discussed below but no recommendations, beyond CEG registration fees, are made. DEQ believes that the range of issues affecting CEGs must be better understood before recommending specific funding levels and options. For discussion purposes, funding possibilities to consider could include:

### A. Generator Registration Fees

CEGs do not pay registration or generation fees for their hazardous waste as larger generators do. CEGs, however, consume approximately 40 percent of DEQ hazardous waste program resources, primarily for complaint investigations and technical assistance. DEQ recognizes that it would be difficult for CEGs to bear their full share of the cost of DEQ assistance and waste disposal. Because of this, and the anticipated difficulty of identifying and collecting fees from them, DEQ recommends that a CEG registration fee only partially offset the cost of the program.

### B. Solid Waste Disposal and Sewage Treatment Fees

One of the primary objectives of the proposed CEG program is to reduce the input of hazardous waste into solid waste facilities. Minimizing this waste in solid waste landfills and sewage treatment plants should reduce the cost of their operation, simplify long-term management, protect worker safety and the environment and decrease long-term liability. The cost savings to sewer and landfill operations resulting from reduced levels of hazardous waste may be large, but are not quantifiable now. It is possible that these savings could be used to help fund permanent collection centers, route services or other management options.

### C. CEG Disposal Fees

Small generators could be charged fees based on the amount of hazardous waste they create. This alternative could provide a disincentive for small generator compliance, unless it was reasonable. CEG disposal fees could also be used to offset waste collection center costs discussed earlier.

### D. Toxics Tax

An excise tax applied to the purchase of toxic chemicals could be used to fund management of the wastes generated from the use of these chemicals. This method of funding waste management assistance programs is being used in California and Washington, and also in Oregon, where it funds the SARA 313 toxic material use reporting program operated by the state Fire Marshal.

## E. General Fund

General fund monies also remain an option to support this proposal.

## VIII. RECOMMENDATIONS

From the above discussions, DEQ offers the following recommendations toward a better and more accurate understanding of the unique situation and problems of conditionally exempt hazardous waste generators:

### A. Consider Pilot Project results before proceeding.

House Bill 3515 requires that the DEQ conduct a pilot project in the Portland metropolitan area, which could include some type of CEG waste collection demonstration project. Operation of small scale collection centers and/or route collection services may be considered. DEQ intends to begin conducting the first pilot project for CEG waste management during the summer of 1991. The initial phase will be closely coordinated with similar efforts being planned by the Metropolitan Service District (Metro) and the City of Portland.

The DEQ project will:

- Explore the use of existing route service companies to collect a wider range of CEG wastes.
- Arrange with a contractor to operate a collection center for a limited number of generators and wastes in the metropolitan Portland area.

The project will collect data to determine generator characteristics, and will evaluate the effectiveness of the CEG management methods tested. Because the pilot project will be limited to the Portland area, the data may not accurately reflect conditions in other parts of the state, however, DEQ is considering conducting at least one CEG collection event in conjunction with a household hazardous waste collection event in a small rural community to obtain additional CEG data. Although a rural CEG pilot is not required by the legislature, important data will be assembled during a collection event of this type that can be useful in determining future management options throughout the state.

### B. Provide a statewide Conditionally Exempt Generator Education and Technical Assistance Program.

Education and technical assistance programs for conditionally exempt generators of hazardous waste can raise awareness, promote waste reduction, provide waste management information, and promote preferred waste management practices. Generator education is



important because the regulations are complex. Many small generators don't even know that hazardous waste management rules exist. They want to "do the right thing," but don't know the management options available.

The program would consist of:

- Development of a CEG handbook.

This should include: a discussion of why proper waste management is important, a regulatory summary with citations, a description of management options, listings of businesses offering waste management services, and a CEG registration form. This handbook could be mailed to potential generators and distributed at seminars, conferences and by trade and industry associations. It should promote waste reduction and other DEQ services. The handbook would include an order form for additional information, including air and water quality information.

- Toll-free CEG Hotline.

The toll-free hotline would provide a hazardous waste information service exclusively for small businesses in Oregon. The hotline would provide technical assistance without threat of an inspection by DEQ, as the caller could remain confidential. This hotline could be combined with a general information line for all generators who request information.

- Generator outreach and education program.

On-site visits would provide the small generator with technical assistance, including assessment of waste streams generated and waste management practices. Site visits can be scheduled as DEQ resources permit and would be conducted from a technical assistance, rather than a regulatory, perspective. The visits would be at the request of the generator.

DEQ has been providing limited technical assistance to trade groups as requested. This assistance effort needs to be focused and targeted toward specific businesses and waste types to be more effective. The CEG educational program would be an extension of DEQ's existing technical assistance program, and would require additional staff to implement.

A newsletter would be sent to all registered generators informing them of regulation changes, new waste management options, and waste minimization. Receiving a regular newsletter would lead generators to think about

waste management practices.

The technical assistance and education program would be supported in part by DEQ's legislative proposal to increase state hazardous waste landfill disposal fees by \$10/ton, as well as by the reallocation of existing resources.

#### C. Register Conditionally Exempt Generators

Registration, including a minimal generator fee (~\$50) to help defray the cost of technical support, would help DEQ obtain generator information to better characterize the CEG universe. DEQ has little information on CEG management activities. With better understanding of the smaller generator, DEQ can make better management decisions and target technical assistance.

A CEG registration program could begin with participants in pilot collection projects. Care must be taken to ensure that registrants are in fact conditionally exempt, and not simply seeking to avoid compliance with the full range of hazardous waste regulation.

#### D. Encourage the use of existing waste management options

Route collection services are already established in metropolitan areas of the state and much CEG waste is being properly managed by them. DEQ would like to further investigate and quantify the extent to which existing route services are used throughout the state. The existing private collection infrastructure helps CEGs manage their waste properly, and additional work needs to be done by DEQ to better identify available services and encourage their use. It is unclear whether incentives of some nature would be required to maximize participation in, and support for, existing options.

#### E. Report to the 1993 Legislative Assembly on the CEG Program with Additional Recommendations on Funding and Program Implementation.

Once additional CEG information is collected, more specific recommendations for CEG waste management will be reported to the 1993 Legislative Assembly. The report will contain funding waste management option recommendations.

### IX. FUTURE CONSIDERATIONS

Oregon has very little information on current CEG management practices. As CEG data become available, further consideration and thought should be given to the role of government in assisting CEGs in their waste management. Additional consideration and analysis should be given to:

## A. STRICTER REGULATION

Stricter regulation could be considered an incentive for the small generator to comply with preferred waste management practices. The importance of providing feasible disposal options for the CEG is greater if stronger regulations are applied.

Some, but not all, solid waste landfill operators have started to restrict the disposal of CEG waste at their facilities, in effect tightening regulation.

### 1. Waste Restrictions

State hazardous waste regulations currently allow CEGs to dispose of their waste in solid waste landfills. It is estimated that 14 to 25 percent of all CEG waste is disposed of in this manner<sup>12</sup>. Many landfill operators recognize the long-term liability for such waste and refuse to accept it. Restricting this disposal option would reduce but probably not eliminate the disposal of CEG waste in solid waste facilities.

### 2. Increased Field Surveillance

Increased surveillance contemplates unannounced visits by DEQ regional field staff to perform waste audits to determine compliance. At present, DEQ visits to CEGs are generated as a result of citizen complaints. Violations of hazardous waste management regulations could be referred to DEQ's enforcement branch.

## B. COLLECTION CENTERS

Many issues need to be resolved before collection centers can be seriously recommended as a permanent option:

- Will centers be operated by the state or local government, or by private industry?
- Who will be responsible for ensuring that the waste is properly managed once received? This issue has been a stumbling block for state and local governments nationally in establishing collection centers.
- What standards will apply to collection center facilities and operations? Currently, DEQ has no standards for these facilities.
- How will collection centers be funded? By state or local general funds? Disposal fees? Through subsidies?

- Where will centers be located? Should they be permanent or mobile? Located at landfills?

Questions also arise about the nature and extent of subsidies, of all types, and their appropriateness within this context. The state could consider providing grants to the operating facilities, or helping CEGs defray the costs of disposal; however, DEQ believes that the major operating costs should be borne by generators of waste and waste facilities. If CEGs are offered waste management options with little or no costs, they will not appreciate the true price of managing their hazardous waste and will not be encouraged to minimize their hazardous waste. Fees should be reasonable and provide an incentive for proper waste management.

DEQ intends to report back to the 1993 Legislature, upon completion of the currently scheduled pilot projects, with data to support further and more detailed recommendations on the options for improving waste management practices by small generators.

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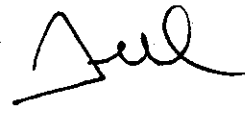
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TO: Environmental Quality Commission

FROM: Fred Hansen, Director



ENVIRONMENTAL  
QUALITY  
COMMISSION

SUBJECT: Agenda Item G, January 31, 1991 EQC Meeting  
Review of Report to the Legislature on Status of  
Recycling

Background

This report, Attachment A, is intended to satisfy the following statutory reporting requirements:

1. Opportunity to Recycle Act status report, required by ORS 459.168.
2. Local government waste reduction programs (required for using certain permitted landfills), required by ORS 459.055(5).
3. Metro Solid Waste Disposal Activities and Waste Reduction Program Status Report, required by ORS 459.355.
4. Status of lead acid battery recycling, required by HB 3305 laws of 1989.

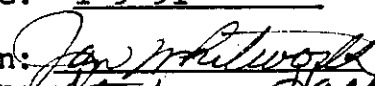
Significant Issues

- o There is a need for development of markets for recyclable materials. The present law does not address this need.
- o There is a need for more complete information about recycling and waste reduction on a statewide basis. (See Section V of the Report).

Requested Action

It is requested that the Commission review the draft report, provide guidance for modifications if deemed appropriate, and approve submittal of the final report to the Legislature.

Prepared By: Jan Whitworth  
Phone: 229-6434  
Date: 1-9-91

Approved:   
Section: Jan Whitworth  
Division: Stephanne Hallock



YB10144.M

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Attachment A  
Agenda Item G  
January 31, 1991, EQC Meeting

## **Status of Recycling in Oregon**

**Environmental Quality Commission Biennial Report  
to the Oregon Legislature**

**prepared by the  
Oregon Department of Environmental Quality**

**January 1991**

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REPORT TO OREGON LEGISLATURE  
January, 1991

I. STATUS OF RECYCLING IN OREGON<sup>1</sup>

Under the Recycling Opportunity Act of 1983, Oregonians have doubled the amount of waste recycled through on-route collection and disposal site depot collection. In 1989, 80 pounds of municipal solid waste per capita was recycled. This compares to an estimated 40 pounds per capita in 1987. Of a total of 115,540 tons of recycled material collected, 24% came from curbside collection programs, 25% came from disposal site collection centers and 51% came from other types of collection. The increase in materials collected between 1987 and 1989 has come largely from communities that have implemented recycling programs that go beyond the basic requirements of the Recycling Opportunity Act. Despite the materials collected for recycling, 2,200,000 tons of municipal solid waste was disposed in Oregon in 1989. That equals 1,580 pounds per capita per year of municipal solid waste disposed in Oregon landfills.

Under the Recycling Opportunity Act, newspapers, ferrous and non-ferrous metals, used oil, container glass, office paper, cardboard, aluminum, tin cans, and yard debris are considered to be principal recyclable materials in Oregon in 1989. Plastics, mixed waste paper, and magazines are also recycled to a limited extent in some areas, although they are not considered principal recyclable materials. Today the Oregon recycling program is at a significant crossroad which will determine how much recycling can be increased. Earth Day 1990, along with an increased awareness of environmental problems by the general public, commercial businesses and state and local government, has increased the desire of Oregonians to recycle and the amount of material available for recycling within the state. The major weakness in the system is one of economics. Viable markets do not always exist to accept and process materials that are technically recyclable. In order to further increase recycling, it is important that strong markets are nurtured and developed. Oregonians have the interest and the materials to recycle. What is needed now to make recycling successful is improved collection systems and development of markets and capabilities to process the material for return to the economic mainstream.

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<sup>1</sup>Information based on 1989 data from Wasteshed Reports; does not include other recycling efforts or materials collected under the "Bottle Bill".

## II. LEGISLATIVE HISTORY

Prior to 1971, Oregon had no recycling legislation. However, recycling was an established part of industrial production. For many years, Oregon industry worked closely with scrap dealers who collected and delivered recyclable scrap metal and paper from commercial and industrial sources back to primary manufacturers. In addition, newspapers, scrap metal and rags were collected from commercial and residential sources and sold to industry for recycling. This recycling activity was motivated by the economic value of the recovered material. In the early 1970s, spurred by the environmental movement, community and environmental groups also started local recycling depots.

In response, the 1971 Legislature passed the Oregon Bottle Bill. This legislation mandated the return of recyclable material to the original manufacturer for recycling, stimulating more interest and activities in recycling which resulted in more recyclable material available for industrial users. In turn, new mills were constructed that used recycled feed stock.

Finally in the 1980s, as Oregonians became concerned about landfill capacity, recycling took its place as a solid waste management tool. The trend was a shift from community recycling to government regulated recycling.

Major changes to the state's solid waste laws occurred in 1983 with the passage of the Recycling Opportunity Act and the establishment of the Solid Waste Management Hierarchy. The hierarchy set a clear public policy that waste reduction, reuse, and recycling should be considered as waste management options over and above incineration and disposal. The Recycling Opportunity Act also required that minimum opportunities must be provided to the citizens of Oregon for recycling collection, education, and promotion. Wastesheds were identified to help provide these opportunities.

For the past twenty years, Oregon's recycling laws have been successful, voluntary programs because there is a strong environmental ethic, proper education, and convenient recycling collection systems.

## III. ROLES AND RESPONSIBILITIES IN RECYCLING

As recycling has developed and matured in Oregon, a cooperative spirit has developed among government, business and citizens that has helped Oregon continue to slowly expand its recycling efforts. Each player has an important

role and cooperatively all players take responsibility for recycling in Oregon.

A. State Government

DEQ is responsible for developing legislation and administrative rules relating to waste reduction and recycling. The agency also oversees (provides compliance oversight for) the waste reduction activities of Metro and wastesheds throughout the state. It monitors the "Opportunity to Recycle Act" by reviewing wasteshed reports prepared by cities and counties to determine the effectiveness of municipal solid waste recycling programs. Finally, DEQ provides grants and technical assistance to local governments and administers the Pollution Control Tax Credit program, which provides monetary incentives for recycling and resource recovery facilities and processes.

The General Services Department is responsible for coordination of recycling programs in state agencies and implementation of procurement practices to stimulate the use of recycled material.

B. Local Government

Cities and counties have responsibility for solid waste collection. Collection service is provided by private haulers, who are regulated by the city or county, or by the local government directly. In some areas of the state, haulers are franchised and in other areas they are not.

For the purpose of implementing the "Opportunity to Recycle Act", cities and counties are organized into designated "wastesheds". A wasteshed, although not an official governmental body with any real authority, is directed by statute to carry out the following responsibilities:

- o Ensure that on-route collection of recyclables is provided, where required. At a minimum, each community of 4,000 or more people must have on-route collection of recyclable material at least once a month.
- o Provide a promotion and education program which notifies individuals about the importance of recycling, recycling opportunities that are available, the materials that can be recycled, and how to prepare those materials for recycling.

- o Prepare annual recycling reports (wasteshed reports) for DEQ. These reports must include the materials that are recyclable, the manner in which these materials are collected, information on public education and promotion activities, the number of collection customers who set out recyclables for collection by each on-route collection program, and the amount of materials recycled in the previous year for each on-route and depot collection program.
- o Where yard debris has been identified as a recyclable material, wastesheds are responsible for planning and implementing yard debris recycling programs through on-route collection, depot collection or another alternative approved by DEQ.

C. Portland Metropolitan Service District (Metro)

This is a regional government for the Portland metropolitan area, including Multnomah, Clackamas and Washington Counties.

Metro is responsible for waste reduction in the tri-county region through: 1) solid waste management planning authority for Clackamas, Multnomah and Washington Counties, 2) responsibility for implementing the region's Waste Reduction Program, 3) responsibility for waste disposal within the Metropolitan Service District boundary, and 4) functional planning authority for areas and activities which impact the orderly and responsible development of the metropolitan area.

Executive Order 78-16 gave Metro responsibility for solid waste planning in the tri-county area. This requires developing programs and facilities that reduce the amount of waste going to landfills in a manner consistent with the state hierarchy. In addition, Chapter 679, Oregon Laws, 1985 required that Metro develop and implement a comprehensive Waste Reduction Program for the region.

D. Business Sector

- o Garbage Haulers

Through contracts and ordinances, cities and counties designate garbage hauling companies to be responsible for providing the on-route recycling collection programs required under the "Opportunity to Recycle Act". In franchised areas, the recycling requirement is contained in the garbage hauling franchise. In areas where no franchise exists, the haulers are required by ordinance to provide

recycling collection. Many haulers also offer commercial recycling programs. However, commercial and multi-family on-route collection is not presently required under franchise or ordinance although it is considered a part of the requirements under the Opportunity to Recycle Act.

- o Private Recyclers

In an effort not to restrict trade or activity, the Opportunity to Recycle Act, and state law in general, places no specific requirements on private companies that collect or process recyclable materials. The Act specifically excludes materials "purchased or exchanged for fair market value" and materials collected at recycling depots (other than disposal site recycling depots) from regulation or franchise requirements.

However, some local governments do regulate private recyclers. For example, Clackamas County requires all private recyclers to register with the county and purchase a recycling license.

- o Manufacturers, Wholesale and Retail Businesses

For beverage containers and lead acid batteries, Oregon law, other than the Recycling Opportunity Act, requires that businesses take back the used or spent item and recycle or reuse it. The law also bans lead-acid batteries from being landfilled or incinerated.

- E. Individual Citizens and Citizen Groups

It is the desire and will of the people and their voluntary participation in recycling programs that guide and direct the development and success of recycling in Oregon. Citizens participate in special interest organizations, government advisory groups, collection programs, and education and promotion programs.

#### IV. COMPLIANCE STATUS

- o Wasteshed Reports

For 1989, all but one of the thirty-eight wastesheds submitted the required annual report and the quarterly data on participation rates in a timely manner. DEQ staff review of the reports found that 95% of the wastesheds are in compliance with the "Opportunity to

Recycle Act" minimum requirements. Currently there is no mandatory participation for recycling required in Oregon. Statewide, on-route participation increased from 14% in 1987 to 21% in 1989. The areas with the greatest increase in participation are those which went to weekly on-route collection and provided containers for source separation of recyclable material (See Attachment A for statistics and examples). Even though on-route participation rates increased between 1987 and 1989, there is still room for improvement with 12 of the 38 wastesheds having less than 10% participation.

Based on the information reported by the wastesheds, only 24% of the principal recyclable materials collected under the "Opportunity to Recycle Act" were collected through the residential on-route collection program. 25% of the materials were collected through disposal site collection centers and 51% by other programs such as buy-back recycling centers. Thirty-six of the thirty-eight wastesheds have met the minimum requirement for a recycling depot located at the disposal site or an alternatively more convenient location. The two wastesheds not meeting the requirement are on a compliance schedule that requires a depot to be in place by July 1, 1991. (See Attachment B for the status of wasteshed recycling depots in Oregon.) Based on the data reported to the Department, 115,554 tons of principal recyclable material was recycled under the Opportunity to Recycle Act in Oregon in 1989; compared to 66,201 tons in 1987. (This does not include material recycled through the Bottle Bill or material collected by programs such as Goodwill or Boy Scouts.)

o Lead-Acid Battery Recycling and Disposal Ban<sup>2</sup>

A Department survey on the implementation of the lead-acid battery recycling requirements enacted by the 1989 Oregon legislative assembly focused primarily on automotive lead-acid batteries, since they comprise 90% of the lead-acid batteries in the United States. Results indicate at least a 90% recycling rate for lead-acid batteries in Oregon statewide. The majority of spent lead-acid batteries from Oregon are collected by the manufacturers and shipped for processing and reclamation to two large smelters in California, GNB in Los Angeles and RSR in the City of Industry.

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<sup>2</sup>Information based on Background Report on the Status of Lead Acid Battery Recycling in Oregon, December 1, 1990.

Information gathered during the survey indicates that the disposal ban is working in Oregon. There appear to be no new illicit disposal problems as a result of the ban. Land disposal facilities have reported no major problems.

o Metro's Waste Reduction Program

The Portland Metropolitan Service District is required by law to prepare and implement a solid waste reduction program plan. Metro originally adopted a Waste Reduction Program in 1986, but failed to implement the program. In 1989, the Environmental Quality Commission ordered Metro to implement the original 1986 Waste Reduction Program or to carry out an alternative set of activities set forth in the Administrative Order. Metro chose to implement the activities outlined in the Order.

Metro has complied with the activities required for 1989 and 1990. Some of the activities implemented include:

1. Set up 5 pilot programs for recycling collection at multi-family dwellings.
2. Awarded \$252,000 in grants to local governments for multi-family dwelling recycling programs.
3. Provided waste audit services for commercial establishments.
4. Conducted detailed waste characterization study of commercial sector wastestream.
5. Distributed recycling containers to 60,000 households in Clackamas County.
6. Evaluated selected sites and added collection capability for yard debris to those sites.
7. Held a series of workshops for local governments, haulers, and chippers of yard debris to encourage and enhance yard debris recycling.
8. Developed a model procurement policy for local governments.
9. Carried out a recycled products survey and produced a recycled products index.
10. Conducted waste composition studies.
11. Conducted annual recycling market surveys.

12. Distributed over \$700,000 in grants for recycling development and demonstration projects.

Key actions remaining to be taken by Metro under the Order include:

1. Provide assurance of development and construction of material recovery facilities by January 1, 1991. (Metro has requested an extension.)
2. Construction of all facilities called for under Metro's plan by January 1, 1993 or another date agreeable to Metro and the Department. (Metro has requested a 1994 date.)
3. Material recovery on-line at Metro South or another designated facility by July 1, 1992.

o Education and Promotion of Recycling

All wastesheds met the minimum requirements for education and promotion in 1989, however, some wastesheds have gone beyond the minimum by hiring a person specifically assigned to education and promotion, establishing school and community group programs, and setting up a recycling advisory committee, and by maintaining high recycling visibility through effective media campaigns.

Activity

Wastesheds

o School/Community Group Programs	53%
o Identified Education and Promotion Person	32%
o Recycling Advisory Committee	18%

Wastesheds that use these techniques have proven to be more successful in terms of awareness and participation with their recycling programs.

## V. RECYCLING DATA AND INFORMATION

Accurate and complete data about recycling and solid waste generation statewide is essential for policy development, decision making and monitoring progress in solid waste management, recycling, and waste reduction. This information is needed on a local level as well as on a statewide basis. Currently, the monitoring and collection of this information is fragmented at best. The following information is currently collected and available on a consistent statewide basis:

- 1) Annual/quarterly volume/weight of waste disposed in permitted landfills/incinerators. (Beginning in FY91)



- 2) Monthly data on the type and weight of material recovered on-route by residential haulers.
- 3) Monthly data on the type and weight of material recovered at permitted disposal site recycling depots.

The following additional data are needed in order to have a complete picture of recycling activity locally and statewide:

- 1) Weight/volume and type of material recovered at buy-back/drop-off centers.
- 2) Weight/volume and type of material recycled by commercial generators who ship material directly to market.
- 3) Weight/volume and type of material recovered from commercial generators by haulers/recyclers who do not do residential collection.
- 4) Weight/volume of lead-acid batteries returned.
- 5) Weight/volume of used oil recycled (other than residential on-route).
- 6) Weight/volume of yard debris recycled.
- 7) Weight/volume of material recovered from the "Bottle Bill".

The following key problems have been identified related to data collection and availability:

- 1) No statewide tracking system of waste movement, therefore, difficult to know county-specific data.
- 2) Data sources are both public and private sector, therefore, confidentiality is an issue.
- 3) Lack of authority to collect data from all sources.
- 4) Reporting lines not clear, therefore, double counting is problem.
- 5) Material collected by industries like Goodwill for reuse and recycling can be significant in weight and volume, but lack a reliable mechanism for data collection.
- 6) Demolition and industrial waste is difficult to define and measure.
- 7) A definition for municipal solid waste versus industrial solid waste is needed.

## VI. REPORT QUALIFICATIONS

The information provided in this report is based on the data that are currently collected and available through the quarterly and annual wasteshed reports. These data represent a relatively small portion of the information needed to assess the true status of recycling activity in Oregon. This report covers only the statutory recycling requirements in Oregon and does not provide information on other activities occurring in Oregon. This report provides no information related to "Bottle Bill" collection and recycling activities.

This report is intended to satisfy the following statutory reporting requirements:

1. Opportunity to Recycle Act status report, required by ORS 459.168.
2. Local government waste reduction programs (required for using certain permitted landfills), required by ORS 459.055(5).
3. Metro Solid Waste Disposal Activities and Waste Reduction Program Status Report, required by ORS 459.355.
4. Status of lead acid battery recycling, required by HB 3305 laws of 1989.

The Oregon Recycling Opportunity Act 1989 Data Report prepared by the Department of Environmental Quality is a companion report to this report to the Legislature.

## Estimated On-route Recycling Participation 1987-1989

The results below are Department estimates based on setout data provided by on-route recycling collectors one month each quarter from April 1987 through 1989. Population is based on 1986 data (except West Linn).

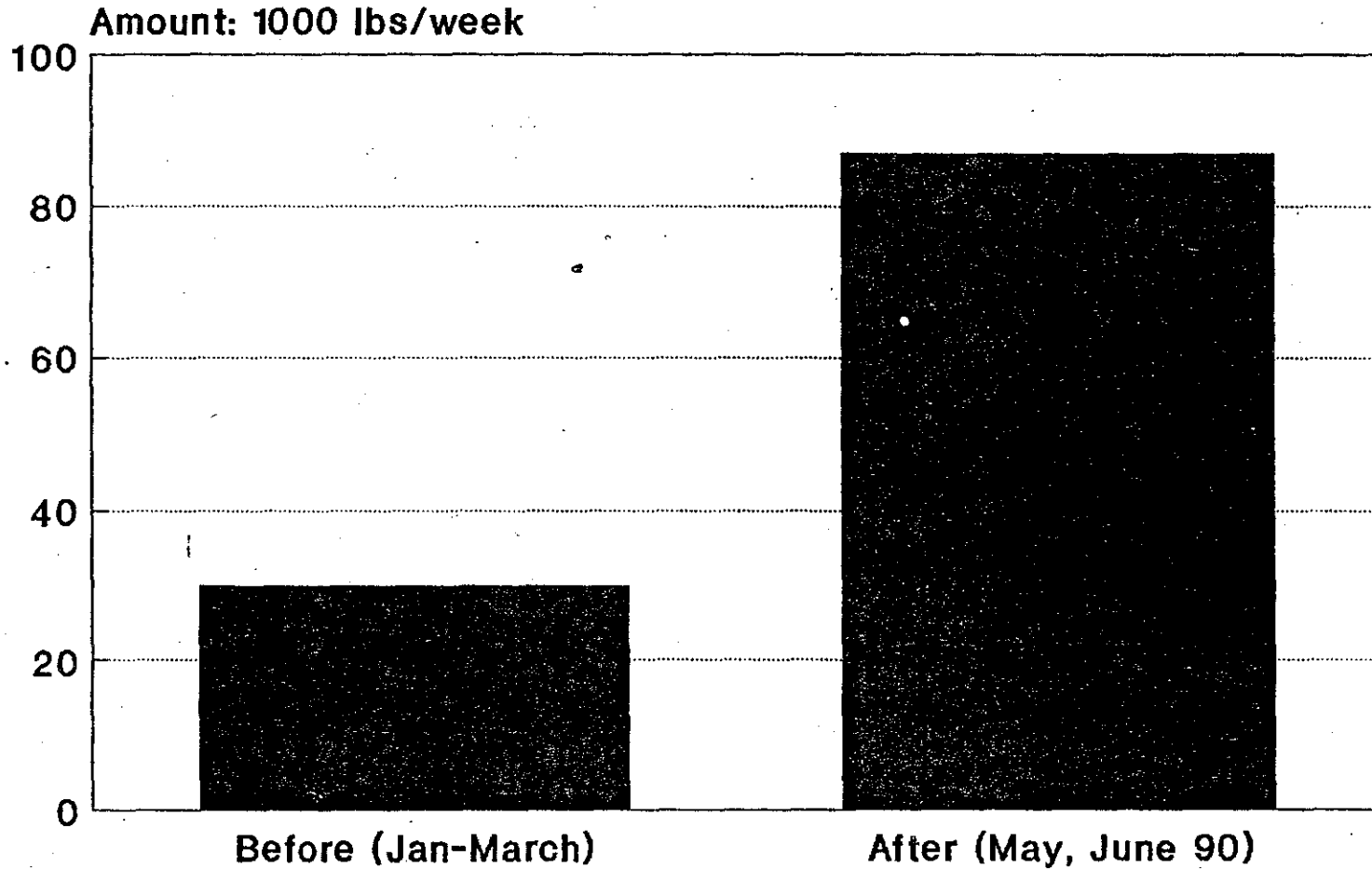
WASTESHED	population in full-line collection area		-- estimated households - participating			---- estimated ---- participation rate		
	1986 population	1986 area	1987	1988	1989	1987	1988	1989
Baker	15500	9405	258	237	145	8.2	7.6	4.6
Benton-Linn	150503	111870	6588	6923	8431	17.7	18.6	22.6
Clackamas	233895	233895	8082	9352	13665	10.4	12.0	17.5
Clatsop	32900	16460	1178	1331	1206	21.5	24.3	22.0
Columbia	36100	9215	74	88	107	2.4	2.9	3.5
Coos	57500	27245	83	101	143	0.9	1.1	1.6
Crook	13500	10400	272	208	220	7.8	6.0	6.3
Curry**	16900	6300	17	20	47	0.8	1.0	2.2
Deschutes	65400	39880	992	973	1473	7.5	7.3	11.1
Douglas	92700	46350	776	760	760	5.0	4.9	4.9
Gilliam	1800	0						
Grant	8350	0						
Harney	7100	0						
Hood River	16200	6470	185	187	258	8.6	8.7	12.0
Jackson	138400	100750	3263	3367	5197	9.7	10.0	15.5
Jefferson	12000	0						
Josephine	61450	21800	753	732	641	10.4	10.1	8.8
Klamath	56700	33000	188	188	265	1.7	1.7	2.4
Lake	7300	0						
Lane	261650	217100	7228	8925	12953	10.0	12.3	17.9
Lincoln	36900	18590	589	641	789	9.5	10.3	12.7
Malheur	26200	10822	79	98	140	2.2	2.7	3.9
Marion	222876	177780	11090	11296	15049	18.7	19.1	25.4
Milton-Freewater	5850	5850	173	142	86	8.9	7.3	4.4
Morrow	7800	0						
Multnomah	86059	75700	3161	5010	5716	12.5	19.9	22.7
Polk	32691	19790	694	703	1077	10.5	10.7	16.3
Portland	480130	480130	30692	46036	46968	19.2	28.8	29.4
Sherman	2100	0						
Tillamook**	21300	4430	24	31	40	1.6	2.1	2.7
Umatilla	52850	14900	124	151	171	2.5	3.0	3.4
Union	23000	0						
Wallowa	7200	0						
Wasco	21600	13600	623	798	897	13.7	17.6	19.8
Washington	272615	236650	9768	12456	17385	12.4	15.8	22.0
West Linn* 1989	15000	15000	2381	3372	4366	47.6	67.4	87.3
Wheeler	1500	0						
Yamhill	57680	37125	1036	1092	1405	8.4	8.8	11.4
	2659199	2000507	92358	117206	141607	13.9	17.6	21.2

\* Formula for determining participation rate is less accurate at high participation levels.

\*\* Collection not required in Tillamook, and was not required in Curry in 1987 or 1988.

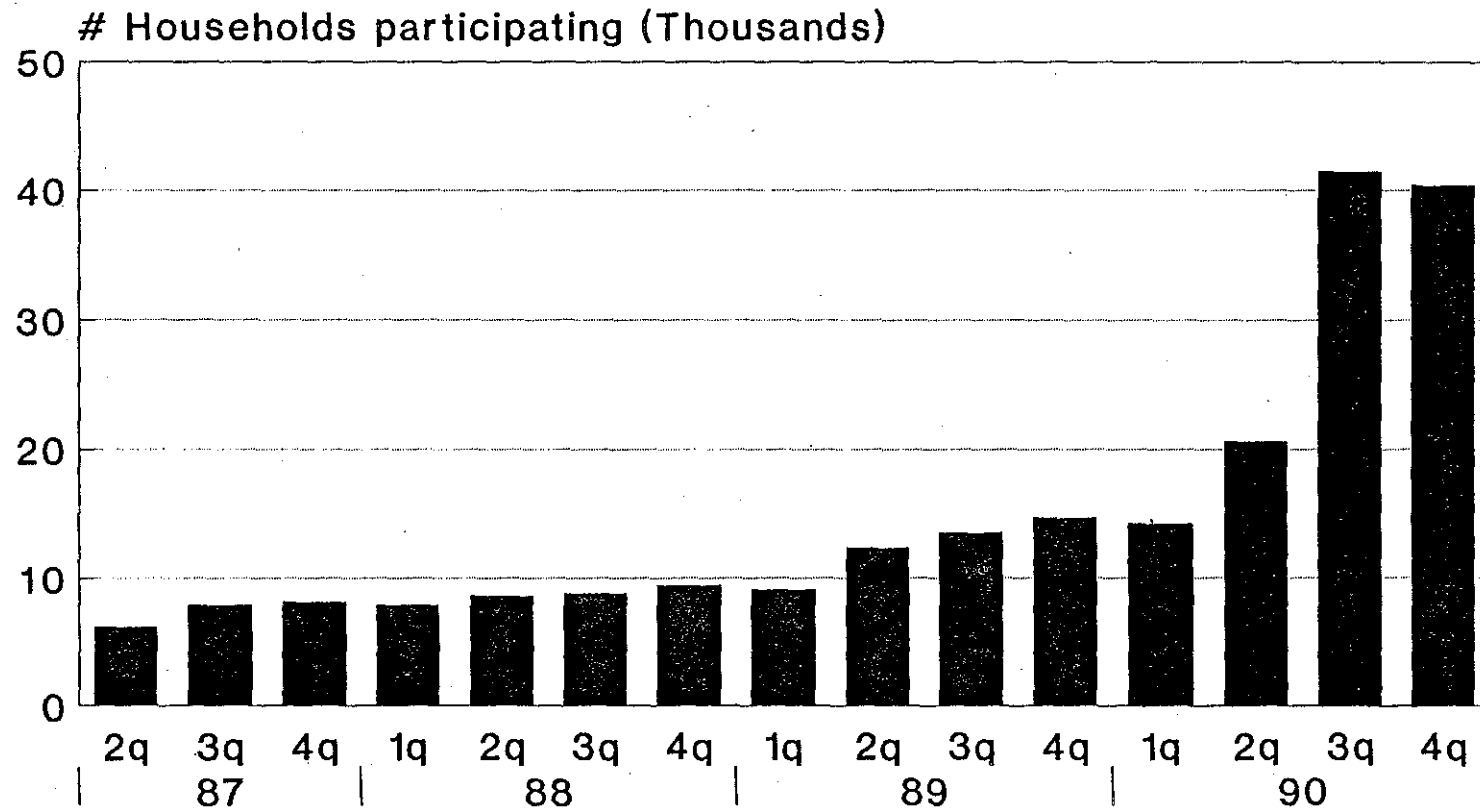
# Containers and Weekly Collection

## Sani-Pac, Eugene & Springfield, Oregon



Source: Sani-Pac

# Effect of Containers Clackamas County Collectors



Containers introduced 2nd quarter 1990

Source: Oregon DEQ

## WASTESHED DISPOSAL SITES IN OREGON

(Compiled 12/10/90, based primarily on 1989 Recycling Report Forms)

<u>Wasteshed</u>	<u>Total # Disposal Sites</u>	<u># Meeting Required Recycling</u>	<u># Refer Alter. Sites</u>	<u># Rural Exempt</u>	<u>Private or Comm. Sites</u>	<u>Recyclers with Permits</u>
Baker	6	1	1	4	0	0
Benton-Linn	4	4	0	0	0	0
Clackamas	4	2	0	0	1	1
Clatsop	4	2	1	1	0	0
Columbia	2	1	1	0	0	0
Coos	4	2	0	0	2	0
Crook	1	1	0	0	0	0
Curry	4	3	0	1	0	0
Deschutes	6	5	0	0	1(A)	0
Douglas	14	9	0	5	0	0
Gilliam	2	2	0	0	0	0
Grant	6	0	1	5	0	0
Harney	9	1	0	8	0	0
Hood River	1	1	0	0	0	0
Jackson	4	4	0	0	0	0
Jefferson	2	2	0	0	0	0
Josephine	2	2	0	0	0	0
Klamath	14	14	0	0	0	0
Lake	8	(*)	0	7	0	0
Lane	17	16	1	0	0	0
Lincoln	4	4	0	0	0	0
Malheur	7	2	0	5	0	0
Marion	6	4	0	0	1	1
Milton Freewater	1	1	0	0	0	0
Morrow	1	1	0	0	0	0
Multnomah	0	0	0	0	0	0
Polk	0	0	0	0	0	0
Portland	4	1	0	0	0	3
Sherman	1	1	0	0	0	0
Tillamook	3	3	0	0	0	0
Umatilla	4	3	1	0	0	0
Union	4	1	0	3	0	0
Wallowa	6	(*)	0	5	0	0
Wasco	3	1	0	2	0	0
Washington	3	2	0	0	1(R)	0
West Linn	0	0	0	0	0	0
Wheeler	3	2	0	1	0	0
Yamhill	<u>2</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
<b>Totals</b>	<b>166</b>	<b>100</b>	<b>6</b>	<b>47</b>	<b>6</b>	<b>5</b>

(\*) One recycling site required to be in place by July 1, 1991

(A) Private facilities referring to alternate site for recycling

(R) Private facilities which have recycling

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

TO: Environmental Quality Commission  
FROM: Fred Hansen, Director *Fell*  
SUBJECT: Agenda Item H, January 31, 1991 EQC Meeting

Review of Report to the Legislature on the Toxics Use  
Reduction and Hazardous Waste Reduction Program

Background

Attached is the report prepared by the Department of Environmental Quality (DEQ) to the 1991 Legislature on the toxics use reduction and hazardous waste reduction program, as required by House Bill 3515.

The Toxics Use Reduction and Hazardous Waste Reduction Act of 1989 requires that the Environmental Quality Commission (EQC) report to the 1991 and 1993 legislatures on the status of implementing the Act. The statute requires that the report include: (1) the status of the technical assistance program; (2) progress toward reducing the quantities of toxic substances used and hazardous wastes generated; and (3) an analysis and recommendation for changes to the program, including but not limited to the need for any additional enforcement provisions.

Significant Issues

The report addresses the above topics to the extent that information is available at this time. However, we do not recommend that any changes be made to the program at this time due to the limited amount of information and experience in implementing the program.

Requested Action

The Department requests Commission approval of this report for submittal to the 1991 Legislature.

Prepared by: Marianne Fitzgerald  
Phone: 229-6352  
Date: January 15, 1991

Approved:  
Section: *Ken W. B...*

Division: *Stephanie Hallock*

REPORT TO THE 66TH LEGISLATIVE ASSEMBLY  
ON OREGON'S TOXICS USE REDUCTION  
AND HAZARDOUS WASTE REDUCTION PROGRAM

Executive Summary

The Toxics Use Reduction and Hazardous Waste Reduction Act of 1989 (TURHWRA) requires that the Environmental Quality Commission report to the 1991 and 1993 sessions of the Oregon Legislature on the status of implementing the Act.

The statute specifies that the report shall include: (1) the status of the technical assistance program; (2) progress toward reducing the quantities of toxic substances used and hazardous wastes generated in Oregon; and (3) an analysis and recommendation for changes to the program, including but not limited to the need for any additional enforcement provisions.

The report addresses the above issues to the extent that information is available at this time. The report contains sections on:

- Background Information;
- Status of the Technical Assistance Program;
- Administrative Rules Development and Analysis of Issues;
- Progress Toward Reduction; and
- Recommendations for Changes to the Program.

Many issues concerning the toxics use and hazardous waste reduction program were debated during the rule development process. Confidentiality protection of information obtained during plan and progress report review, data reporting, and expansion of the technical assistance program are a few of the issues discussed in the report.

The Department's Toxics Use Reduction and Hazardous Waste Reduction Advisory Committee recommended that some elements of the program be modified, specifically to extend the non-public record provisions of the law to include information obtained during technical assistance, and to expand the technical assistance program.

The Department feels that we do not have enough experience with the program to determine whether a statutory change is needed at this time. Instead, we recommend that changes be postponed until the 1993 Report to the Legislature, when we will have more information on how the program is working and what further changes will be necessary to improve the program.



REPORT TO THE 66TH LEGISLATIVE ASSEMBLY  
ON OREGON'S TOXICS USE REDUCTION  
AND HAZARDOUS WASTE REDUCTION PROGRAM

The Toxics Use Reduction and Hazardous Waste Reduction Act of 1989 (TURHWRA) requires that the Environmental Quality Commission report to the 1991 and 1993 sessions of the Oregon Legislature on the status of implementing the Act. The statute specifies that the report shall include: (1) the status of the technical assistance program; (2) progress toward reducing the quantities of toxic substances used and hazardous wastes generated in Oregon; and (3) an analysis and recommendation for changes to the program, including but not limited to the need for any additional enforcement provisions.

BACKGROUND

The 1989 Oregon Legislature addressed the issue of toxic chemical usage in Oregon through the enactment of the Toxics Use Reduction and Hazardous Waste Reduction Act (HB 3515, Sections 1 through 16). The Legislature declared that the best way to reduce the adverse effects of chemicals in the workplace is by: (1) providing technical assistance to affected businesses, industries and institutions; (2) monitoring the use of toxic substances and the generation of hazardous waste; and (3) requiring affected industries to engage in comprehensive facility planning and to develop measurable performance goals.

The law is designed to achieve in-plant changes that reduce, avoid or eliminate the use of toxic substances and the generation of hazardous wastes. These changes are expected to lower industrial costs and liabilities, and to benefit the public health, safety and the environment.

Requirements for toxics use and hazardous waste reduction plans include a written policy statement showing upper management support for the program, numeric reduction goals for certain toxic substances and hazardous waste streams, an analysis of toxics use and waste generation and identification of reduction opportunities and implementation strategies, establishment of employee awareness and training programs, and institutionalization of the program to ensure an on-going effort.

The law also requires that facilities update these plans annually and report to the DEQ on progress in reducing the use of toxics and the generation of waste.

For large toxics users and large quantity hazardous waste generators, the reduction plans are due on September 1, 1991. Small quantity generator plans are due on September 1, 1992. Progress reports are due each year thereafter.

One of the unique aspects of this program is its attempt to bridge two independent regulatory programs: the hazardous waste program under the Resource Conservation and Recovery Act

(RCRA) and the toxics release inventory program under the Superfund Amendments and Reauthorization Act (SARA Title III Section 313). It is the first time that a single regulatory agency has taken a closer look at chemical usage from start to finish.

#### TECHNICAL ASSISTANCE PROGRAM

##### a. Status of Hiring and Revenue from the Funding Mechanisms

The toxics use reduction and hazardous waste reduction technical assistance program is primarily funded through the hazardous substance possession fees which were also enacted in 1989. The State Fire Marshal adopts the fee schedule and conducts the billing based on responses to its hazardous substance survey. The Department of Revenue disburses the funds to the Fire Marshal's Community Right to Know program and to the DEQ's Toxics Use Reduction and State Superfund programs.

During fiscal year 1989-91 over \$528,000 was collected by the State Fire Marshal to support the Toxics Use Reduction and Hazardous Waste Reduction Program. The program consists of five full time and one part time professional positions, as well as a program manager and one part-time position on loan from the Environmental Protection Agency through an interpersonnel agreement. At this time, only two of the full time and both of the part time positions are filled; the Department is in the process of recruiting for the remaining three positions at this time.

##### b. Summary of Technical Assistance Activities

The Department of Environmental Quality has had an active hazardous waste reduction technical assistance program since January, 1987. During the period January 1, 1990 through December 15, 1990, the technical assistance staff responded to over 775 requests for information, or an average of over 3 inquiries per day. The requests have been categorized as follows:

- 75 requests for toxics use reduction technical assistance.
- 90 requests for RCRA regulatory technical assistance.
- 90 requests for information about materials exchanges and waste management services.
- 70 requests for technical publications from the hazardous waste reduction library.
- 150 requests for information about the toxics use reduction and hazardous waste reduction legislation or the program.

- 300 miscellaneous requests, such as workshop information, tax credits, advisory committee materials or household hazardous waste.

The data reflect only the inquiries directed toward toxics use reduction technical staff and do not include requests for information routinely handled by the hazardous waste program or field office staff. However, it should be noted that there is a strong desire for regulatory and "end-of-pipe" information (such as waste management firms or requirements), although this was not the original intent of the toxics use reduction technical assistance program. Recommendations for expansion of the technical assistance program will be discussed later in the report.

During this period the Department sponsored or co-sponsored 12 toxics use reduction and hazardous waste reduction workshops. The average attendance was 21 persons per workshop. In addition, the Department participated in 16 workshops sponsored by other organizations, such as the American Electronics Association and the Oregon Public Purchasing Association. The average attendance was 58 persons per workshop. It appears that attendees prefer these industry-specific workshops which are sponsored by their local trade associations, rather than workshops sponsored solely by a government agency.

In October the Department completed a guidance manual for preparing toxics use reduction and hazardous waste reduction plans. This planning manual contains guidance, worksheets, and regulations needed to comply with the law. Also, a number of industry-specific waste reduction manuals were developed, for dry cleaners, vehicle repair shops, printers, and other small businesses. Copies of these manuals are available upon request.

The Department purchased or participated in the development of several videos aimed at motivating businesses to reduce toxics use and hazardous waste. These include "Hazardous Waste Reduction--It's Your Business" produced by the Pacific Northwest Roundtable of State Waste Reduction Programs, and several industry-specific videos excerpted from a national teleconference produced by the University of Tennessee.

DEQ's hazardous waste reduction technical library contains over 500 technical publications on toxics use and hazardous waste reduction techniques, acquired from researchers throughout the nation. The Department publishes a printed bibliography of publications which is readily distributed at meetings and conferences.

## ADMINISTRATIVE RULES DEVELOPMENT AND ANALYSIS OF ISSUES

The Department convened an advisory committee in November, 1989 to assist with developing regulations and discussing issues related to the toxics use reduction and hazardous waste reduction program. The advisory committee met monthly until it disbanded in November, 1990. Attachment 1 contains a list of committee members and agency advisors.

Administrative rules for the toxics use reduction and hazardous waste reduction program were drafted in the spring of 1990. The Environmental Quality Commission (EQC) authorized public hearings at their May 25, 1990 meeting. Following public notice, hearings were held in Eugene on July 9 and in Portland on July 10. The final rules were adopted by the EQC at its August 10, 1990 meeting and filed with the Secretary of State on August 20. Copies of the staff reports to the EQC are available upon request.

The advisory committee discussed the proposed rules and many issues related to implementing the law, including protection of confidential information contained in reduction plans, and data reporting for the purposes of measuring success. These issues were further discussed in testimony on proposed rules. The following sections explore some of these issues and how they were resolved in the rulemaking process or what recommendations were made for improvements to the program.

### a. Confidentiality Provisions

The Toxics Use Reduction and Hazardous Waste Reduction Act is clear in its protection of reduction plans as non-public record, with further protection for trade secret information (ORS 465.018 and 465.024). The statute is not clear, however, in its allowance of Department staff to take copies of the plan and remove them from the facility, nor is it clear on how technical assistance activities are covered under the confidentiality protection statutes.

Confidentiality protection was debated extensively during the rulemaking process. The Department argued that it needed the ability to take copies of plans and progress reports in order to document compliance or noncompliance with the provisions of the law. DEQ also argued that there were sufficient statutes and procedures in place to protect non-public records from public access. Some of the committee members were concerned that this violated the intent of the statute to keep the plans at the facility and protect them from the public record. Following public hearings, the Environmental Quality Commission ultimately adopted a rule (OAR 340-135-090 (1)(d) and (2)(d)) which clarifies the Department's authority to collect information obtained during plan and progress report review and retain non-public record status of the information.

The statutes and the rules are silent on the issue of confidentiality protection for information obtained during technical assistance. During this debate, the Department argued that participation in the technical assistance program is voluntary, and if a business did not want some information to become public record then it should not request assistance or offer the information to the Department. The committee discussed other options for dealing with confidentiality issues, including whether to divorce the technical assistance program from the Department and place it within a university or other non-government program. A majority of committee members rejected that idea, and instead requested that the statute be revised to extend the confidential information protection to the technical assistance program.

The Department feels that we do not have enough experience with the direct on-site technical assistance program at this time to determine whether a statutory change is needed to expand the non-public record provisions in the law. We recommend that the changes be postponed until the 1993 Legislature when we will have more information on how the toxics use reduction program is working and what further changes will be necessary to improve the program.

b. Data Reporting

The Advisory Committee deliberated extensively about what information should be submitted to the Department, what information would be optional, and what deadlines would be appropriate for submittal. The main issue centered around when baseline data would be reported to the Department. The statutes do not contain provisions for collecting baseline data, only annual progress reports. The Department argued that it needed baseline information at the time the plans were completed (September 1, 1991 and September 1, 1992) in order to prepare a report to the Legislature by 1993 which describes progress in reducing use and waste generation from the annual progress report submitted in September, 1992. Many committee members argued that no data were required to be submitted until the first annual progress report, which is due on September 1, 1992.

Additionally, the Department requested information on performance goals and progress toward meeting performance goals. Several of the committee members argued that the statute did not require the submittal of specific information relating to performance goals and reduction methods, and therefore this information should be considered optional.

The rules which were ultimately adopted by the EQC do not require any data to be reported prior to September 1, 1992. Also, the language in the rules clarifies which data are mandatory and which data are optional. The Department feels that there may not be sufficient information by the time the

1993 Legislature convenes to adequately evaluate the program, and there may be a need for an additional report to the Legislature in 1995.

c. Technical Assistance

Another issue which became apparent when the Advisory Committee reviewed the information about the technical assistance program is the apparent need for regulatory waste management information which is provided through the technical assistance program. It was the Department's original intent to provide assistance only on reduction options, and not to provide assistance on proper waste management and storage requirements when conducting on-site visits. However, the Committee and the Department feel that it may be difficult for a business to consider waste reduction options without some level of comfort that their waste management practices are in compliance with the law.

The Committee recommended and the Department agrees that the non-regulatory technical assistance program at DEQ needs to be expanded to include other regulatory arenas (hazardous waste management, air quality, water quality, etc.). This would enhance the scope of the reduction efforts and prevent the transfer of waste from one medium to another. The Committee also recommended that the technical assistance program remain within the regulatory agency, to ensure consistency between the advice given and the enforcement which may follow at a later date.

d. Interagency Coordination

The Advisory Committee was charged with making recommendations on methods to increase coordination of requirements of all state and federal toxics use and hazardous waste programs. To help accomplish this, staff from the State Fire Marshal, Oregon Occupational Safety and Health Administration (OR-OSHA), Oregon State University, and the U.S. Environmental Protection Agency (EPA) were appointed as "agency advisors."

During the committee meetings and rule development process, some coordination issues were discussed. Although dialogue between the agencies has improved over the last year, no changes have occurred to any of the regulatory programs which would result in additional coordination between programs. The Advisory Committee discussed these issues and concluded that further work needs to be done in the area of interagency coordination.

Recently, the Department invited other state agencies to a meeting on data reporting requirements. Also, the Department and OR-OSHA are giving a joint presentation on emergency response plans at a prominent business conference this spring. These meetings represent the first steps in resolving some of

the interagency coordination issues between the various regulatory programs.

In addition, the Department is working with EPA and the states of Washington, Idaho and Alaska in a cooperative Pacific Northwest Roundtable of Waste Reduction Programs. The Roundtable has completed one joint small business training project, and is working to develop a regional staff training project for incorporating pollution prevention concepts into all environmental programs.

e. Recognition Program

The 1989 Legislature and the Advisory Committee both felt that a recognition program would provide added incentives to toxics users to prepare successful reduction plans (ORS 465.012).

The Department has drafted a proposed "Governor's Award for Toxics Use Reduction" recognition program (Attachment 2). The proposed schedule calls for the first awards to be made at a major hazardous materials management conference scheduled for October, 1991 in Portland.

The proposal is somewhat different from the language in the statute. The statute calls for recognizing businesses for the development of successful reduction plans. The Advisory Committee felt that this was too narrow and instead recommended that the criteria remain broad during the first few years of the recognition program in order to encourage participation. The Committee also recognized that at this time it is difficult to evaluate what constitutes a "successful toxics use reduction and hazardous waste reduction plan" as specified in the statute. Initially, the award program developed by the Committee would recognize exemplary toxics use reduction programs, and later, as the program develops, recognize successful toxics use and hazardous waste reduction plans. The program may be revised over the next few years in conformance with the statute as we gain more experience with reduction plans.

PROGRESS TOWARD REDUCTION

As mentioned earlier, the program is too young to be able to document and quantitatively assess progress made toward actually reducing the use of toxic substances and generation of hazardous waste in Oregon. Similarly, the Department cannot adequately predict which hazardous wastes and toxic substances will be targeted for reduction in individual plans. However, the Department can describe the universe of businesses in Oregon that will be expected to prepare reduction plans, how baseline information will be established, how progress will be measured against that baseline, and some of the limitations of the data which are available.

a. Facilities that Will Be Expected to Prepare Reduction Plans

Businesses falling within any of the following three categories comprise the statute's definition of "toxics user" (ORS 465.003):

Large Toxics User (LTU): A facility required to report under the SARA 313 Toxics Release Inventory (Section 313 of the Superfund Amendments and Reauthorization Act of 1986, PL-99-499);

Large Quantity Generator (LQG) or Fully Regulated Generator: Hazardous waste generator who generates in any calendar month greater than 2.2 pounds of acute hazardous waste, or accumulates at any time greater than 2.2 pounds of acute hazardous waste, or who generates in any calendar month greater than or equal to 2,200 lbs of hazardous waste as defined by OAR Chapter 340 Divisions 100 and 101;

Small Quantity Generator (SQG): Hazardous waste generator who generates in any calendar month greater than 220 lbs. and less than 2,200 lbs of hazardous waste as defined by OAR Chapter 340 Divisions 100 and 101.

The Department intends to mail the guidance manual for preparing reduction plans to all businesses who will be expected to develop plans as a means of notifying them of the new requirements. This mailing will be followed by a series of informational workshops to explain the requirements of the law. The guidance manual contains a "notice of plan completion" which must be mailed to the Department at the time the plan is completed, prior to the September 1, 1991 and September 1, 1992 deadlines. The Department will be comparing its initial notification mailing list to the notices of plan completion to determine whether everyone who is expected to develop a plan has actually done one. Then, the Department will begin to review the plans and enforce the statutes in accordance with the provisions of the law.

b. Numbers of Facilities in Each Category

The data used in this analysis include the 1988 Quarterly Report database (for hazardous wastes manifested off-site) and the 1988 Toxic Release Inventory System (TRIS) database (for toxic releases to the environment).

Based on these data, approximately 928 toxics users will be required to develop toxics use reduction and hazardous waste reduction plans. The number of businesses in each toxic user category (as defined above) is 207 large toxics users, 121 large quantity generators, and 684 small quantity generators. The large toxics user and hazardous waste generator categories are not mutually exclusive. In fact, 84 of the businesses in



the LTU category are also either small or large quantity generators. Also, the SQG numbers include some conditionally exempt generators (CEG) that use manifests to ship their hazardous waste off-site, but will not be required to develop plans. CEG waste volumes likewise are included in SQG volumes discussed below.

There are several important limitations of the data sources used to arrive at the above numbers, which together probably result in undercounting the true number of businesses affected.

First, these numbers are from 1988 state and federal reports, the most recent year for which complete data are available. The number of generators currently in the LQG and SQG universes is larger and will continue to grow as additional existing generators continue to notify DEQ of their activities and as new regulations bring previously unregulated businesses into the hazardous waste system.

Similarly, the LTU universe will grow once the 1989 data become available (expected in spring of 1991). This is because the federal requirements for filing a Toxic Release Inventory reporting form changed between 1988 and 1989. In 1988, manufacturers or processors of listed chemicals using greater than 50,000 pounds per year of any one listed chemical were required to report. In 1989 that threshold lowered to 25,000 pounds, the same quantity used in the toxics use reduction statute.

The Department suspects that there may be additional businesses which currently fall within the regulatory definitions that, for various reasons, have yet to notify either EPA or DEQ of their activities. Also, the generator numbers were taken from DEQ's Quarterly Report database, which contains information only on those generators that use a hazardous waste manifest to ship waste off-site. Facilities that manage waste on-site (either through recycling or treatment) as well as some facilities shipping waste off-site may not be captured in that database.

#### c. Description of Affected Businesses

Before looking at breakdowns of the data by industry, waste, and chemical, it is important to understand the limitations of the descriptive data.

Toxics Use Data: There exists no adequate data to determine amounts of toxic substances used by Oregon businesses. EPA's Toxic Release Inventory System (TRIS) contains information on releases to the environment of listed toxic substances by companies that fall within the specified Standard Industrial Classification (SIC) codes. These are manufacturing industries in SIC categories 20 through 39 that have 10 or more full time employees, and exceed certain threshold quantities of toxic

substance use (manufacturers and processors of greater than 25,000 pounds per year and users of greater than 10,000 pounds per year). However, annual quantities used are not reported in the TRIS reports. Consequently, this report uses 1988 release data as a surrogate (albeit an imperfect one) for use.

Changes to toxic substance and hazardous waste lists: The lists of toxic substances and hazardous wastes regulated in 1988 may not be the same as those for the years for which we first receive annual progress reports. The regulations adopted by the Department contained the TRIS toxic substance list and RCRA hazardous waste lists as they appeared in December, 1989. The Department is committed to at least an annual review of changes to those lists to determine whether to adopt any such change for purposes of the reduction program. The Department will begin this process in mid-1991. Any changes affecting a user's performance goals would be reflected in the annual progress reports.

Volume data: Just as the numbers of toxics users are likely to be higher than indicated in the available data sources, so the actual amounts of hazardous wastes generated are thus likely to be greater. However, the DEQ quarterly report database (the source of the waste volume data) does include waste manifested by conditionally exempt generators (CEG), a group that is outside the scope of the planning requirements.

For purposes of designing and evaluating the Department's technical assistance program, it is useful to examine the data by industry group. Attachment 3 contains data tables described in this section. Table 1 explains the SIC classifications. Table 2 portrays the numbers of hazardous waste generators (large and small quantity combined) and tons of waste generated in 1988 for each SIC group. Table 3 gives the number of large toxics users in each SIC group, while Table 4 gives the total environmental releases and chemical composition of those releases by SIC group.

#### d. Establishing Baseline Data

As discussed earlier, because the statute contained no provision for the Department to collect baseline data, the first year of annual progress reports will serve as the baseline year for future comparisons. The first annual progress reports will be submitted in September, 1992 for LTU's and LQG's, and in September, 1993 for SQG's. Thus, there will be two baseline years, and the first year in which comparisons will be possible is 1993 for LTU's and LQG's, and 1994 for SQG's.

The annual progress reports comprise the only information the Department will have upon which to make comparisons and draw conclusions regarding the effectiveness of the technical assistance program. OAR 340-135-070 requires that the

following information be submitted to the Department: general identifying information (such as name, location, EPA RCRA ID number, SIC code, etc.), the name and amount of toxic substances used and the name and amount of waste generated in the previous calendar year for those substances and wastes for which a performance goal has been set, and a narrative explanation of the data.

The regulations also suggest certain optional information that a user may submit along with the required annual progress report. This includes the performance goals the user has set, any reduction measures implemented, any impediments encountered in implementing reduction measures, and a production index for the facility (either facility-wide or process-specific). These additional elements are necessary for the Department to better understand the data, improve the targeting of technical assistance, and to remove any barriers to reduction that fall within the scope of the Department's programs. Submission of this information is, however, voluntary, as there is some question as to the Department's statutory authority to mandate submittal.

e. Measurement of Progress

The Department will perform year-to-year comparisons of the annual progress report data. This may include statewide comparisons of use and waste within each SIC category, statewide comparisons of total amounts of each hazardous waste generated and toxic substance used, and total statewide amounts of all hazardous wastes and toxic substances. In the absence of any facility-specific production indices, these figures would be analyzed in conjunction with statewide economic trend data to provide some meaning to any changes observed. Such data may include employment and gross earnings figures.

Because of data limitations and timeliness issues, the Department anticipates that, even in 1993, only very general conclusions may be made regarding the effectiveness of the toxics use and hazardous waste reduction program. We will continue to examine the data and reporting requirements and make recommendations for any changes necessary in our 1993 report to the Legislature, including whether an additional report to the 1995 Legislature may be necessary to allow more time to gather and evaluate the data.

RECOMMENDATIONS FOR CHANGES TO THE PROGRAM

The Toxics Use Reduction and Hazardous Waste Reduction Advisory Committee recommended two changes to the Department's program:

1. Expand the confidentiality protection statutes to include information obtained during technical assistance activities.

2. Expand the technical assistance program to include other areas of regulatory compliance.

The Department feels that it has insufficient experience with the direct technical assistance program to determine whether statutory confidentiality protection changes are necessary at this time. Instead, DEQ recommends that the Legislature postpone any statutory changes until it reviews recommendations in the 1993 report to the Legislature.

The Department also recommends that there be an additional report to the Legislature in 1995 to allow more time to gather and evaluate data regarding effectiveness of the toxics use and hazardous waste reduction program.

For more information, contact the Department of Environmental Quality, Hazardous Waste Reduction and Technical Assistance Program, 811 S.W. Sixth, Portland, Oregon 97204; phone (503) 229-5913; outside Portland within Oregon, phone toll-free, (800) 452-4011.

Attachment 1

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY  
TOXICS USE REDUCTION AND HAZARDOUS WASTE REDUCTION  
ADVISORY COMMITTEE

MEMBERS

Jacob Tanzer, Chairman  
Ball, Janik and Novak

Joel Ario  
Oregon State Public Interest  
Research Group

Tom Donaca  
Associated Oregon Industries

Lynn Beaton  
(replaced by Jean Cameron)  
Oregon Environmental Council

Rich Barrett  
Willamette Industries

Jim Spear  
Williams Controls, Inc.

Larry Patterson  
Atochem North America, Inc.

Marv Shelby  
Agripac, Inc.

Tom McCue  
American Electronics Assn.  
(Tektronix, Inc.)

Mary Dunbar  
James River Corp.

Joe Turner  
(replaced by Trish Spady)  
US National Bank of Oregon

Lisa Frost  
League of Women Voters

Judi Stiles  
City of Portland

AGENCY ADVISORS

Mike Rodia  
State Fire Marshal

Mark Noll  
Oregon-OSHA

David Teeter  
US Environmental Protection Agency  
Region 10

Larry Edelman  
Oregon Dept. of Justice

Ken Williamson  
Oregon State University

Jay Shepard  
(replaced by Peggy Morgan)  
Washington Dept of Ecology

## Attachment 2

### PROPOSAL FOR GOVERNOR'S AWARD FOR TOXICS USE REDUCTION

The goal of the award program is to encourage the implementation of toxics use reduction and hazardous waste reduction programs in Oregon through the public recognition of persons who have developed and implemented exemplary reduction programs.

#### Benefits

- \* Encourages new toxics use reduction and hazardous waste reduction technologies and programs.
- \* Beneficial to the environment by cutting toxics use and hazardous waste generation.
- \* Beneficial to industry economically.
- \* Good public image for DEQ, the Environmental Quality Commission, the Governor and industry for striving to reduce toxics use and wastes.
- \* Encourages other companies to apply successful technologies and programs to their own facility.

#### Proposal

The Governor's Award for Toxics Use Reduction would recognize users and generators who have developed and implemented successful reduction programs. The criteria for the awards would be kept flexible for the first year or so regarding number of awards and who is eligible in order to encourage participation in the program.

Applicants would submit a two page description of their program indicating specific criteria such as what is innovative about the program, technology, or method of reduction; environmental benefits; economic benefits; safety benefits; and transferability to other businesses or applications. Nominations could come from persons other than the nominee, but the nominee must consent to the conditions of the award before the award is made.

The reduction program which is nominated for recognition should address toxics use reduction or hazardous waste reduction as defined in the Toxics Use Reduction and Hazardous Waste Reduction Act. The program must be one that has been implemented, not proposed for implementation. Preference will be given to those activities that promote multi-media reduction.

The applicant must also be in good standing with the DEQ, having met all compliance regulations within the past year. The applicant must agree to have their program, method or technology shared with others through a written case study. The achievement must be verified by DEQ staff prior to presentation of the award.

A panel\* consisting of no more than five members would review the applications and rate each criteria on a scale of 0-10. Panel members may consist of representatives of the Governor's office, EPA, the Environmental Quality Commission, industry trade associations and environmental organizations. Scores would be totalled. Categories may be established for recommending more than one award winner, i.e small businesses, large businesses, local governments, etc. Unless a clear winner is visible in each of the categories, top applicants will be reviewed again. The panel makes its recommendations for award winners to the Governor, who makes the final selection.

Award winners will be presented with a plaque by the Governor\*\* during a brief ceremony at the fall Responsible Hazardous Materials Management Conference. Honorable mention certificates could be presented to the remaining top 5%. Press releases will be issued stating the winners of the awards. A report or case study focusing on successful reduction programs may be published by DEQ.

#### Implementation Considerations

The program needs support from:

DEQ Hazardous Waste Reduction Technical Assistance Program  
DEQ Regional Operations Division  
DEQ Public Affairs Office  
DEQ Director  
Governor's Office  
Environmental Quality Commission  
Environmental Protection Agency  
Regulated Community/Industry Trade Associations  
Environmental Organizations

#### Timeline

- |   |                |
|---|----------------|
| 1. Research other states programs                                       | July 1990      |
| 2. Develop proposal   | August 1990    |
| 3. Coordinate with Public Affairs                                       | August 1990    |
| 4. Revisions/proposal to TURHWR advisory committee                      | Sept. 13, 1990 |
| 5. Support from Governor  | January 1991   |
| 6. Design announcement, application, preliminary criteria for selection | February 1991  |
| 7. Obtain commitment from judging panel                                 | February 1991  |

- |   |                   |
|---|-------------------|
| 8. Mail application forms to all users  | April 1991        |
| 9. Advertise program through targeted media outreach                            | May 1991          |
| 10. Design plaque and certificates  | May 1991          |
| 11. Applications due  | August 1, 1991    |
| 12. Applications screened by DEQ to ensure compliance with minimum requirements | upon receipt      |
| 13. Panel meets and evaluates applications                                      | September 1, 1991 |
| 14. Press release announcing winners  | October 1991      |
| 15. Winners presented with award  | October 1991      |

Staff Work

Write: introductory announcement  
rules for entering  
application form  
evaluation form  
press releases (before and after)  
requests for participation:  
Governor  
Environmental Quality Commission  
EPA  
Industry trade associations  
Environmental organizations  
Other judges

Design: plaques  
certificates

12/21/90

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\* The judging panel could be made up of any different combination of people (from the above listing). DEQ staff would screen the applications and act in an advisory capacity to the panel.

\*\* With cooperation from a high ranking public official, this program will likely get the press exposure it needs. The Governor would obviously be the first choice to present the award along with the DEQ Director since this is a statewide award. However, if the Governor is unavailable, a member of the Oregon Legislature could co-present the award (i.e. Chair of the Legislative Energy and Environment Committee, Speaker of the House, etc.).



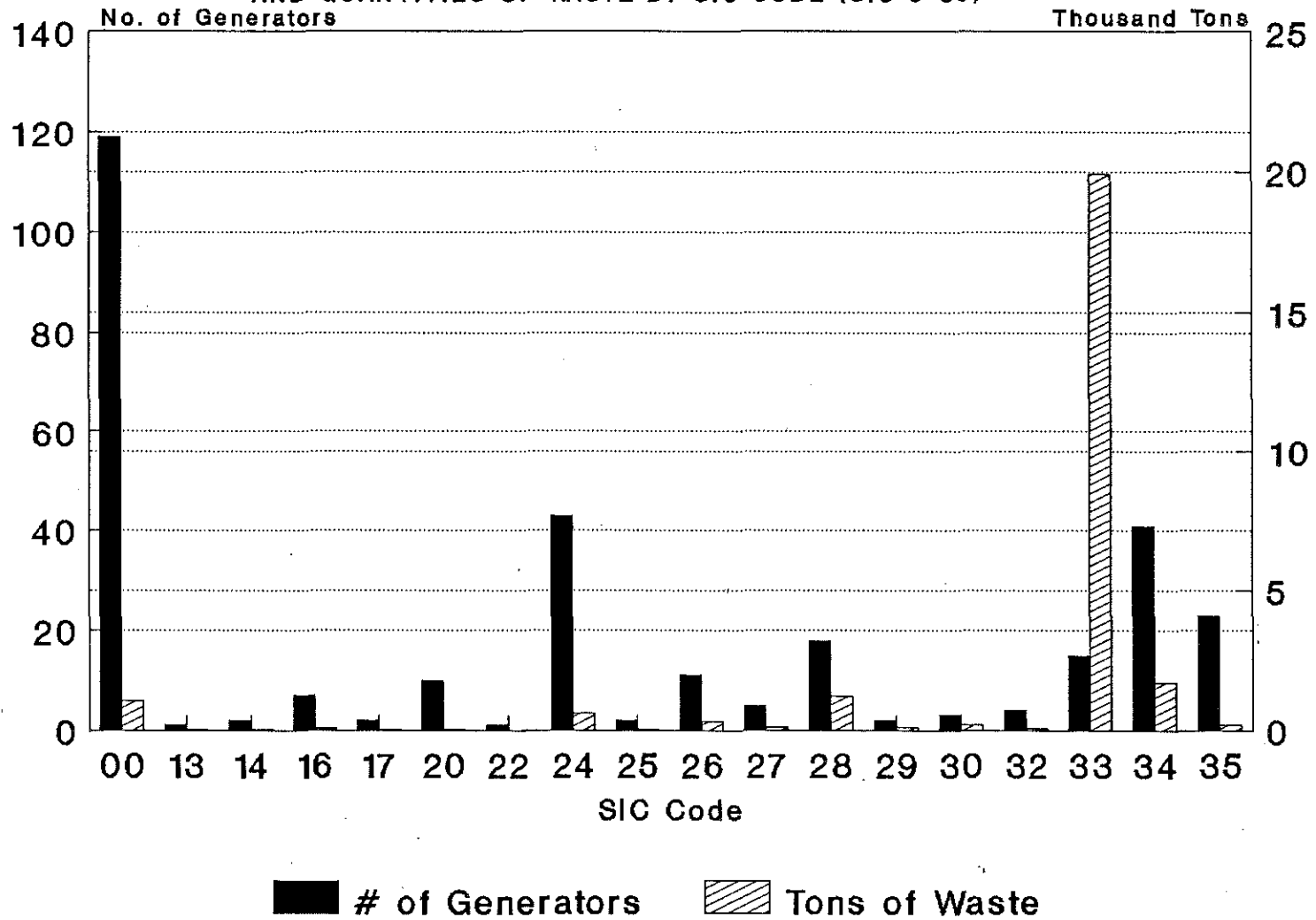
## Attachment 3

Table 1

## Explanation of Standard Industrial Classification (SIC) Codes

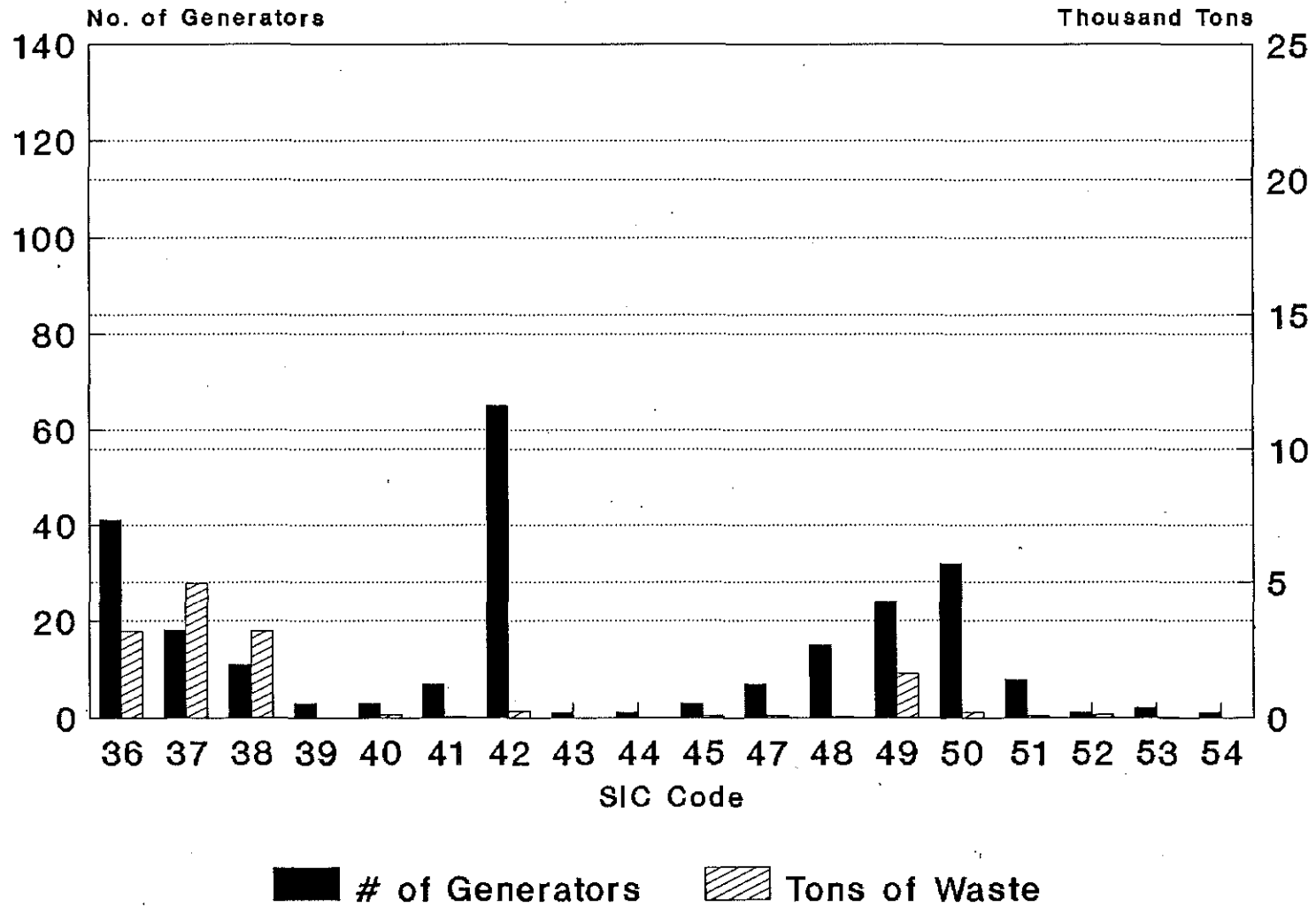
00	Unknown	50	Wholesale Trade - Durable Goods
13	Oil/Gas Extraction	51	Wholesale Trade - Nondurable Goods
14	Mining/Quarrying of Nonmetals	52	Building Materials, Hardware, Garden Supplies, Mobile Home Dealers
16	Heavy Construction	53	General Merchandise Stores
17	Construction - Special Trade	54	Food Stores
20	Food/Kindred Products	55	Automotive Dealers/Gasoline Service Stations
22	Textile Mill Products	59	Miscellaneous Retail
24	Lumber/Wood Products	67	Holding/Investment Offices
25	Furniture/Fixtures	72	Personal Services
26	Paper/Allied Products	73	Business Services
27	Printing/Publishing	75	Automotive Repair
28	Chemical/Allied Products	76	Miscellaneous Repair Services
29	Petroleum Refining/Related Industries	80	Health Services
30	Rubber/Misc. Plastic Products	82	Educational Services
32	Stone, Clay, Glass, Concrete Products	86	Membership Organizations
33	Primary Metal Industry	87	Engineering, Accounting, Research Management Services
34	Fabricated Metal Products	89	Services, Not Elsewhere Classified
35	Industrial/Commercial Machinery	91	Executive, Legislative/General Government
36	Electronic/Electrical Equipment	92	Justice, Public Order/Safety
37	Transportation Equipment	94	Administration of Human Resource Programs
38	Instruments/Related Products	95	Administration of Environmental Quality
39	Miscellaneous Manufacturing Industries	96	Administration of Economic Programs
40	Railroad Transportation	97	National Security
41	Local/Suburban Transit & Inter-urban Highway Passenger Transportation		
42	Motor Freight Transportation & Warehousing (Trucking/Maintenance Services)		
43	US Postal Service		
44	Water Transportation		
45	Air Transportation		
47	Transportation Services		
48	Communications		
49	Electric, Gas, Sanitary Services		

**Table 2**  
**NUMBER OF HAZARDOUS WASTE GENERATORS**  
**AND QUANTITIES OF WASTE BY SIC CODE (SIC 0-35)**



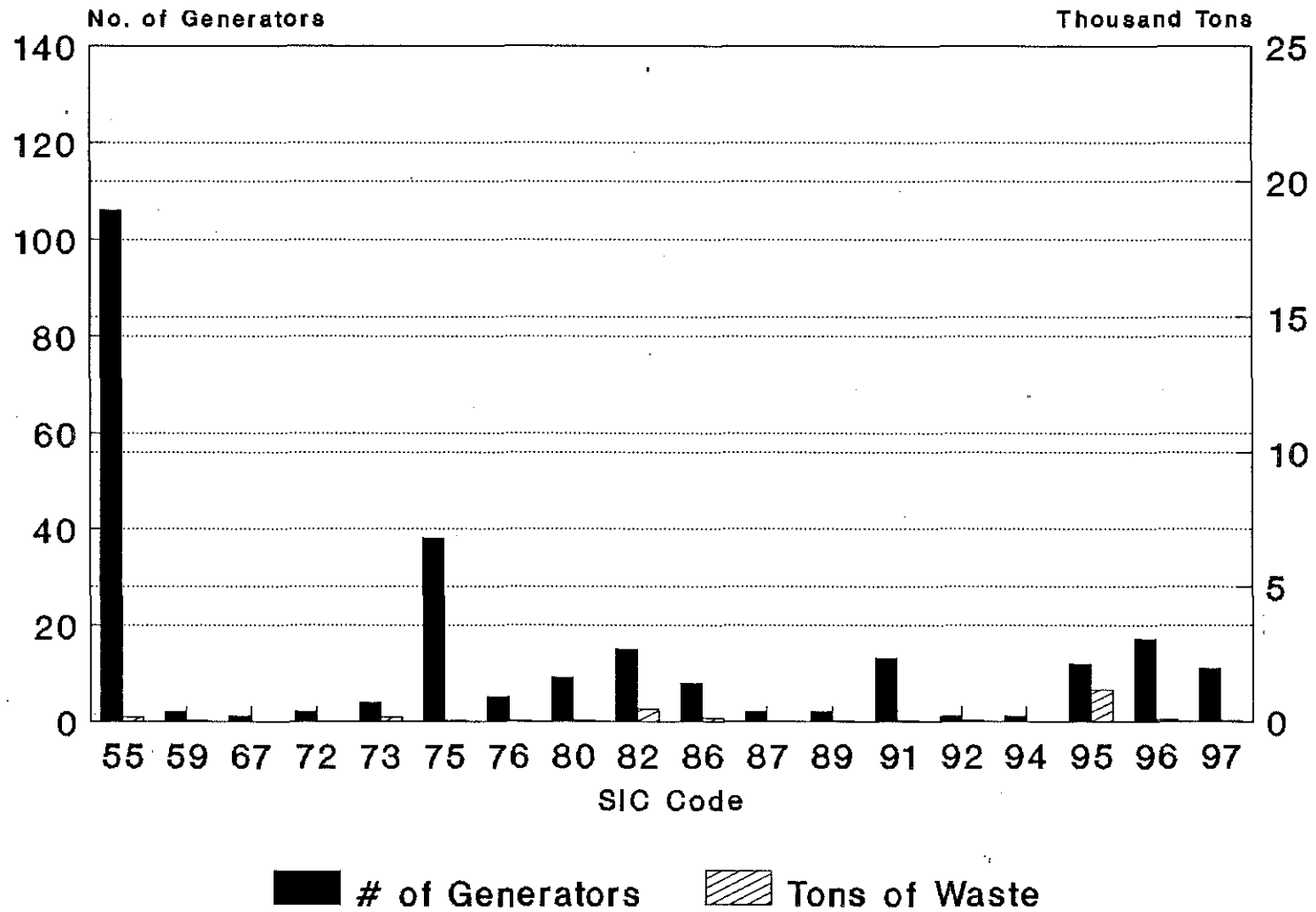
Source: 1988 DEQ Quarterly Reports

**Table 2  
NUMBER OF HAZARDOUS WASTE GENERATORS  
AND QUANTITIES OF WASTE BY SIC CODE (SIC 36-54)**



Source: 1988 DEQ Quarterly Reports

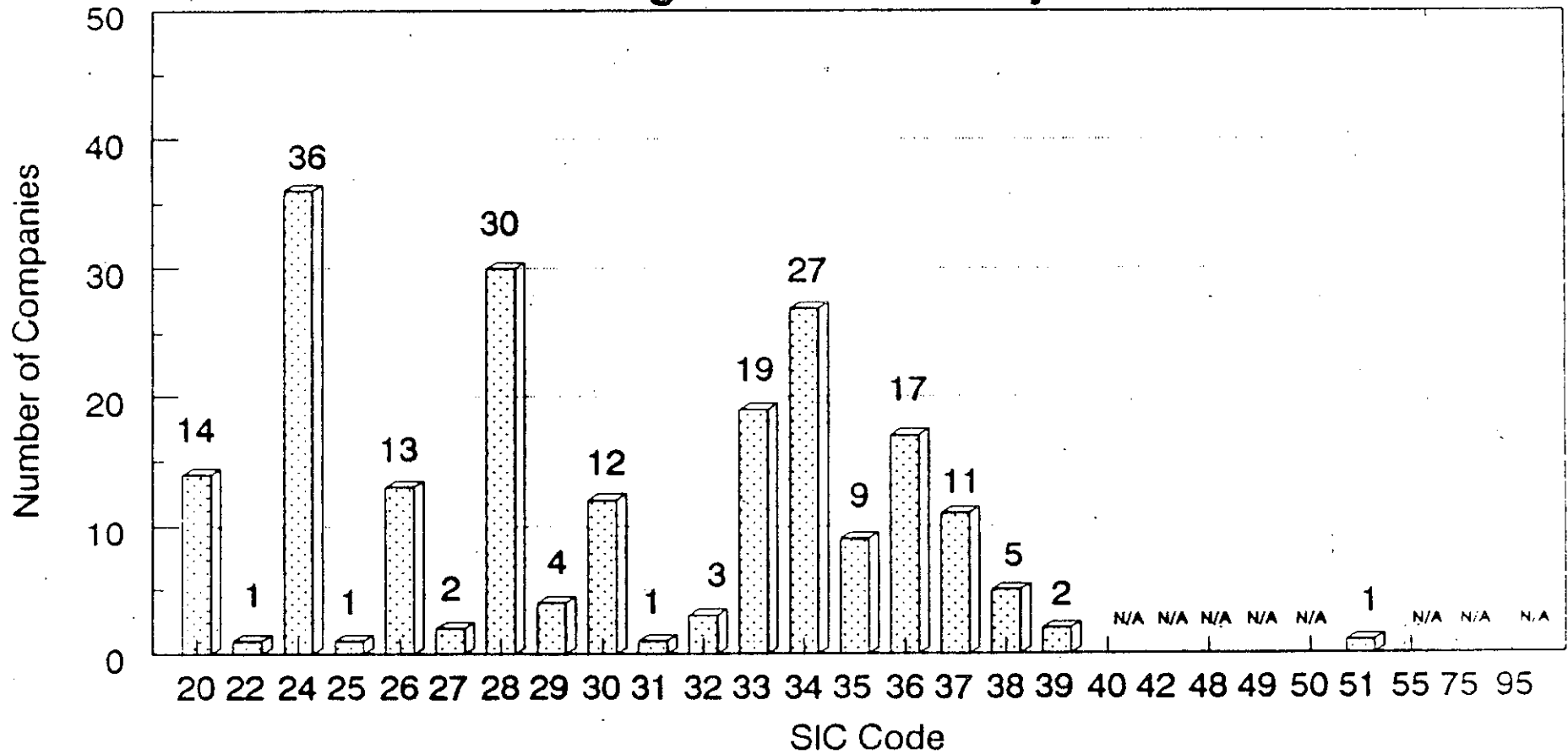
**Table 2  
NUMBER OF HAZARDOUS WASTE GENERATORS  
AND QUANTITIES OF WASTE BY SIC CODE (SIC 55-97)**



Source: 1988 DEQ Quarterly Reports

TABLE 3

### Number of Large Toxics Users by SIC Code

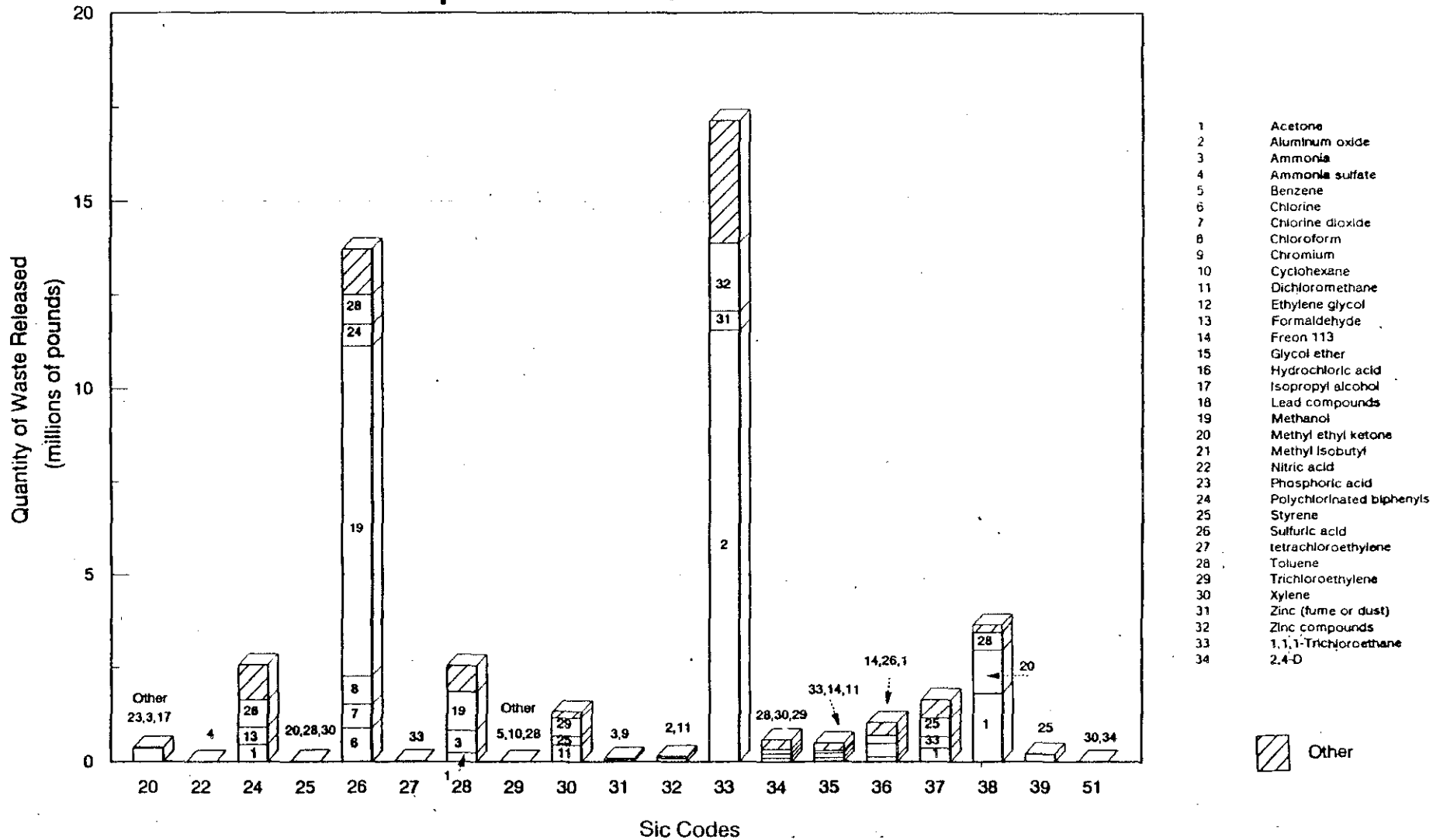


N/A=SARA 313 does not require facilities in these industries to report.

Source: 1988 Toxic Release Inventory System Reports

TABLE 4

**Releases by Industry Group:  
Composition in Millions of Pounds**



Source: 1988 Toxic Release Inventory System Reports

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

TO: Environmental Quality Commission

FROM: Fred Hansen, Director



SUBJECT: Agenda Item I, January 31, 1991 EQC Meeting

Review of Report to the Legislature on the Wastewater  
System Operator Certification Program

Background

The 1987 Oregon Legislature passed HB 3386 (ORS 448.405 to 448.470, 448.992 and 448.994) referring to water and wastewater system (sewage treatment works) operator certification. ORS 448.409 requires a joint Biennial Report to the Legislative Assembly from the Health Division and Department of Environmental Quality.

The Department's piece of this joint Biennial Report entitled, "WASTEWATER SYSTEM OPERATOR CERTIFICATION PROGRAM REPORT, 1989 - 1990", is attached (Attachment A).

Significant Issues

As required by ORS 448.409, the report must include: a summary of actions taken under the statute; an evaluation of those actions; and appropriate recommendations.

A general background statement on the certification program is attached (Attachment B) for the Commission's information.

Requested Action

It is requested that the Commission review the draft report, provide guidance for modifications if deemed appropriate, and approve submittal of the final report to the Legislature.

Prepared By: Steve Desmond  
Phone: 229-6824  
Date: January 2, 1991

Approved:

Section: Barbara A. Burton

Division: Rydia Taylor

**DEPARTMENT OF ENVIRONMENTAL QUALITY**  
**WASTEWATER SYSTEM OPERATOR CERTIFICATION PROGRAM REPORT**  
**1989 - 1990**

The following is a report on the Wastewater System (sewage treatment works) Operator Certification Program (Program) as administered by the Department of Environmental Quality (Department) under Oregon Administrative Rules, Chapter 340, Division 49 (Rules). Pursuant to ORS 448.410, the Environmental Quality Commission adopted these rules on September 9, 1988. Generally, the statute (ORS 448.415) and the associated rules require that wastewater system owners have the technical operation of their systems (collection and/or treatment) supervised by a certified operator.

**PROGRAM STATISTICS**

**Classified Wastewater Systems**

<u>System Class</u>	<u>Collection</u>		<u>Treatment</u>	
IV	25		26	
III	28		29	
II	125		84	
I	<u>157</u>		<u>306</u>	
Total	335	+	445	= 780

Note: The Rules include a classification system so that more complex wastewater systems must be supervised by an operator with a higher level of experience and knowledge. Class IV wastewater systems are the most complex facilities, the operation of which must be supervised by a Grade Level IV operator. Also, the complexity of the collection system is independent of the treatment system consequently a given municipality may have a Class IV treatment system, but only a Class III collection system.

**Operator Certificates**

<u>Certificate Grade Level</u>	<u>Collection</u>		<u>Treatment</u>	
IV	155		224	
III	148		123	
II	314		259	
I	127		309	
Provisional	<u>9</u>		<u>43</u>	
Total	753	+	958	= 1711



**Note:** A Provisional Certificate is a temporary (twelve month) certificate granted to persons who are working in collection and/or treatment systems under the supervision of a certified operator and enrolled in, or have completed, Department approved training. Generally, these people are "operators-in-training" who are gaining experience and knowledge to qualify for certification at Level I. This provisional certificate may be converted to a "standard" Level I certificate upon completion of the required experience and passing the Level I examination. The individual may take the Level I examination while provisionally certified.

As of December 31, 1990, there are 1405 individuals participating in the Program and a total of 1711 certificates have been issued. The number of certificates represents an 88% increase from December 1988. Three hundred and six (306) operators (about one out of five) hold both a treatment certificate and a collection certificate. The figures show that Oregon has significantly more certified operators than wastewater facilities. This ensures an adequate pool of certified operators to replace people who retire or otherwise leave service.

In accordance with ORS 448.420, the Rules provided for the issuance of certificates to those persons who were certified prior to May 1, 1989 under the voluntary Oregon wastewater certification program. Of those who were eligible, 95% converted their voluntary certificates.

Another provision of the Rules gave wastewater collection system personnel a temporary "window" in which to apply for certification without having to pass a written examination. Persons could certify at a specific grade level based on their meeting established minimum qualifications for education and experience. In the four month period prior to a May 1, 1989 deadline, 480 persons made application and were accorded new or upgraded certificates under that provision.

### Examinations

With the exception of operators requesting certification by reciprocity, all applicants must take an examination and score at least 70% in order to pass.

During the two-year period 1989 - 1990, a total of 524 individual examinations were scheduled (1989: 290 and 1990: 234). The examinations were given on eight different dates (1989: 5 times and 1990: 3 times) and at various locations geographically located around the state.

A total of 459 persons (1989: 259 and 1990: 200) actually attended and completed the exams. This represents an average "no show" rate of approximately 12%. At this time, the Program does not charge a rescheduling fee. There is a fee of \$35.00 for retaking

a failed exam. Approximately 15% of the exams taken were re-examinations. Of those who failed the exam on the first attempt, better than 90% passed on the second attempt following a period of additional study.

<u>Certificate Grade Level</u>	<u>Pass Rate Collection</u>	<u>Pass Rate Treatment</u>
IV	100%	88%
III	100%	70%
II	90%	73%
I	97%	77%
Provisional	71%	83%

Pass Rate overall: 79%

Pass Rate by group: collection: 92% and treatment: 77%

#### Revenue and Expenses

As of November 30, 1990, the Department has collected in the 1989-91 biennium a total of \$30,875 in operator certification fees. In carrying out the Program, the Department has expended, as of November 30, 1990, \$77,389.24. Certificate renewal fees are collected biennially and are next due on July 1, 1991. The Department expects to receive about \$60,000 of additional fee revenue before the end of the 1989-91 biennium.

The current fees schedule is as follows:

<u>Application Type</u>	<u>Fee</u>
New Certification (Includes examination)	\$ 50.00
Renewal Certification (Two-year period)	\$ 40.00
Certification to a Higher Grade (Includes examination)	\$ 35.00
Certification through Reciprocity	\$ 55.00
Reinstatement of Lapsed Certificate	\$ 50.00

Note: Persons holding both collection and treatment certificates at grade level I and/or II may renew both certificates for a single fee of \$40.00.

Based upon the current number of certificates, current fees, and two years of experience of conducting the operator certification program, the Department projects that \$79,600 will be received in the 1991-93 biennium.

The Department has requested 1.33 FTE to operate the Program as part of one of the decision packages in its 1991-93 budget request. The cost of this component of the decision package is \$85,477. Fees may have to be increased to cover the costs of conducting the Program.

#### SUMMARY OF SIGNIFICANT ACTIONS

The Department believes that the Program is providing better trained and more knowledgeable wastewater system operators. The Rules require a minimum of two Continuing Education Units (CEUs) of approved training as a condition of renewing an operator's certification. This requirement has resulted in substantially increased attendance at wastewater treatment plant operator short schools, workshops, and seminars.

Under the Rules, the Department has established a standing advisory committee for the Program (see Attachment 1). The committee's purpose is to assist in developing examinations, to evaluate Program effectiveness, and to recommend needs of the Program. The committee is required to meet at least two times per year, but, in fact, met quarterly in 1990.

The Department intends to use the wastewater discharge permit as the mechanism for enforcing the requirements of the Program. At this time, the Department has been including operator certification requirements in permits as they are renewed. Consequently, there are still many permits without operator certification requirements. The Department is considering modifying all permits in mass to include operator certification requirements.

In October of 1990, subsequent to a permit compliance investigation, the Department revoked the treatment certificate of an operator who falsified operational reports of the system that he supervised. The rules provide for suspension or revocations of a certificate based on misconduct, negligence or falsification of records or reports. In addition, the Department issued a Notice of Intent To Assess a Civil Penalty to the system owner for Waste Discharge Permit violations including falsification of records and failure to adequately operate, maintain and staff the treatment system.

#### RECOMMENDATIONS

The Department has no recommendations for any changes to the Program. The Department does recommend that the Legislature approve the Department's decision package to provide necessary staff to properly conduct the Program.

DEPARTMENT OF ENVIRONMENTAL QUALITY  
WASTEWATER SYSTEM OPERATOR CERTIFICATION PROGRAM  
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## CERTIFICATION PROGRAM BACKGROUND

ORS 448

The 1987 Oregon Legislature enacted HB 3386 (ORS 448.405 to 448.470, 448.992 and 448.994) requiring the certification of operators of water systems and wastewater systems (sewage treatment works). HB 3386 was introduced at the request of the legislative committee of the Pacific Northwest Section of the American Water Works Association (AWWA). The statute required the Health Division and the Environmental Quality Commission (Commission) to adopt rules for the certification of water and wastewater system operators.

Prior to enactment of the statute, Oregon had a voluntary operator certification program. Many small communities did not participate in the voluntary program and consequently did not employ trained and skilled operators. The Legislature recognized that a mandatory certification program was needed to protect the health of the public and the water resources of the State.

The Health Division Administrator and the Director of the Department of Environmental Quality (Department) appointed a joint advisory committee for the development of rules for the certification of operators.

OAR Chapter 340, Division 49

In September of 1987, representatives of Oregon's voluntary Wastewater Operator Certification Program requested that the Department assume their voluntary program until the mandatory program could be implemented. The Department and the Wastewater Advisory Subcommittee of the joint Advisory Committee felt by assuming the administration of a voluntary certification program, the Department could better assure an effective transition from the voluntary to mandatory certification program. Thus, on January 22, 1988, the Commission adopted temporary rules for a voluntary certification program. The temporary rules were in effect until July 20, 1988 (120 days).

As mentioned previously, a joint advisory committee was formed to develop the rules for the certification of operators. The Wastewater Advisory Subcommittee was made up of nine individuals from around the state representing large and small systems. This subcommittee met twelve times to assist Department Staff in developing the rules.

Final rules were developed and the Commission authorized the Department to hold public hearings at their April 29, 1988 meeting. Public hearings were held in Albany, Bend, Coos Bay, La Grande, Medford, and Portland, between May 31 and June 2, 1988. After the close of the public hearing period (June 15, 1988), the Department and the Wastewater Advisory Subcommittee reviewed and evaluated the oral and written testimony, and a final report with proposed rules was presented to the Commission for approval.

On September 9, 1988, the Commission adopted final rules and a fee schedule. The rules (Oregon Administrative Rules, Chapter 340, Division 49) required system owners to have a certified supervisor for both collection and treatment systems. The rules provide for:

1. The Director to classify systems, issue certificates, appoint an advisory committee, and grant variances under specific conditions.
2. Part-time supervision by a certified operator of systems with capacities under 75,000 gallons per day.

The final rules established July 1, 1989 as the date whereby wastewater system owners must have the technical operation of their systems supervised by one or more certified operators. This date gave sufficient time to enable wastewater personnel and system owners to meet the certification requirements for supervisors of wastewater systems. The response from system owners to the additional time for enabling personnel to meet the wastewater certification requirements was favorable.

The rules require that renewal of certificates will be based on demonstration of professional growth (continuing education) in the field. A certified operator must complete a minimum of 2.0 Continuing Education Units (CEUs) or college credit hours during each two-year certification period.

Under the rules, an operator holding more than one certificate need only meet the professional growth requirement for one certificate. In addition, operators holding both wastewater collection and treatment certificates at lower grade levels (Level I and/or Level II) may renew both for an equivalent single certificate fee. **Note:** The Department will continue to explore with the Health Division, a means to issue a combination water and wastewater certificate.

The rules establish criteria for the Director to grant variances. The Department chose to process variance requests through its waste discharge permits which are required of all wastewater systems. Consequently, if a system owner wishes to obtain a variance, the owner would request a permit modification. If the Director approves the variance according to the criteria in the rules, an addendum to the permit will be issued. If the variance is denied, the owner may appeal the decision to the Commission.

The final rules created a "standing" advisory committee. In December 1988, the Director appointed individuals to the new Wastewater Certification Program Advisory Committee (Committee). The Committee's purpose, under the rules, is to assist the Department in developing certification examinations, and to provide feedback on the effectiveness of the program in meeting the needs of both system owners and the operators. The ten-member Committee is composed of persons representing operators, system owners and the educational community. They are required to meet at least twice annually. In 1990, the Committee met quarterly.

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 11, 1991

TO: Environmental Quality Commission

FROM: Fred Hansen *Jeel*

SUBJECT: Agenda Item J, January 31, 1991 EQC Meeting Review of Report to the Legislature on the Environmental Cleanup Program

Background

The Environmental Cleanup Division has prepared the following legislative report summarizing the accomplishments of the environmental cleanup program and presenting a four year plan of action (Attachment A). ORS 465.235 requires the Department to submit the report to the Governor, the Legislative Assembly and the Environmental Quality Commission.

Significant Issues

- \* For the first time, the Department is required to submit a plan of action including estimates of the number of environmental cleanup actions to be initiated and completed in the next four years.
- \* The report addresses the following major issues impacting the future of the environmental cleanup program: the voluntary cleanup initiative and financing for orphan sites, illegal drug lab cleanups and hazardous substance spill response.

Requested Action

It is requested that the Commission review the report, provide guidance for modifications if deemed appropriate, and approve submittal of the final report to the legislature.

Prepared By: Jeff Christensen

Phone: 229-6391

Date: January 10, 1991

Approved:

Section: *Nancy Walsh*

Division: *Richard K...*

# Leaking fuel tanks prompt DEQ action

## DEQ pushes probe of creosote plant

Service stations and other sites in Government Camp, Hoodland, Boring and Gresham are on the Department of Environmental Quality's "leaking underground storage tank" cleanup list.

The 18 sites are in various stages of identification and cleanup. As problems at each site are eliminated, the DEQ will remove the site from the list.

• Zim's Shopping Center, 223rd Avenue and Main Avenue, Gresham, Ore.  
 • Former M Main Ave., Gresham, Ore.  
 • a release of ne

### DEQ will take over creosote plant cleanup

DEQ drilling monitoring wells

S.E. Stark St., are decommissioned. Industries also a site to aerate other contaminated soil, but before the DEQ would approve such a plan, the company must show that such a use is compatible with land use laws.

### DEQ offers voluntary cleanup

### DEQ will use wells

### to track chemicals

### DEQ as

The department serve as cond

By BARBARA PESCHIERA  
 Correspondent, The Oregonian

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### Leak DEQ

## OREGON ENVIRONMENTAL CLEANUP PROGRAM:

## 1991 REPORT TO THE LEGISLATURE

Department of Environmental Quality (DEQ) is now accepting applications for participation in a voluntary cleanup program for hazardous substance cleanup by DEQ. The program is being processed in the Cornucopia Mine area. Cornucopia is a district in the Wallowa County area, approximately 1.5 miles north of Halfway.

### ination

y, the Forest Service is developing recreational trails in the Cornucopia area. The trails include a new trailhead near the Cornucopia Mine and hiking, pack

### start

### examining

Eighteen locations in various stages DEQ To Assess Health Risks of M


DEQ TO INVESTIGATE

### DEQ planning Alkali Lake probe

Department of Environmental Quality (DEQ) has decided to conduct another round of testing from samples to be gathered from the Cornucopia Mine's tailing piles.

In early August, the Forest Service made public results of testing of mine tailing samples.

indicat th concentrat heavy met Accordi



Environmental Cleanup Division  
 Department of Environmental Quality

### open house procedure

knowing more about the Oregon Department of Environmental Quality will hold an open house from 7:30 to 8:30 p.m. at the State Capitol, 427 N. Central. The public is invited to meet the staff who will be available to answer questions.

### DEQ investigation will measure impact on groundwater, soils, riverwater, air

ick & Baxte and at the State Capitol, or at the local level.



# **LEGISLATIVE REPORT**

## **OREGON'S ENVIRONMENTAL CLEANUP PROGRAM**

**JANUARY 1991**

Submitted to:

**Governor Barbara Roberts**

**The 66th Oregon Legislative Assembly**

**Oregon Environmental Quality Commission**

Submitted by:

**Fred Hansen, Director**

**Oregon Department of Environmental Quality**

**Michael Downs, Administrator**

**Environmental Cleanup Division**

January 15, 1991

This report is submitted to the Oregon Legislature in fulfillment of ORS 465.235. The report summarizes the accomplishments of the environmental cleanup program, identifies major issues, and concludes with a four-year plan of action.

Oregon's environmental cleanup law was adopted in 1987. The law requires establishment of a comprehensive program to protect public health and the environment by identifying and cleaning up sites contaminated by the release of hazardous substances. Public concern about hazardous substance contamination remains high.

Hazardous substance releases have contaminated land, tainted drinking water supplies and destroyed wildlife habitat. Both legal and illegal practices have resulted in damage we must now either live with or clean up.

Cleanups range from a few weeks and a few thousand dollars for a simple site to several million dollars and twenty or more years of work for complex sites. Scientific uncertainty over what level of contamination is harmful or what level of cleanup is protective raises the cost of cleanup. Extensive negotiations or legal actions to determine responsibility or select a cleanup remedy also add significantly to costs.

The price of not cleaning up sites is that contamination will migrate, cleanup costs will escalate, public health will continue to be threatened, and productive use of land and water resources will be precluded. Therefore, a fundamental issue for Oregon's program is how to identify and clean up more sites without sacrificing the level of protectiveness envisioned by the legislature when it adopted the environmental cleanup law.

Significant progress has been made towards implementing the state environmental cleanup laws. We are pleased to present this report and look forward to hearing your comments.

Respectfully submitted,

Fred Hansen  
Director



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## INTRODUCTION

ORS 465.235 requires the Department of Environmental Quality to submit a report to the Governor, the Legislative Assembly and the Environmental Quality Commission. Specifically, the legislature directed that each year a quantitative and narrative description be prepared which includes information regarding the following environmental cleanup activities:

- facilities with a suspected release of hazardous substances added to the Department's database;
- facilities with a confirmed release of hazardous substances;
- facilities added to or removed from the inventory of sites requiring further action;
- hazardous substance removals;

- preliminary assessments;
- remedial investigations;
- feasibility studies; and
- remedial actions, including environmental and institutional controls, initiated and completed.

In addition, beginning with the current year and every fourth year thereafter, ORS 465.235 requires development of a four-year plan of action. The plan must include estimates regarding the number of preliminary assessments, remedial investigations, feasibility studies and remedial actions to be initiated and completed, and funding and staffing levels necessary for implementation.

# REVIEW OF ACCOMPLISHMENTS

The Environmental Cleanup Division (ECD) was established in 1988 by the Department of Environmental Quality (DEQ) and charged with implementing Oregon's environmental cleanup laws. The Division's mission is to discover, assess, investigate and clean up sites contaminated by a release of hazardous substances. The following information summarizes accomplishments since adoption of Oregon's environmental cleanup law.

## Public Information About Sites

Public information is an important and legislatively mandated component of Oregon's environmental cleanup program. Required public information about environmental cleanups includes:

- 1) listing sites with a confirmed release of hazardous substances;
- 2) identifying sites requiring further investigation or action; and
- 3) ranking sites according to the relative threat to public health and the environment posed by the hazardous substance release.

These requirements are addressed, respectively, by the following DEQ-maintained sources of public information: the Confirmed Release List, the Inventory of Sites Requiring Further Action, and the ranking of sites on the Inventory. Oregon's Environmental Quality Commission (EQC) adopted rules pertaining to the Confirmed Release List and Inventory of Sites Requiring Further Action in June 1990. Rules for how sites placed on the Inventory will be ranked were proposed for public comment in November 1990 and are scheduled for adoption in early 1991.

DEQ began issuing notice letters informing owners of the intent to list facilities on the

Confirmed Release List and the Inventory in August 1990. By the end of the current biennium, owners of an estimated 120 sites will have been notified of the intent to propose the facility for placement on the Confirmed Release List. 80 of the sites will also be proposed for the Inventory.

In addition, DEQ has established an electronic filing system of sites with suspected or confirmed releases of hazardous substances. This "Site Discovery Database" tracks data and activities on reported releases.

## Site Discovery

Properties with suspected or confirmed contamination are discovered through review of DEQ files, reports from the public and other state and federal agencies, field activities by DEQ staff, and property transaction evaluations. Through June of 1991, DEQ estimates about 983 suspected or confirmed sites will be identified. Of these, approximately 228 sites will be added to the Department's database during the current biennium.

## Site Assessment

When DEQ receives information indicating a potential release of hazardous substances, the Department performs an evaluation to determine whether, in fact, a release has or may have occurred. This evaluation is brief and intended to screen out sites where it is readily apparent that additional investigation is not required. The site evaluation process conserves resources for sites requiring further action.

For sites not screened out, a preliminary assessment or equivalent is conducted to develop as complete a picture of the site as possible--primarily from existing information. In some instances, additional soil or water samples

are taken to document the presence or absence of hazardous substances at the site.

The purpose of the "preliminary assessment" is to determine if the release poses a significant threat to public health or the environment. Preliminary assessments address current and past management of hazardous substances at a site, the type and concentration of the substances released, potential pathways for migration, and the potential effects of the substances. DEQ has developed a phased preliminary assessment process to help ensure sufficient information is collected to recognize when continued investigation is warranted.

By June 1991, DEQ estimates about 123 preliminary assessments will have been initiated, with 101 completed. Of these, 81 will have been initiated and 77 completed during the current biennium.

## Simple Site Investigations

Cleanups can be either complex or simple. When hazardous substances are present in groundwater, investigations generally require extensive study to determine the boundaries of contamination and potential methods for control and removal of the contamination. On the other hand, some cleanups may be relatively simple because they are limited to soil and can be studied and cleaned up in a matter of weeks or months.

Opportunities for "simple site cleanup" have been dramatically demonstrated by Oregon's Underground Storage Tank (UST) cleanup program. While petroleum is also a hazardous substance, its well-defined characteristics and the widespread use of USTs, especially at gasoline stations, have resulted in development of a discrete process for petroleum cleanups.

To maximize the cleanup of other hazardous substances and to respond to private sector demand, DEQ has undertaken a program called voluntary cleanup initiative (VCI). When fully employed, VCI will help streamline methods of

overseeing relatively simple hazardous substance cleanups. VCI will be discussed in more detail later in this report.

## Complex Site Investigations

If DEQ determines hazardous substances have been released and a cleanup is needed, a remedial investigation and feasibility study may be required. The purpose of a remedial investigation (RI) is to determine the full nature and extent of the contamination. An RI provides for completion of a more thorough characterization of the site's hazardous substances, hydrogeology and geology and an assessment of risks to public health and the environment.

A feasibility study (FS) develops options for remedial action. Typically, options considered range from total cleanup to no action. The FS evaluates the various options for practicability and cost effectiveness. The RI/FS may be conducted separately or as a single, integrated phase. An RI/FS typically requires one to three years, since this is the phase during which site conditions, chemical transport mechanisms, risk assessment and remedial action options are comprehensively evaluated.

For the biennium ending June 1991, DEQ estimates there will be 11 initiated and 19 completed remedial investigations, along with 10 initiated and 6 completed feasibility studies.

## Cleanup

Information developed during the RI/FS, along with public comments regarding potential cleanup alternatives, are used by DEQ's director to determine the cleanup level and method. State rules stipulate the goal is to clean contaminated sites to background (e.g., naturally-occurring) levels for contaminants of concern. If that is not feasible, the goal is the lowest concentration determined to be feasible. The feasibility requirement means remedial actions must be cost effective, possible and effective. Selected

actions must also exhibit a preference for permanent solutions and the use of alternative or resource recovery technologies.

## **Remedial Design and Remedial Action**

Specifics of selected remedial actions are designed and engineered during the phase known as "remedial design". Remedial design and remedial action are typically the longest and most expensive phases of the environmental cleanup process and may last for many years. During the current biennium, 6 sites have progressed to the remedial design or remedial action phase.

## **Removals**

Removals may occur at any time during the investigation and cleanup process, and may be done prior to, in conjunction with, or in lieu of remedial action. Removals usually involve off-site disposal of contaminated materials, but may also entail measures to stabilize and contain contaminants on-site until a remedial investigation and remedial action can be completed. Security fencing, provision of alternative drinking water supplies and similar activities are additional examples of "removal actions".

Removals generally take from 6 to 18 months to complete. The cost of removals ranges from several hundred thousand dollars to more than a million dollars. By the end of this biennium, DEQ estimates it will have initiated 11 and completed 9 removals.

## **Underground Storage Tanks and Petroleum Contamination**

Petroleum cleanups from leaking underground storage tanks are handled separately from other hazardous substances because petroleum has well-defined characteristics and the use of underground tanks is widespread. For the

biennium ending June 30, 1991, about 1131 releases will have been discovered and 991 investigations and 390 cleanups completed.

## **Spill Response**

Programs previously discussed deal primarily with releases of hazardous substances that occurred sometime in the past. However, there are "contemporary" instances where hazardous substances are accidentally or intentionally spilled or otherwise discarded into the environment. Responsible parties are required to report these releases to DEQ and clean up spills.

DEQ performs three roles related to spill response: 1) technical support to local emergency response teams charged with protecting public health and safety from immediate danger; 2) oversight of work performed by responsible parties to ensure that long-term public health, safety, welfare and environmental concerns are properly addressed; and 3) in instances where a responsible party cannot be identified or the party will not clean up the spill, DEQ may task a contractor to complete the required corrective action.

For the current biennium, DEQ estimates about 400 incidents will qualify as significant hazardous substance spill response incidents and, of these, approximately 81 will require use of a contractor to complete cleanup activities.

## **Drug Lab Cleanup**

In the mid-1980s a new law enforcement and public health danger appeared in Oregon. Using readily-available hazardous chemicals, clandestine drug lab operators have created a steadily increasing problem by contaminating houses and leaving behind hazardous substances.

DEQ provides assistance to law enforcement agencies in cleaning up drug lab chemicals, as authorized by the Oregon legislature in 1987. At the request of law enforcement agencies,

arrangements are made for packaging and disposal of wastes confiscated at illegal drug lab sites. As with the spill response program, DEQ's principal roles in illegal drug lab cleanup are to provide technical assistance, oversee the cleanup work, or perform the work where necessary. By June 1991, about 275 drug lab cleanups will have been completed in the current biennium alone.

## **Conclusion**

DEQ has made significant progress during the past four years in identifying and cleaning up sites contaminated by hazardous substances. The effectiveness of state programs is reflected

by the steadily growing number of sites which have been cleaned.

For additional information regarding accomplishments since the initiation of the environmental cleanup program, including case studies of sites currently undergoing environmental investigations and cleanups, please refer to the appendices.

DEQ plans to refine and streamline the established environmental cleanup processes. As discussed in the following section, these changes will address voluntary cleanups, orphan sites, spill response and drug labs.

# DISCUSSION OF ISSUES

The following section addresses some of the key issues emerging after nearly four years of implementing Oregon's Environmental Cleanup Law. Issues highlighted include: the voluntary cleanup initiative, orphan site cleanup, spill response, and drug labs.

## The Voluntary Cleanup Initiative

In March of 1990, DEQ began a major new project, known as the voluntary cleanup initiative. The purpose of the initiative is to address issues of emerging importance as the environmental cleanup program matures, specifically: 1) availability of staff to respond in a timely manner to requests for oversight of environmental investigations and cleanups; and 2) expediting the environmental cleanup process where practical.

The first of these issues is DEQ's acknowledged inability to respond in a timely manner to a large number of requests by property owners, lenders, buyers and others for review of investigations and cleanups. During the initial two years of the program, it was often possible for DEQ to provide oversight for new projects, even though the demand for assistance sometimes required shifting work assignments. For example, to accommodate development plans for the Oregon Convention Center, DEQ was able to provide oversight for investigation and cleanup work by temporarily reassigning staff from other projects. More recently, with an increasing number of environmental priority projects, most new requests for DEQ oversight must be turned away.

The second issue is an interest on the part of DEQ and others to streamline the environmental cleanup process, particularly for simple sites. For example, DEQ is evaluating the use of numeric soil cleanup standards for some individual hazardous substances. If recommended for adoption, numeric standards and/or simplified

risk assessment procedures promise to significantly reduce the time and expense of establishing cleanup standards for each individual site. Another effect of cleanup standards is that they will serve as a benchmark for evaluating the effectiveness of cleanups which occur without DEQ oversight.

To help DEQ address these issues, the Department established the Voluntary Cleanup Initiative Task Force with representatives of industry, environmental and public interest groups, lending institutions, environmental consultants, attorneys, and local governments. In June of 1990, DEQ and the Task Force completed work on a conceptual plan for the voluntary cleanups based on the following principles:

- the voluntary cleanup program should be fully self-supported by those who use the program;
- the type and extent of work performed by responsible parties will be significantly increased;
- DEQ needs to hire additional staff to provide oversight of investigations and cleanups; and
- simple sites should allow for streamlined approaches for investigation and cleanup while complex sites will continue to use a more comprehensive approach.

The Environmental Quality Commission has recognized the voluntary cleanup initiative as a high priority for Department action. In June 1990, the Commission approved DEQ's Strategic Plan which states that DEQ should:

"[E]nhance the environmental cleanup program to include a non-complex cleanup process (with an appropriate regional component) that will promote voluntary cleanups by responsible parties with limited DEQ oversight."



In July 1990, the Legislative Emergency Board authorized 9 positions to begin implementation of the VCI. The E-Board will consider authorizing additional staff as the demand for DEQ oversight increases. This determination will be based on written requests from responsible parties. So far, 7 applications have been received. DEQ intends to begin oversight of these projects in February 1991.

## **Orphan Site Cleanup**

Sometimes responsible parties are unknown, unable or unwilling to pay for environmental cleanup activities. In these cases, DEQ spends state funds for the cleanup. Occasionally, responsible parties can be found as the cleanup progresses and sources of the contamination are identified.

To augment funding for orphan site cleanups, the 1989 Legislature created an Orphan Site Account. This account may be used for remedial action expenses at sites where DEQ determines the responsible party is unknown, unable or unwilling to undertake the required actions and/or for grants and loans to local government units for remedial action. Three fees, each designed to generate up to \$1 million annually, were authorized to support bonds sold to pay for those cleanups or to pay directly for the cleanups. The fees are: 1) the hazardous substances possession fee; 2) petroleum withdrawal fee; and 3) solid waste tipping fee.

In mid-1991, DEQ will request approval to sell pollution control bonds for financing cleanup of orphan sites. Legislative approval would trigger collection of fees for the Orphan Site Account.

## **Spill Response**

Securing sufficient funding for the cleanup of hazardous substance spills remains a challenge

for Oregon. For the period June 1989 through December 1990, a total of 81 hazardous substance spills required full or partial funding by the state at a cost of about \$446,921 for contractor assistance. Revenue to support these activities was not made available. Currently, spill response activities are funded by the Hazardous Substance and Remedial Action Fund (HSRAF). HSRAF is primarily intended to address past practices and releases of hazardous substances, rather than contemporary spill response incidents.

Because of limited financing and staffing levels, DEQ currently operates a minimal spill response program that must be cut back further if funding is not provided.

## **Drug Labs**

As with spill response activities, finding a stable and adequate source of funds to support drug lab cleanups has proven difficult. Costs can rarely be recovered successfully because: 1) confiscated property may cost more to clean up than the value of the property; and 2) in most cases, law enforcement agencies have not been able to pay for their legislatively mandated 50% share of cleanup and disposal costs. Thus far, General Funds and cost share repayments have been used to support DEQ's drug lab cleanup work.

## **Conclusion**

During the past four years, Oregon's environmental cleanup program has evolved rapidly in response to a wide range of sources of hazardous substance releases. New challenges and opportunities related to voluntary cleanups, orphan site cleanups, spill response and drug lab cleanup have been recognized. The following section discusses the tools which DEQ believes are necessary to meet these challenges and opportunities.

# FOUR-YEAR PLAN FOR ENVIRONMENTAL CLEANUP

ORS 465.235 requires submittal of a four-year plan of action for the state's environmental cleanup program. The plan must include estimates regarding the number of certain environmental cleanup activities--specifically, preliminary assessments, remedial investigations, feasibility studies and remedial actions--which will be initiated and completed.

Preliminary assessments, remedial investigations, feasibility studies and remedial actions comprise only part of the Environmental Cleanup Division's activities. Therefore, the four-year plan incorporates related work including cleanups of leaking underground storage tanks, orphan sites, spill response, drug labs, and the voluntary cleanup initiative. Funding and staffing requirements for the four-year plan are also presented.

## Four-Year Plan Activities

Much has been accomplished since the environmental cleanup law was adopted just four years ago. Because of these accomplishments, two major trends in the future of environmental cleanup activities can be anticipated. First, the total number of activities will increase because the infrastructure and rules for implementing the environmental cleanup program have been established. Second, a shift in the types of

activities completed is expected as sites move from investigative to cleanup stages.

Figures 1-4 depict the number of preliminary assessments, remedial investigations, feasibility studies and remedial actions which DEQ estimates will be initiated and completed. Figure 1, for example, shows that the number of completed preliminary assessments is expected to climb from 77 in the current biennium to approximately 100 in 1991-93 and 200 in 1993-95. In contrast to the anticipated steady growth in completion of preliminary assessments, a different trend is anticipated for remedial investigations and feasibility studies. As shown in Figure 2, DEQ projects about 10 remedial investigations will be completed in the 1989-91 biennium, followed by 15 in 1991-93 and 8 in 1993-95. Likewise, approximately 6 feasibility studies will be completed in 1989-91, followed by 13 in 1991-93 and 5 in 1993-95 as shown in Figure 3. This anticipated short-term surge in completion of remedial investigations and feasibility studies reflects movement of sites currently under investigation to cleanup stages.

Figure 4 demonstrates the combined effect of increasing environmental cleanup activity and the movement of individual sites from investigation to cleanup phases. As shown, DEQ estimates the number of completed remedial actions will increase from 2 in this biennium to 11 in 1991-93 with an additional 12 to be completed in 1993-95.

Figure 1  
**PRELIMINARY ASSESSMENTS**

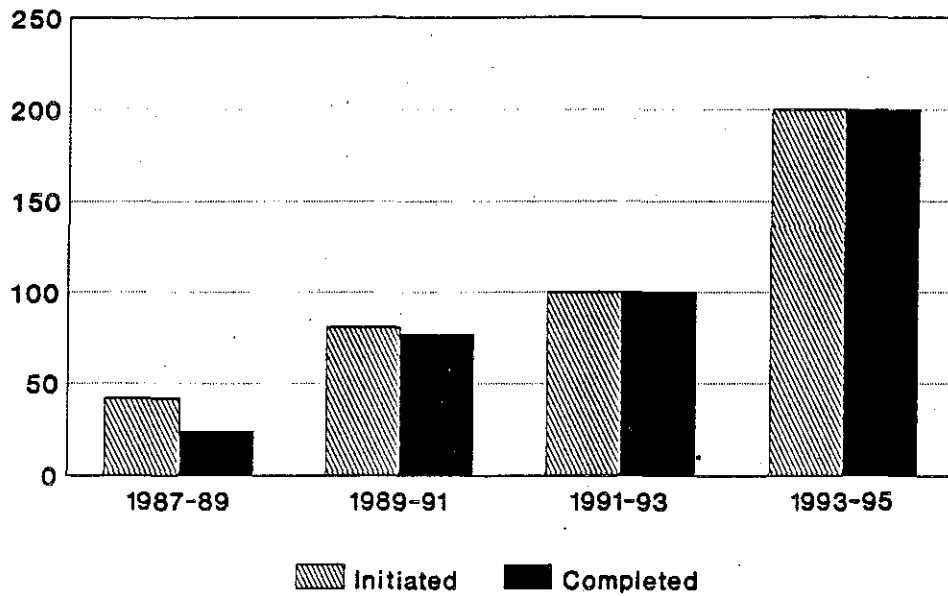


Figure 2  
**REMEDIAL INVESTIGATIONS**

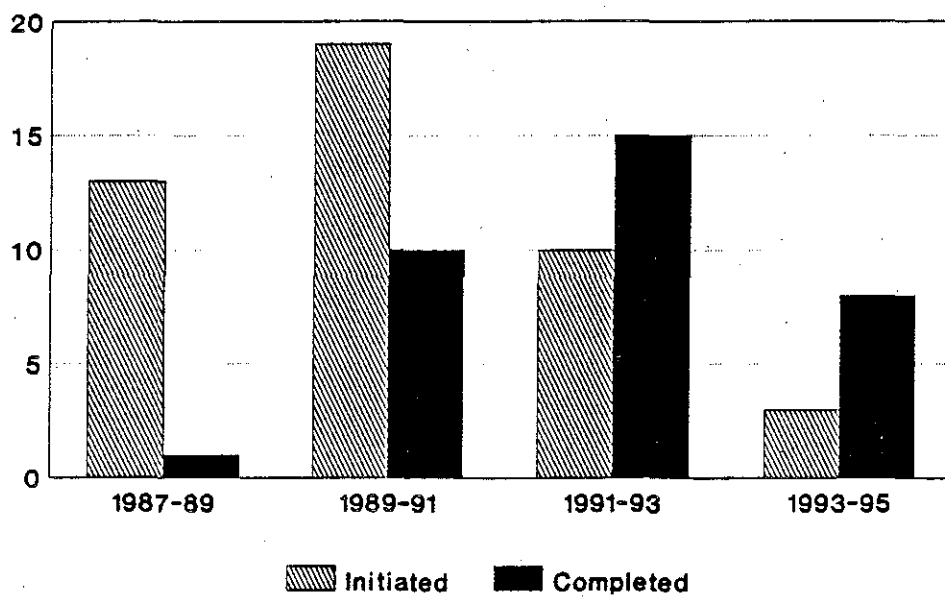
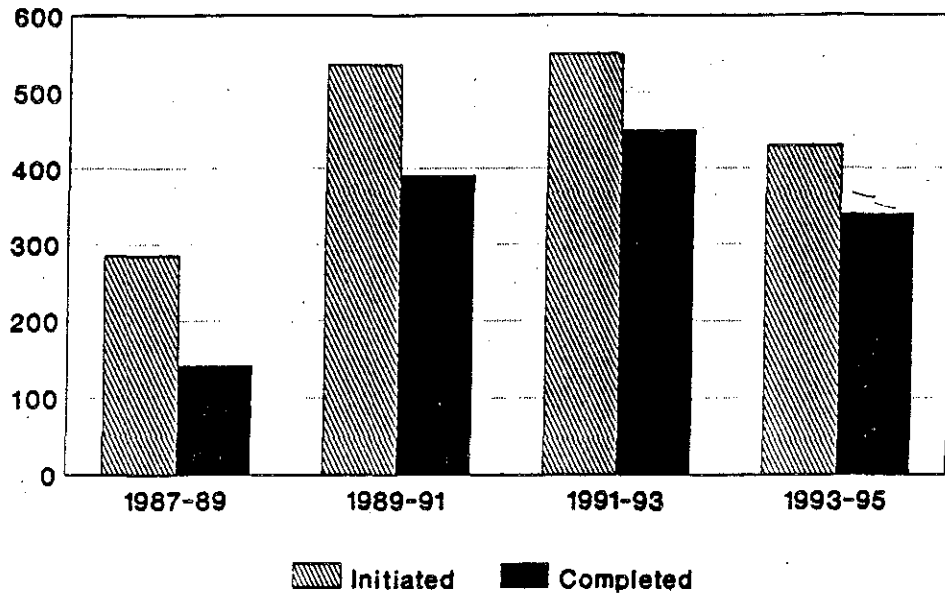


Figure 5  
UST CLEANUPS



## Other Activities

As previously discussed, Oregon's environmental cleanup programs have evolved in response to new issues and requirements.

For example, the Underground Storage Tank (UST) cleanup program has developed a relatively simple process for cleanup of eligible sites. Hundreds of sites contaminated by petroleum products have already been identified and cleaned up, primarily sites where petroleum product contamination has been limited to soils. Figure 5 summarizes the number of UST cleanups completed per biennium and projections for the program's future.

Other major activities include investigation of high-priority orphan sites, spill response, illegal drug lab cleanups and voluntary cleanups.

## Funding and Staffing Levels

For the current biennium, environmental cleanup activities are funded with an approved budget of \$14.8 million and 51.58 full time equivalent (FTE) staff. A general breakdown of expenditures and staffing by major program activities is presented on the following page.

**Environmental Cleanup Program  
Report on Funding and Staffing  
(1989-91)**

Activity	Approved Budget	FTE	Funding Source(s)
Cleanup of hazardous substances	\$9.7 million	34.66	HSRAF <sup>1</sup> , federal, cost recovery, and General Fund
UST cleanup	\$3.5 million	16.42	Federal, HSRAF, petroleum loading and cost recovery
Spill response	\$ .1 million	0.00	HSRAF, cost recovery, and Oil and Hazardous Materials Emergency Response Fund <sup>2</sup>
Drug lab	\$1.5 million	.50	General Fund and law enforcement matching funds
<b>TOTALS</b>	<b>\$14.8 million</b>	<b>51.58</b>	

<sup>1</sup>Hazardous Substance Remedial Action Fund (HSRAF), derived from a \$20/ton fee on all waste disposed at permitted hazardous substance incinerators and landfills, account for about \$6.2 million. Federal Superfund revenue (\$2.1 million), cost recovery (\$800,000) and General Funds (\$100,000) represent the balance of budgeted funds for hazardous substance cleanup activities.

<sup>2</sup>\$119,436 authorized by Oil and Hazardous Materials Emergency Response Funds but all expenditures paid from HSRAF, including cost recovery.

If environmental cleanup programs are to be continued at present levels, the 1991-93 budget will require similar staffing and increased dollars to accommodate the shift from investigative phases to more resource-intensive engineering and remedial action selection. Increased dollars will be required because contractors will be used more extensively.

When reviewing environmental cleanup program costs, the following issues merit attention. First, only part of environmental cleanup activities are financed by General Funds. DEQ is prepared to forego current appropriations of about \$100,000 in General Funds previously used for hazardous substance program activities. In addition, DEQ has examined options for replacing more than \$1

million in General Funds used to finance drug lab cleanups.

Second, DEQ has prepared decision packages for Legislative consideration. If approved, the decision packages will: 1) convert existing limited duration positions to permanent status; 2) create a "regional presence" for environmental cleanup work, utilizing regional offices currently established by DEQ; 3) continue some of current services provided under the drug lab and spill response programs; and 4) provide for partial implementation of the voluntary cleanup initiative.

The Governor's recommended budget, including decision packages, provides for the following:

**Environmental Cleanup Program  
Governor's Recommended Budget  
(1991-1993)**

Activity	Approved Budget	FTE	Funding Source(s)
Cleanup of hazardous substances	\$13.36 million	53.4	HSRAF, federal, and cost recovery
UST cleanup	\$ 4.18 million	26.0	Federal, HSRAF, petroleum loading, and oil heat and cost recovery
Spill response	\$ .11 million	0.00	Petroleum loading and cost recovery
Drug lab	\$ 1.97 million	1.0	General Fund and law enforcement matching funds
<b>TOTALS</b>	<b>\$19.62 million</b>	<b>81.4</b>	

Finally, DEQ will request authorization for the sale of bonds to provide for cleanup of orphan sites. If approved, bonds would be repaid by fees

previously authorized. A request for authorization will be prepared for Legislative review in mid-1991.

# APPENDICES

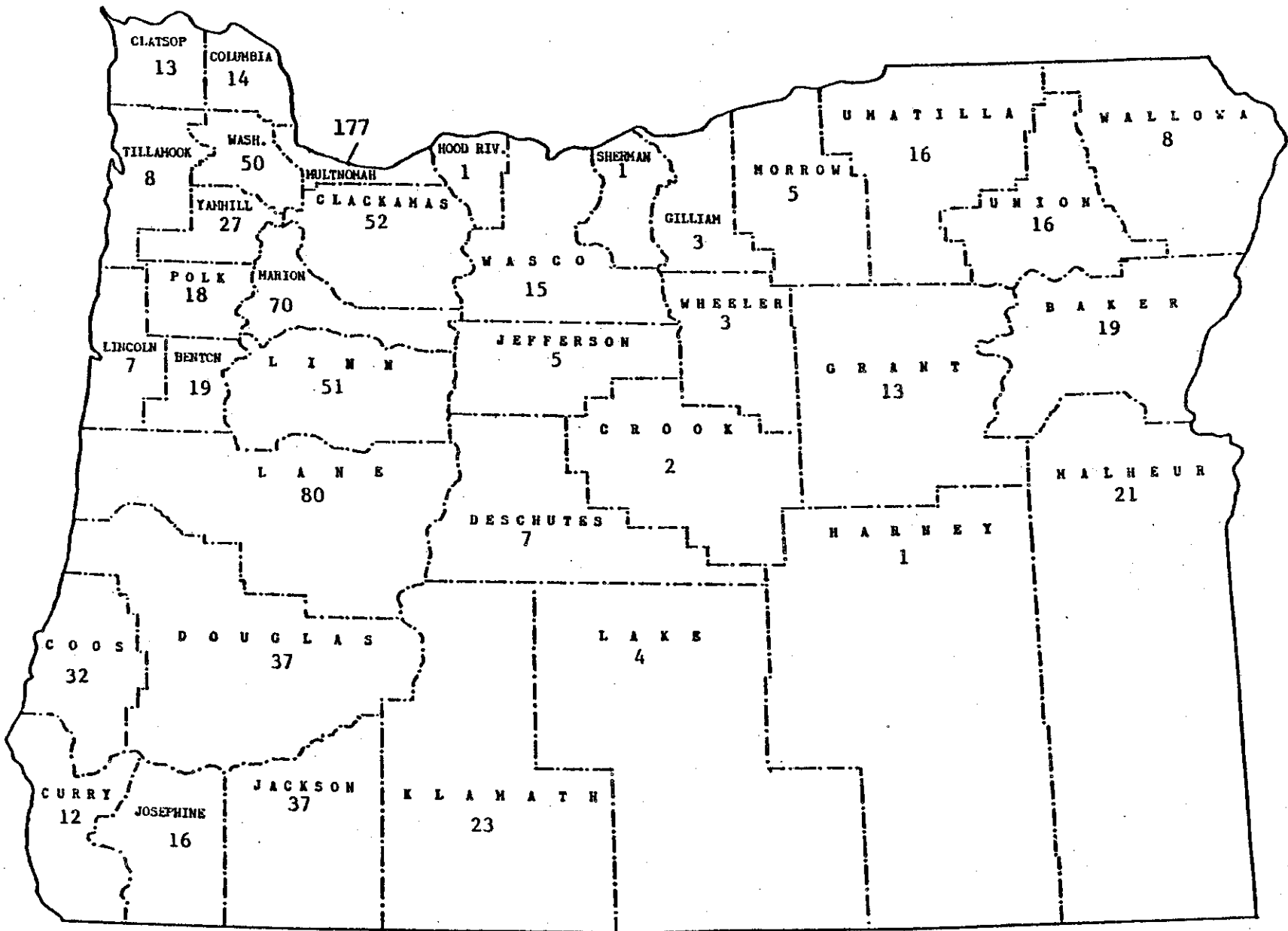
Activity	Actual Jan. 88 to June 89		Actual July 89 to June 90		Projection July 90 to June 91		Projection: Four Year Plan of Action July 91 to June 93   July 93 to June 95			
	Initiated	Completed	Initiated	Completed	Initiate	Complete	Initiate	Complete	Initiate	Complete
<b>PUBLIC INFORMATION ACTIVITIES</b>										
Suspected releases added to Database	755		128		100		NA		NA	
Added to Confirmed Release List	NA		NA		120		NA		NA	
Facilities added to/removed from Inventory	NA		NA		80/10		NA		NA	
<b>HAZARDOUS SUBSTANCES REMEDIAL ACTION ACTIVITIES (Except petroleum)</b>										
	<u>Initiated</u>	<u>Completed</u>	<u>Initiated</u>	<u>Completed</u>	<u>Initiate</u>	<u>Complete</u>	<u>Initiate</u>	<u>Complete</u>	<u>Initiate</u>	<u>Complete</u>
Preliminary Assessments	42	24	31	27	50	50	100	100	200	200
Removals	8	2	3	4	0	3	3	4	3	3
Remedial Investigations	13	1	16	3	3	7	10	15	3	8
Feasibility Studies	6	1	7	2	3	4	16	13	7	5
Remedial Design, Remedial Action & Operation and Maintenance	3	2	4	1	2	1	12	11	17	12

APPENDIX A  
SUMMARY OF ENVIRONMENTAL CLEANUP ACTIVITIES

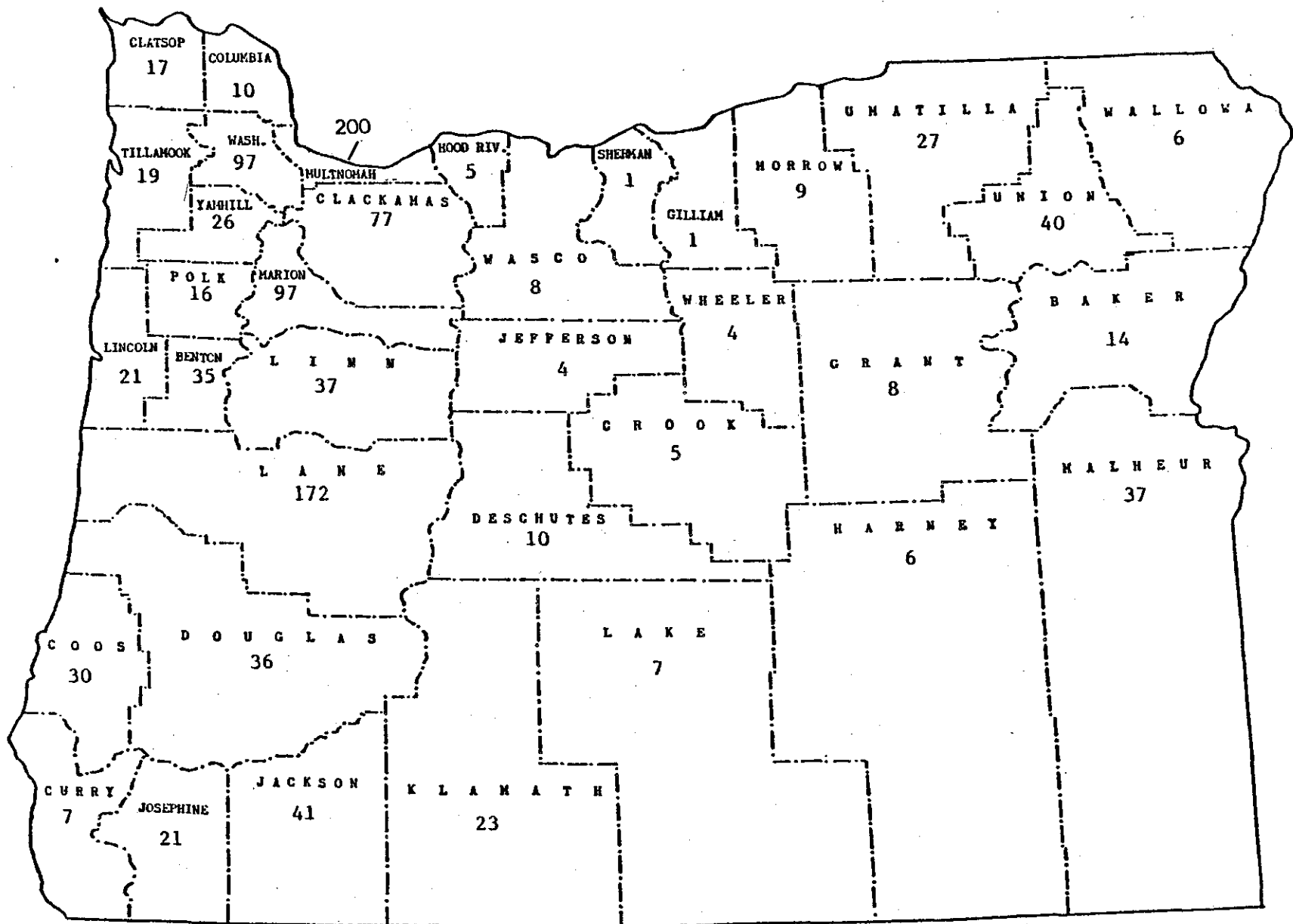


Activity	Actual Jan. 88 to June 89		Actual July 89 to June 90		Projection July 90 to June 91		Projection: Four Year Plan of Action			
							July 91 to June 93		July 93 to June 95	
<b>UNDERGROUND STORAGE TANK CLEANUP ACTIVITIES (Petroleum)</b>										
Releases discovered	409		581		550		800		700	
	<u>Initiated</u>	<u>Completed</u>	<u>Initiated</u>	<u>Completed</u>	<u>Initiate</u>	<u>Complete</u>	<u>Initiate</u>	<u>Complete</u>	<u>Initiate</u>	<u>Complete</u>
Investigations	NA	285	NA	511	NA	480	NA	600	NA	610
Cleanups	285	142	276	200	260	190	550	450	430	340

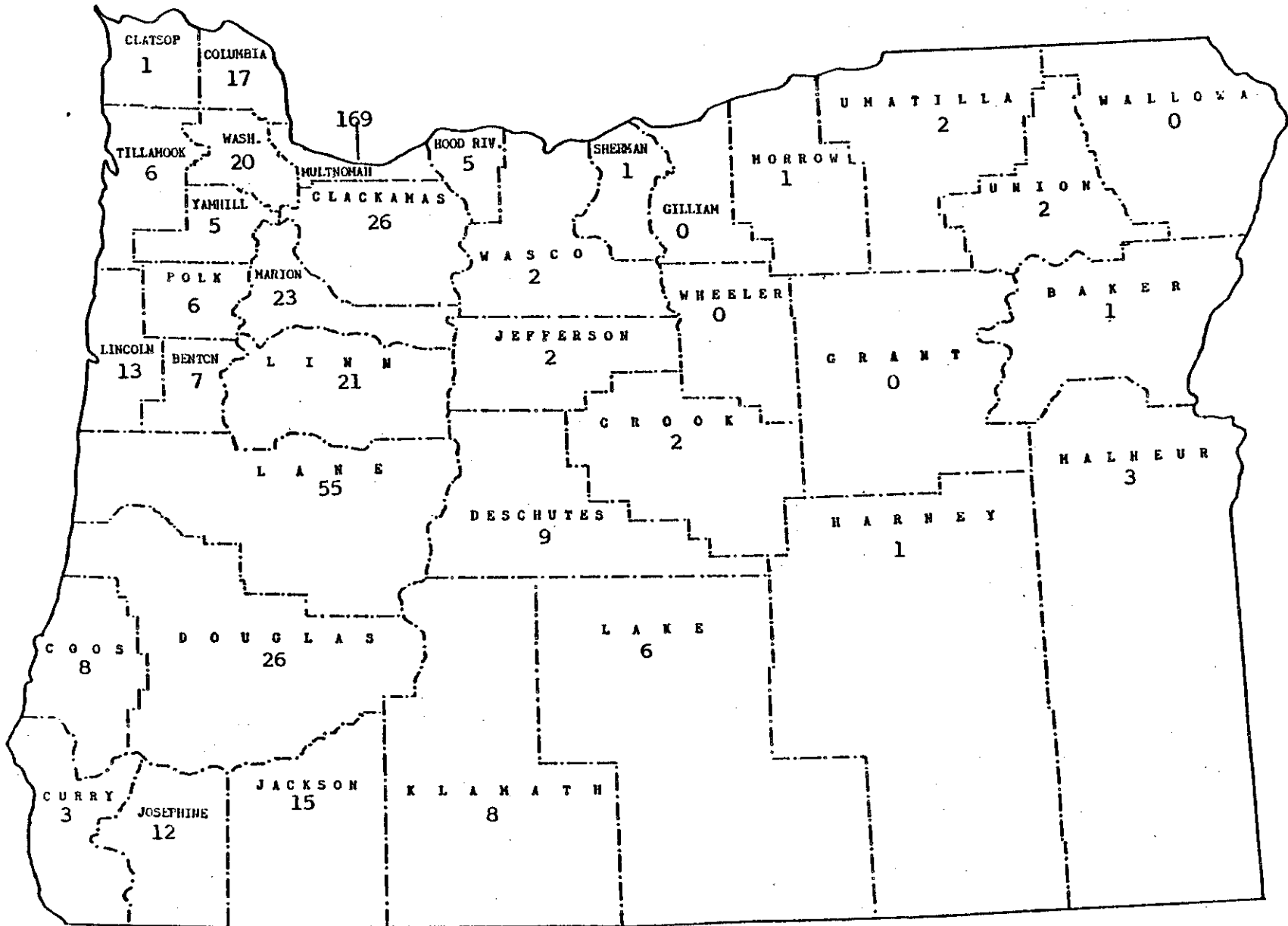
NA -- Not applicable or not available.



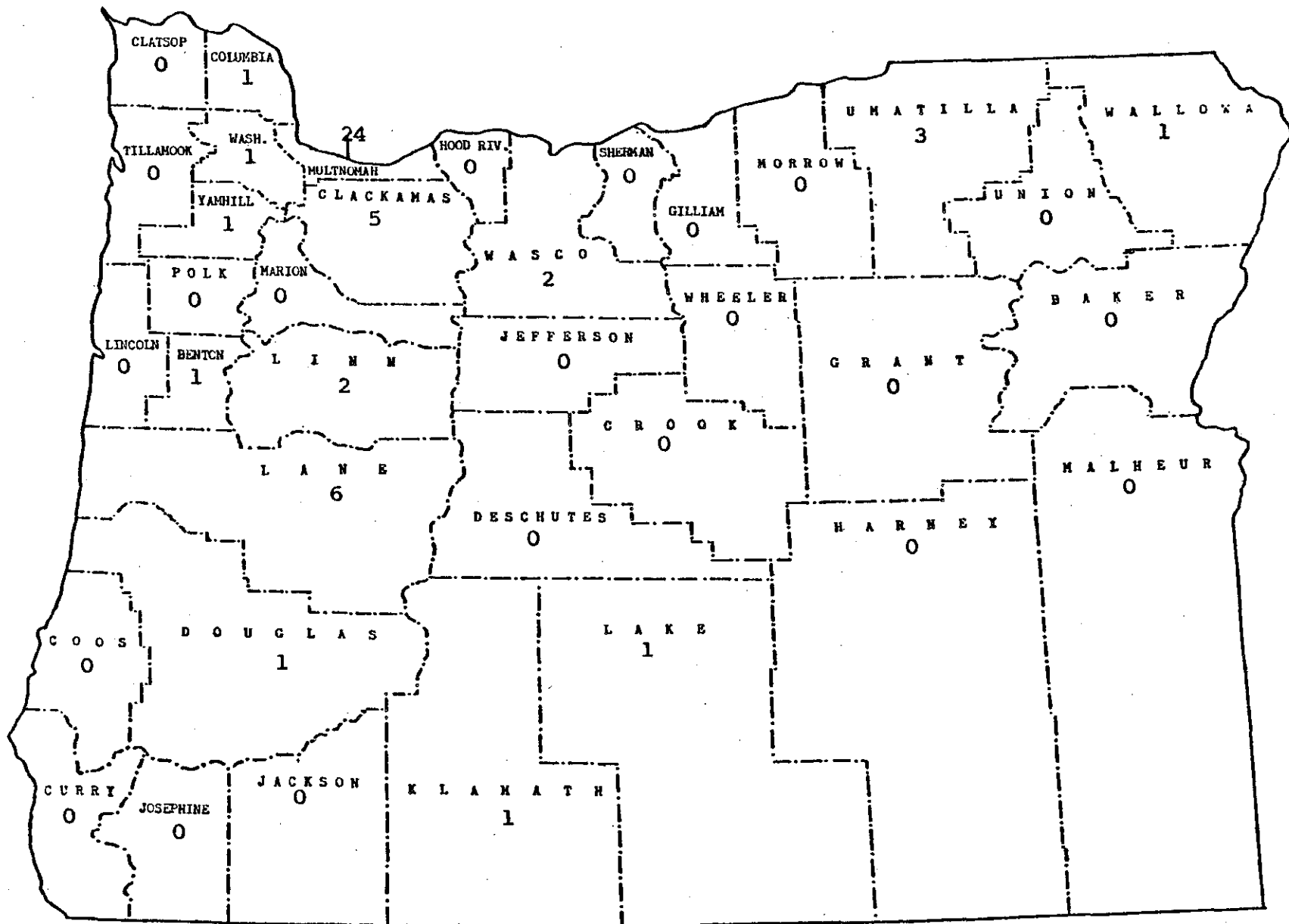
APPENDIX B  
 883 SITES WITH SUSPECTED OR CONFIRMED HAZARDOUS SUBSTANCE RELEASES



APPENDIX C  
1174 SITES CONTAMINATED BY UST RELEASES



APPENDIX D  
478 DRUG LAB CLEANUPS



APPENDIX E  
 50 SITES CURRENTLY IN REMEDIAL INVESTIGATION, FEASIBILITY STUDY OR REMEDIAL ACTION PHASE

## APPENDIX G ENVIRONMENTAL CLEANUP CASE STUDIES

The following case studies illustrate the nature and complexities of conducting investigations and cleanups of contaminated sites.

PGE Station L The Station L site is a former power generating facility on the western shore of the Willamette River in Portland. PGE operated the plant from the 1900s to 1975, and in 1986 donated 18 acres of the site to the Oregon Museum of Science and Industry (OMSI). During an investigation of the site for development, it was discovered that a transformer failure in 1971 caused PCBs to be released to the shore and riverbed of the Willamette River.

PGE removed 350 tons of contaminated soil and sediment from the shore and exposed riverbed in 1987. Although costly and time-consuming, this excavation was technically simple. Removal of contamination from submerged sediments, however, presented much greater problems. Various methods were examined for removal of PCBs without releases to the river, and most were deemed not feasible.

With DEQ technical assistance and oversight, PGE examined the possibility of using small-scale dredging techniques followed by construction of a protective "cap" within the river bed. This method was ultimately selected by DEQ for implementation.

Extensive monitoring and testing were required to ensure that no release of contaminated sediment occurred during the cleanup. Sediment dredged from the river was dried and sent to a hazardous waste landfill, while water was treated, tested and discharged back into the Willamette. Following completion of the dredging activities, verification sampling showed PCB concentrations dropped by as much as 99%.

After completion of the dredging activities, contaminated concrete surfaces were either removed or sealed, and the entire area was covered with a minimum 6-foot-thick layer of sand, gravel, and stone to isolate any residual contamination not removed by dredging. This protective cap was integrated into the shoreline stabilization planned for the new OMSI facility.

The riverbed cleanup was considered a success by all involved parties. A continuing investigation is addressing the adjacent "upland" portion of the Station L site.

McCormick & Baxter The McCormick & Baxter Company has operated a wood treatment facility in north Portland at 6900 N. Edgewater Street since 1945. Environmental problems at the site were discovered in the early 1980s. The wood treating processes have involved chemicals such as creosote, asphalt-based petroleum oils, pentachlorophenol (pcp), water-borne solutions of chrome ammoniacal copper zinc arsenate (ACZA), and penta in butane. Between 1945 and 1969, the plant's wastewater was discharged directly into the Willamette River. Between 1968 and 1971 waste residues were disposed onsite.

APPENDIX G (continued)  
ENVIRONMENTAL CLEANUP CASE STUDIES

DEQ obtained a consent agreement with McCormick & Baxter in 1987, requiring specific steps to clean up the site and prevent further releases of contamination. The company filed for bankruptcy protection under Chapter 11 in 1988, delaying implementation of many of the cleanup measures. In 1989, DEQ determined that an extensive investigation and cleanup was required to protect public health and the environment, and that work could not be delayed without significant adverse effects. DEQ decided to conduct the work with its own contractor, as McCormick & Baxter was unable to pay for the necessary work. As part of the bankruptcy settlement, DEQ will receive annual payments from McCormick & Baxter for cleanup costs. The company is also pursuing payment by its insurance carriers and is required to conduct future operations in an environmentally sound manner.

The DEQ investigation began in September 1990, and has identified extensive contamination of Willamette River sediments and areas of soil and groundwater contamination. Chemical, biological and physical testing results will allow DEQ to identify short-term and long-term cleanup options for the site. Cleanup probably will be conducted in stages, once key data has been assembled. McCormick & Baxter is an example of a site for which "Orphan Site" financing will be required for completion of cleanup activities.


STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 7, 1991

TO: Environmental Quality Commission

FROM: Fred Hansen, Director 

SUBJECT: Agenda Item K, January 31, 1991 EQC Meeting

Review of the 1990 Field Burning Report  
to the Legislature

Background

Chapter 468.470 (e) requires the Department to report annually to the Legislative Committee on Trade and Economic Development on the progress being made in discovering and utilizing alternatives to open field burning and on the effectiveness of the smoke management program.

Attached is a draft of the 1990 Annual Field Burning Report prepared by the Oregon Department of Agriculture and the Department.

The Department of Agriculture prepared the bulk of the 1990 annual report as part of its responsibility of administering the Smoke Management Program. The Department provided nephelometer and meteorological data and prepared the "Enforcement" and "Issues and Trends" sections of the report.

Significant Issues

- \* Less acreage was registered and open burned in 1990 than in any year since 1979. Acreage burned during 1990 was about 20 percent below average continuing a trend begun in 1988 as more growers included alternatives other than open burning in their operation.
- \* There has been a trend over the past few years toward increased grower use of alternatives to field burning, particularly in the areas of straw utilization and propane flaming.



A-Engrossed  
Senate Bill 1079

Ordered by the Senate May 9  
Including Senate Amendments dated May 9

Sponsored by Senators COHEN, ROBERTS, SHOEMAKER, Representatives BAUMAN, CARTER, STEIN

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.

*[Prohibits sale of laundry detergent containing phosphate. Prescribes exemptions. Defines "cleaning agent".]*

*[Prescribes effective date.]*

**Requires Department of Environmental Quality to establish task force on phosphorus and other nutrients in state waters. Prescribes membership and duties. Requires department to report findings to Sixty-sixth Legislative Assembly. Requires Legislative Assembly to determine whether to ban phosphates in detergents.**

A BILL FOR AN ACT

1  
2 Relating to phosphate.

3 **Be It Enacted by the People of the State of Oregon:**

4 **SECTION 1.** (1) The Department of Environmental Quality shall establish a task force on  
5 phosphorus and other nutrients in the waters of the state. The task force shall include represen-  
6 tatives of municipal waste water treatment agencies, nonmunicipal point source dischargers, agri-  
7 culture, forestry, manufacturers of consumer cleansing products and citizens. The task force shall  
8 assist the Department of Environmental Quality in identifying the sources of phosphorus and other  
9 nutrients contributing to the growth of algae in the waters of the state that the Department of En-  
10 vironmental Quality identifies in which algae growth is adversely affecting water quality. When  
11 appropriate, the task force shall assist the Department of Environmental Quality in identifying:

12 (a) Nutrient sources in waste ater treatment plant influent;

13 (b) The relative contribution of these nutrient sources on waste water treatment plant effluent;

14 and

15 (c) The potential impact of regulating or eliminating phosphorus from detergents and other  
16 sources on potential nutrient control strategies and water quality.

17 (2) The Department of Environmental Quality shall report to the Sixty-sixth Legislative Assem-  
18 bly regarding the findings of the task force established under subsection (1) of this section. Based  
19 on the findings of the report, the Legislative Assembly shall determine whether it is appropriate to  
20 eliminate specific sources of phosphorus, including but not limited to, imposing a ban on phosphates  
21 in detergents.

22

NOTE: Matter in bold face in an amended section is new; matter *[italic and bracketed]* is existing law to be omitted.

TASK FORCE MEMBERS LIST

Dr. Benno Warkentin, Chair  
Water Resources Research Institute, Oregon State University,  
Corvallis

Mr. Jim Buckley  
Clackamas County Public Health, Oregon City  
representing the Conference of Local Health Officials

Mr. Dave Degenhardt  
Oregon Dept. of Forestry, Salem

Mr. Tom Donaca Mr. Jim Whitty  
Associated Oregon Industries, Portland/Salem

Mr. Dell Isham  
Devil's Lake Water Improvement District, Lincoln City

Mr. Francis Kessler  
Willow Lake Treatment Plant, Salem  
representing the Association of Oregon Sewerage Agencies

Ms. Sue Knight  
representing the Oregon Environmental Council, Portland

Mr. Jim Morgan  
Metropolitan Service District, Portland

Ms. Eleanor Phinney  
River Watch, West Linn

Mr. Chris Reive, Bogle & Gates  
representing Oregonians for Food & Shelter, Portland

Dr. Richard Sedlak  
Soap & Detergent Association, New York, New York

ALTERNATES:

Paul Cosgrove, Lindsay, Hart, Neil & Weigler  
representing the Soap & Detergent Association, Portland

Mr. Jim Whitty  
Associated Oregon Industries, Portland/Salem

DRAFT

## Phosphorus and Water Quality -

## A Report to the 66th Legislative Assembly

## EXECUTIVE SUMMARY

The Phosphorus Task Force was appointed by the Director of the Department of Environmental Quality, as requested in Senate Bill 1079 (1989), to identify sources of phosphorus and other nutrients contributing to growth of algae, and to identify the potential impacts of regulating phosphorus in detergents and other sources. The Task Force used the specific knowledge of its members and available information, including knowledge of the general biology of algal growth in water, published reports from other regions on algal growth control strategies, and the limited Oregon data that was available.

Excessive growth of algae interferes with beneficial uses in several Oregon water bodies. Controlling algal growth requires controlling one or more of the factors necessary for growth. The concentration of the nutrient phosphorus is the growth factor that is most practical to control in fresh waters. Other nutrients have relatively larger natural and nonpoint sources, which makes them more difficult to control. The phosphorus concentration in surface water must be decreased to the level where it becomes the nutrient limiting the growth of algae. Concentrations of phosphorus that prevent unacceptable algal growth are estimated from general studies and field investigations conducted nationally and in Oregon, and from EPA criteria.

Sources of phosphorus to Oregon waterways include municipal wastewater treatment plants, septic system drainage, and the runoff of animal waste and fertilizers from agricultural, forestry and urban lands. The Task Force focused on the control of phosphorus in municipal wastewater. Laundry detergents contribute about one third of the phosphorus discharged from municipal wastewater treatment plants that do not remove phosphorus.

There will be economic benefits from decreased phosphorus levels entering those municipal treatment plants must remove phosphorus from their wastewater by the use of chemicals. These cost savings result from the need to purchase fewer chemicals and handle and dispose of less sludge. The savings are typically proportional to the decrease in the amount of phosphorus that must be removed.

The decrease in phosphorus resulting from a phosphorus laundry detergent ban alone, will not be sufficient to reach the low levels of phosphorus required by the total maximum daily loads (TMDL) established for three Oregon rivers to date. A phosphate detergent ban is one control strategy; others must also be used. Land application, removal through chemical or biological processes and decreased industrial discharge are other potential strategies to control point sources of phosphorus. The task force did not determine in which waterbodies a ban on phosphorus detergents would eliminate or delay the need for other phosphorus control strategies. This delay could also result in economic benefits.

Phosphate detergent bans are easily implemented and enforced at minimal cost to public agencies. The cost to consumers of an Oregon ban would be negligible. Companies currently manufacture many types of non-phosphate products and make these products available to Oregon residents. Over one-third of the population in the United States now resides in areas where phosphorus laundry detergents are banned. Some European countries also have such bans. In Oregon, METRO (the Portland area) and the City of Ashland have recently adopted bans. Current bans typically exempt those cleaning products containing phosphorus for which no substitutes are available.

The elimination of phosphorus laundry detergents is an economical way to decrease the amount of phosphorus in Oregon wastewaters. This will reduce the amount of phosphorus that needs to be treated in those rivers basins where phosphorus control is required. A reduction in phosphorus discharged to lakes and streams will help maintain algae at acceptable levels.

DRAFT SUBJECT TO REVISION

Phosphorus and Water Quality -

A Report to the 66th Legislative Assembly

SUMMARY OF FINDINGS

Nutrients, Algal Growth and Water Quality

1. Excessive algal growth produces widespread water quality problems in Oregon. All but two of Oregon's 18 river basins have some waterbody segments that do not support beneficial uses due to excessive algal growth.
2. Beneficial uses that may be impaired by excessive algal growth include: domestic drinking water supply, aesthetics, swimming, boating, salmonid fish spawning and rearing, resident fish and aquatic life, wildlife, fishing, and livestock watering.
3. The potential water quality impacts of excessive algal growth include unpleasant taste and odor, dissolved oxygen depletion, the formation of unsightly algal mats, the discoloration of the water, and high pH levels. The impacts on dissolved oxygen and pH in turn affect the health of aquatic ecosystems.
4. Algae need sunlight, nutrients and a favorable physical environment in order to grow. Phosphorus, nitrogen and carbon are the major nutrients that contribute to algal growth.
5. Studies of a large number of lakes in North America and worldwide, show that high levels of phosphorus are more often found in lakes having excessive algae and plant growth.
6. Phosphorus generally restricts algal growth in fresh waters (streams and lakes), while nitrogen generally restricts algal growth in marine waters. Algal growth in fresh waters can therefore be controlled by restricting the availability of phosphorus.
7. The U.S. Environmental Protection Agency has identified phosphorus concentrations above which excessive algal growth generally occurs. EPA has recommended phosphorus criteria for streams and lakes based on these concentrations. The Oregon Environmental Quality Commission has adopted phosphorus standards for individual waterbodies based on their specific conditions.
8. To date, the Department of Environmental Quality has established or identified a need for phosphorus TMDLs (total maximum daily loads) for 8 rivers and 2 lakes. Phosphorus TMDLs are established to eliminate excessive algal growth and resulting water quality standards violations.

9. There is limited experimental information for Oregon waterbodies relating phosphorus concentrations to the growth of algae.
10. Water quality managers do not typically attempt to limit nitrogen for controlling algal growth in fresh waters. Nitrogen deficient waterbodies can favor the growth of algal species capable of using atmospheric nitrogen, a source which can not be controlled.

#### Sources of Nutrients in Surface Water and Municipal Wastewater

11. Sources of nutrients to water quality limited waterbodies in Oregon include: a) point sources, such as municipal wastewater treatment plants, direct industrial discharges, and combined sewer overflows; b) nonpoint sources, such as the runoff of animal waste and fertilizers from agricultural, forestry and urban land, and on-site sewage disposal systems; and c) natural sources.
12. The proportions of the phosphorus load originating from point versus nonpoint sources will vary by basin, depending on the sources, land uses and physical characteristics of a particular basin.
13. In the three river basins for which phosphorus TMDLs have been established (the Tualatin River, the Yamhill River and Bear Creek), the largest phosphorus contributors are the wastewater treatment plants.
14. Residential, commercial and industrial sources contribute phosphorus to wastewater treatment plants (WWTPs). The proportion of the phosphorus load generated from each source varies according to the population size and industrial distribution in the service area. Typically, residential sources contribute more phosphorus to municipal WWTPs than commercial or industrial sources. The phosphorus from residential sources is primarily from human sewage and from detergent containing phosphate.
15. Laundry detergents typically account for one-third of the total phosphorus entering municipal wastewater treatment plants.
16. The primary source of nitrogen to WWTPs is residential wastewater. There are some industrial sources. The nitrogen in residential sources originates primarily from human waste.

#### Control of Phosphorus in Wastewater

17. The two primary methods to remove phosphorus in a wastewater treatment system are: a) chemical/physical removal, such as

treatment with alum, ferric chloride or lime, where the phosphorus is precipitated out of the waste stream, and a sludge is created and removed, and b) biological removal, where microorganisms are used to take up the phosphorus. Chemical removal is most commonly used.

18. There are over 275 wastewater treatment plants in Oregon. Only 2 plants currently remove phosphorus with chemicals (USA's Rock Creek and Durham plants). Three additional plants (Lafayette, McMinneville and Ashland) are considering various phosphorus removal systems to achieve new permit limits established in response to total maximum daily load (TMDL) regulation. As the TMDL process continues, phosphorus limits will be included in the permits of additional plants.
19. Other potential methods for treatment plants to prevent the discharge of phosphorus to streams include applying effluent to land, reusing effluent for irrigation, and using constructed wetlands for additional treatment. While these practices are not yet widely used in Oregon, they may become a preferred method where suitable land is available.
20. A reduction in the phosphorus load entering wastewater treatment plants that chemically remove phosphorus, results in cost savings. The cost savings are from reduced chemical use and sludge handling. The estimated savings from a 30 percent reduction in influent phosphorus range from approximately \$100,000 to \$200,000 per year per 10 million gallons daily plant discharge.
21. Source reduction of phosphorus would aid in improving water quality if concentrations are reduced to the levels required to prevent excessive algal growth.

#### Effects of a Phosphate Detergent Ban

22. Phosphate in detergents is a source of phosphorus identified as being easily reduced at the source through statewide regulation. Statewide regulation of industrial discharges and nonpoint sources were not analyzed in this report due to their complexity and study resource limitations.
23. Detergent phosphate bans significantly reduce effluent phosphorus loads from WWTPs that do not practice phosphorus removal. Data from eight states and one region that have imposed phosphate detergent bans show 24-51% phosphorus reductions in WWTP effluent.
24. For the 3 Oregon river basins that currently have TMDLs, eliminating detergent phosphates alone will not reduce instream phosphorus concentrations to the levels required by the TMDLs. A phosphate detergent ban should be one component of a complete strategy for the control of algal growth in these basins.

25. In areas where WWTPs remove phosphorus through chemical treatment, a detergent phosphate ban would produce an economic benefit because of lower amounts of chemicals used and less sludge generated.
26. A detergent phosphate ban is not expected to result in the elimination of detergent products or brands. All major detergent producers manufacture non-phosphate laundry detergents formulations. An estimated 37 percent of the U.S. population lives in areas where phosphate laundry detergents are not sold. Products without substitutes, such as automatic dish-washing detergents, are exempted from current bans.
27. Detergent phosphate bans do not appear to increase costs of laundry detergents to the consumer.
28. A detergent phosphate ban is a pollution prevention measure, which removes phosphorus from the source.
29. Despite the lack of experimental verification in Oregon, the best available information indicates that a statewide phosphate detergent ban could be a valuable component of an overall strategy for water quality management in Oregon lakes and rivers.



**DRAFT****MEMORANDUM**

DATE: January , 1991

TO: The 66th Oregon Legislative Assembly

FROM: Fred Hansen, Director, Department of Environmental Quality

SUBJECT: Recommendation on a Statewide Phosphate Detergent Ban

The Department of Environmental Quality recommends passage of legislation banning the sale, distribution and use of detergents containing phosphates in the State of Oregon, with some exceptions. The Department and a Task Force, appointed under the direction of the 1989 Legislature (Senate Bill 1079), have reviewed available information. Department staff conclude that the potential benefits of a detergent phosphate ban outweigh the negligible negative impacts to the State.

The Department supports a phosphate detergent ban for two primary reasons. First, a ban would be a pollution prevention measure. Phosphorus, in low amounts, is a natural element of a healthy aquatic ecosystem. An over abundance of phosphorus, however, can become a pollutant causing excessive algae and plant growth. The resulting water quality problems impair beneficial uses of the waters of the state. A detergent phosphate ban is an action the State can take to minimize the discharge of phosphorus to our waterways.

Second, a ban would raise the public's awareness of the need to reduce nutrient discharge to our waterways. Because laundry detergents are the primary target of a ban, nearly every household would be a participant in this effort to minimize the pollution of our lakes and streams.

Thank you for your consideration of this recommendation.

A detergent phosphate ban is a pollution prevention measure. It would reduce residential phosphorus loads to Oregon waters at the source. Of the 13 streams and 2 lakes on the priority list for Total Maximum Daily Load (TMDL) assignment, phosphorus TMDLs have been established or identified as a need for 8 of the streams and both lakes.

Currently in Oregon, two plants remove phosphorus through chemical treatment. In these circumstances the effect of a ban would be a cost savings to the plant resulting from reduced chemical use and sludge handling.

Between 1972 and the present, 12 states and 5 regions or cities have adopted phosphate detergent bans. Typically, the regulations prohibit the sale and distribution of detergents containing phosphates with exceptions. Compliance has not been a problem in these states. The implementation and enforcement of a ban is not expected to require significant public resources.

Requested Action

It is requested that the Commission review the Task Force report, provide guidance on the Department's draft recommendation, and approve submittal of the Task Force report to the Legislature.

Prepared by: Debra Sturdevant  
Neil Mullane

Phone: 229-5289

Date: January 14, 1991

Approved:

Section

Division

*Mary M. Halliburton for N. Mullane*  
*Lynea Taylor*

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 31, 1991

TO: Environmental Quality Commission

FROM: Fred Hansen

SUBJECT: Director's Memo

Budget Update

(Pete is putting some information and handouts together)

**Washington's Dioxin Standard**

A Thurston County, Washington judge has ruled that Washington did not follow appropriate rule making when it adopted a narrative standard for dioxin of .013 ppq. The case was brought by the pulp & paper industry against the state of Washington for imposing an improperly adopted standard in permits.

The decision prohibits the state from making permittees comply with the standard without appropriate rule making. It also invalidates Washington's 305b listing because it was based on the standard.

EPA must impose the most stringent standard of any state bordering on an interstate waterbody, which means EPA will require all permits to comply with Oregon's (correctly adopted) standard of .013ppq. It probably also means that Oregon's listing of the Columbia River as "water quality limited" will be the basis for EPA's TMDL.

It is not clear whether EPA will take over writing the permits for Washington.

**Household Hazardous Waste Grants**

The Department has chosen four sites to take part in household hazardous waste collection days. The towns of Newport, Corvallis, The Dalles, and Coos Bay were chosen from the approximately 20 Oregon communities and local and regional governments which applied for the pilot project events. The collection days will take place in May and June.

**Salt Caves Decision**

The Department received a document from the City of Klamath Falls on January 7, that outlines their response

Memo to: Environmental Quality Commission  
September 20, 1990  
Page 2

to an evaluation of the current Salt Caves project by the Department of Fish & Wildlife. The staff is finalizing its review of all of the information received. A final decision on whether to certify the project is now likely the first or second week in February.

#### **Sierra Club Suit**

The Sierra Club has filed a suit in District Court over Portland ozone. The Department met with the Sierra Club before the suit was filed and since the suit was filed. The issues revolve around the Department's VOC rules - we are waiting to hear a response from EPA on its view of the rules.

## Highlights of the 1991-93 Governor's Recommended Budget

### New Legislation

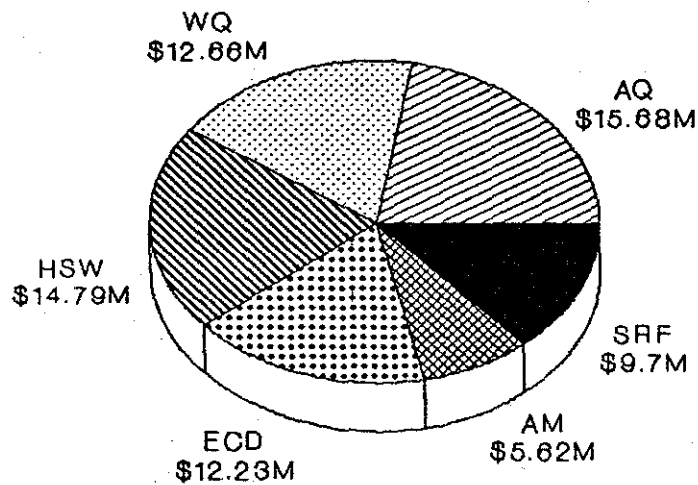
- Recycling Goals and Standards, increase of the tipping fee from \$.50 to \$1.00.
- Enhance hazardous waste management and reduction programs with an increase from \$20 to \$30 in the hazardous waste disposal fee.
- Repeal the Pollution Control Tax Credit program.
- New fee for dischargers to water quality limited streams.
- New fee for review of fill and removal permit applications.
- Lab certification program with associated fees.
- Oil spill planning with associated fees.
- Continue the \$1 waste tire fee.

### Major Policy Recommendations

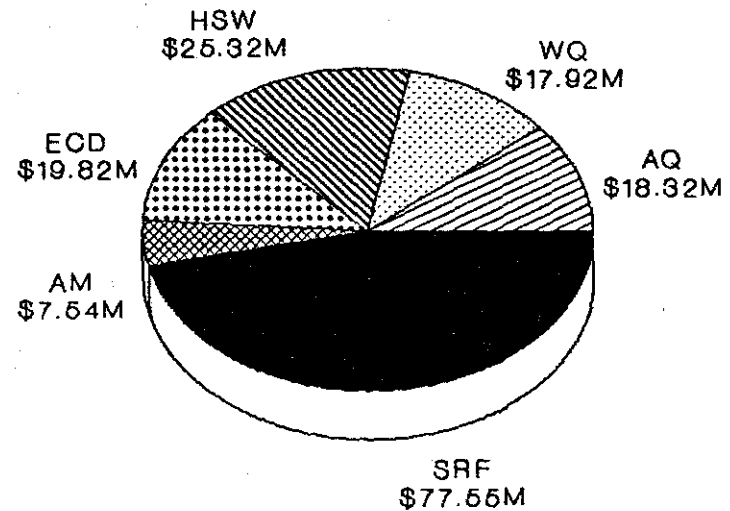
- Provide state matching funds for the federally-capitalized State Revolving Fund for sewer construction with the sale of Pollution Control Bonds.
- Provide funding for the sewer safety net program with the use of Pollution Control Bond proceeds.
- Provide \$400,000 in federal oil overcharge money to be used to assist low income households in the Klamath Falls area that heat with woodstoves (weatherize, convert heating source).
- Discontinue the Air Quality Noise program.
- Provide General Funding for the illegal drug lab cleanup program.
- Significant increases in existing air quality, water quality, and hazardous and solid waste permit fees.
- Increase in the vehicle emission inspection fee from \$7 to \$10.
- Fund one-year of the Columbia Bi-State study and pursue new federal funding.

# DEQ Operating Budget With State Revolving Loan

89-91 Legislatively  
Approved Budget



91-93 Governor's  
Recommended Budget

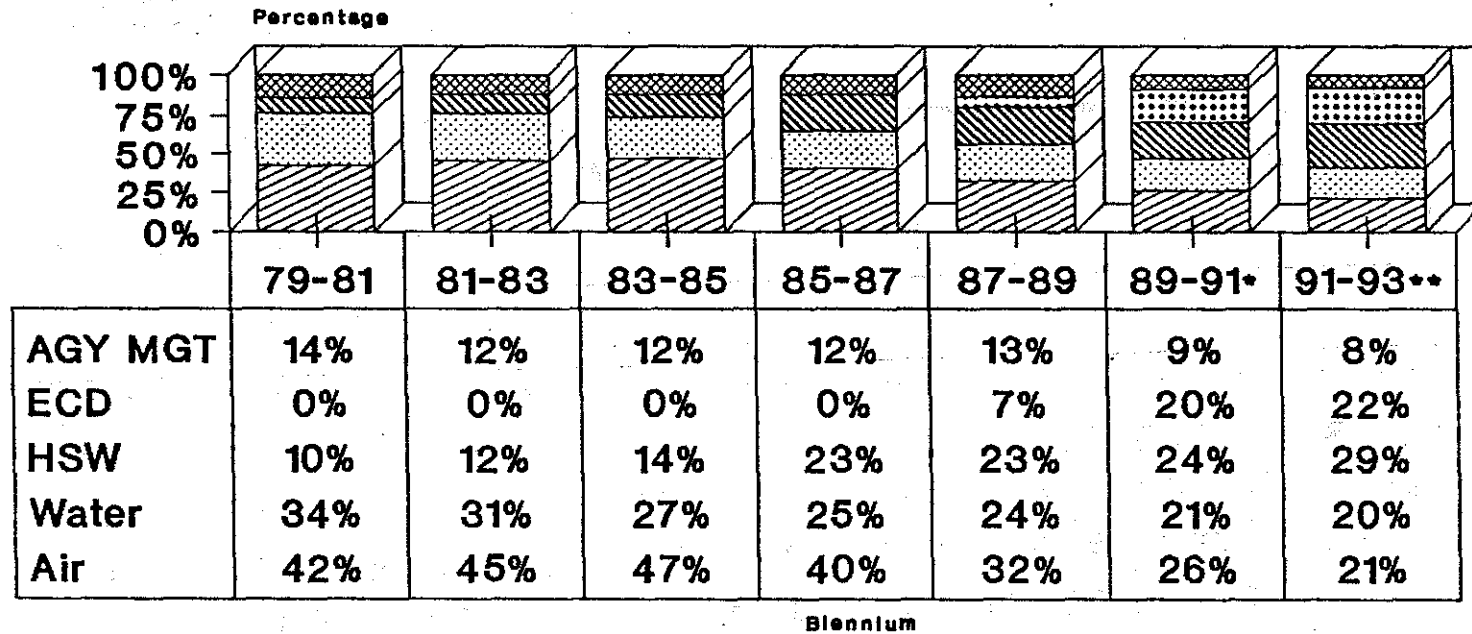


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# DEQ OPERATING BUDGET

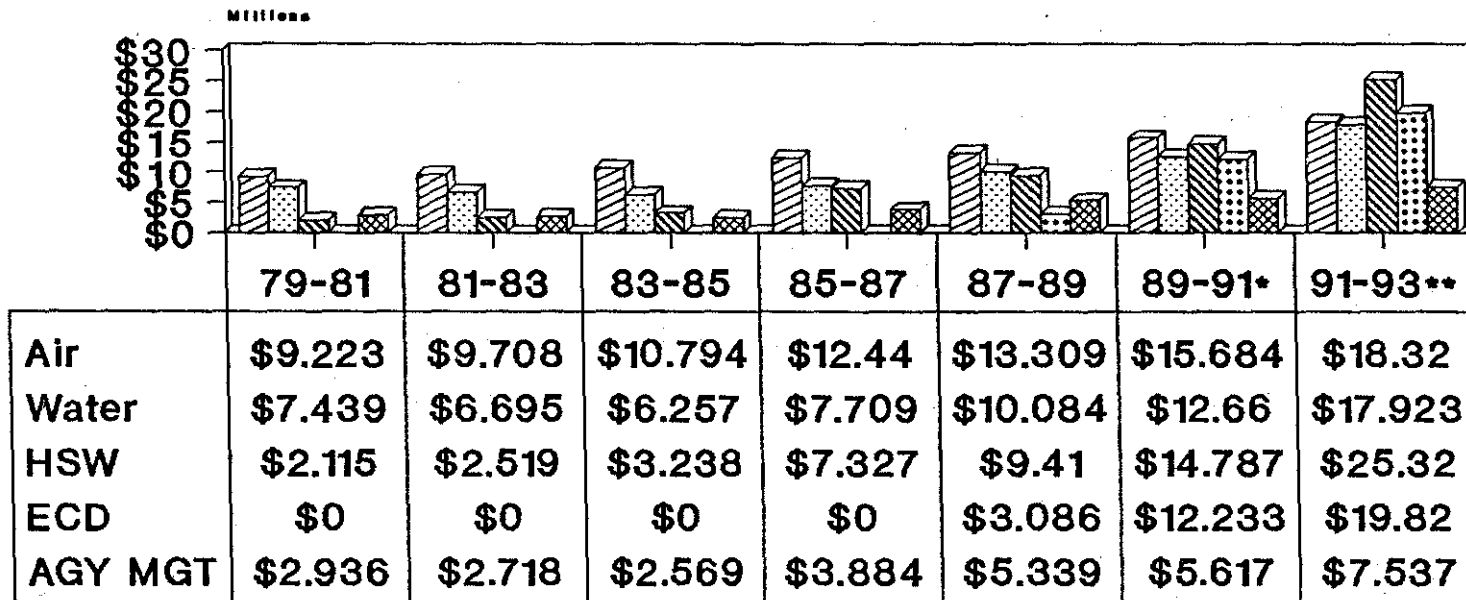
## Percentage of Budget by Program Area



\*89-91 Legislatively Approved Budget  
 \*\*91-93 Governor's Recommended Budget  
 Excl. WQ Revol. Loan & Sewer Safety Net

# DEQ OPERATING BUDGET

## Dollar Comparison by Program Area



Biennium

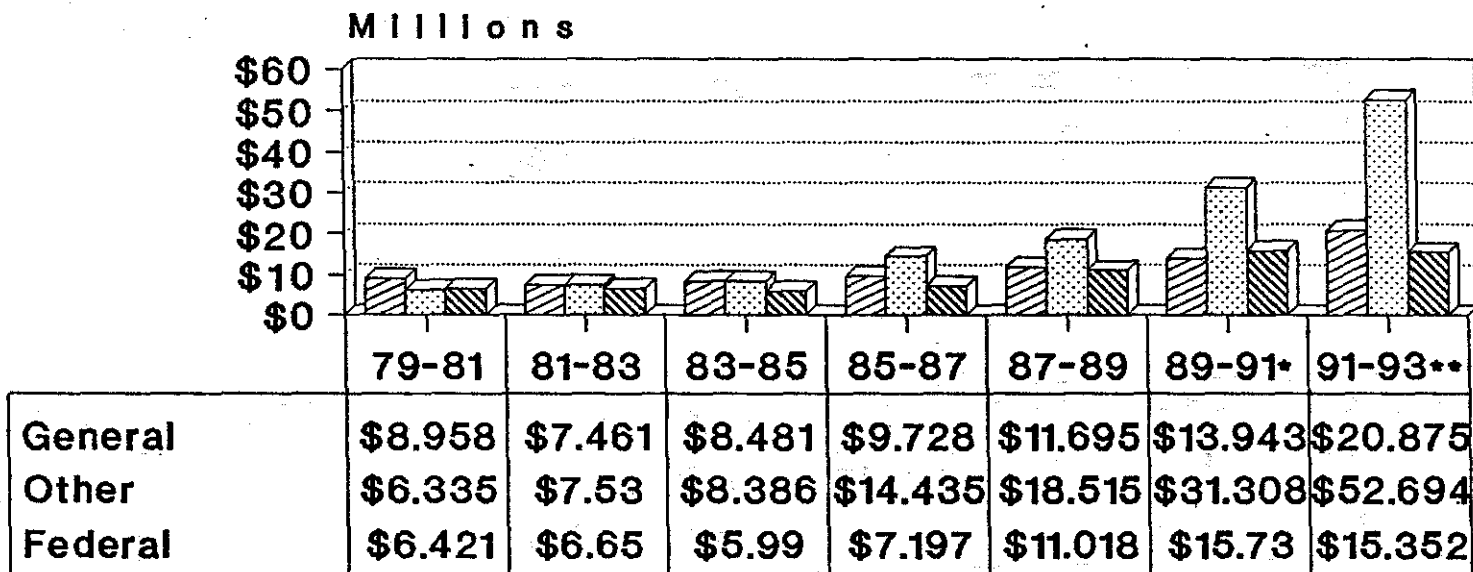


\*89-91 Legislatively Approved Budget  
 \*\*91-93 Governor's Recommended Budget  
 Excl. WQ Revol. Loan & Sewer Safety Net

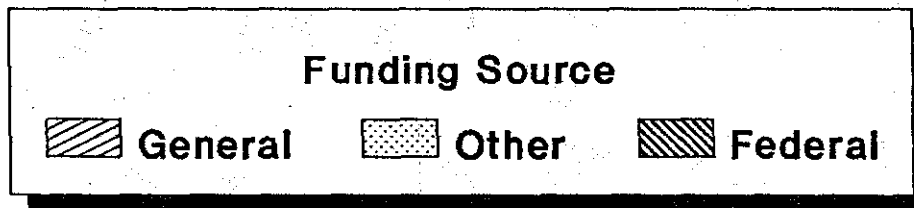


# DEQ OPERATING BUDGET

## Dollar Comparison by Fund



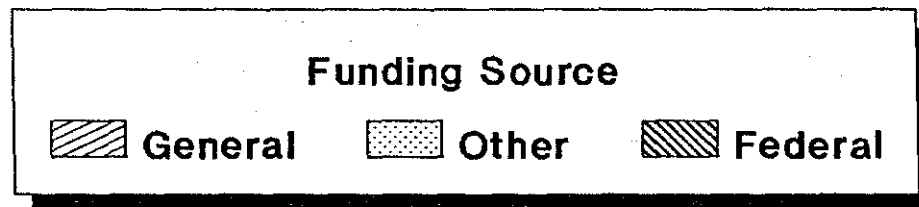
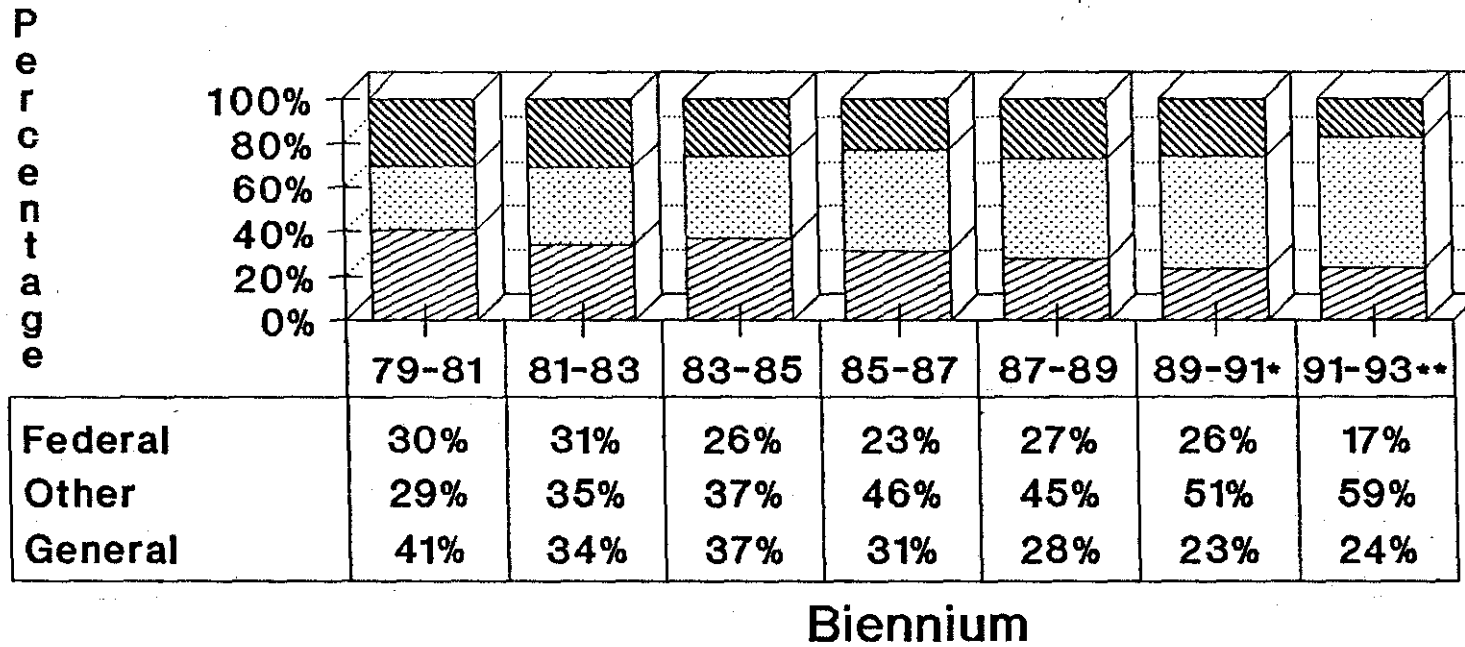
Biennium



\*89-91 Legislatively Approved Budget  
 \*\*91-93 Governor's Recommended Budget  
 Excl. WQ Revol. Loan & Sewer Safety Net

# DEQ OPERATING BUDGET

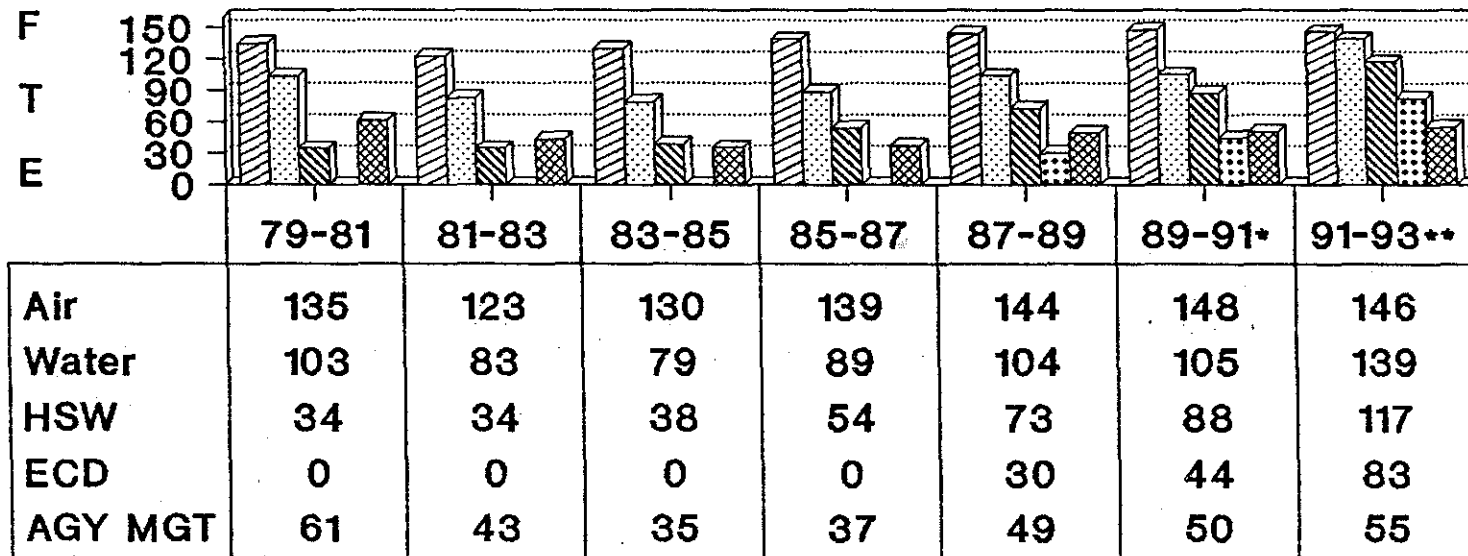
## Percentage By Fund



\*89-91 Legislatively Approved Budget  
 \*\*91-93 Governor's Recommended Budget  
 Excl. WQ Revol. Loan & Sewer Safety Net

# DEQ OPERATING BUDGET

## FTE by Program



Biennium



•89-91 LEGISLATIVELY APPROVED BUDGET

••91-93 GOVERNOR'S RECOMMENDED BUDGET

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 18, 1991

TO: Environmental Quality Commission

FROM: John H. Loewy *JHL*  
Assistant to the Director

SUBJECT: Legislative Information

I am sending to you several pieces of information which you may find of interest:

- o A packet of the final Legislative Counsel drafts which were filed as bills. A covering document indicates briefly what each bill represents as well as its House or Senate bill number as appropriate.
- o A packet of short descriptive pieces on each bill.
- o A listing of the Members of the Legislature, committee assignments, and other information which you may find informative.

Please let me know of any additional information which would be helpful.

DEPARTMENT OF ENVIRONMENTAL QUALITY  
BILLS INTRODUCED  
66TH LEGISLATIVE ASSEMBLY

**Senate Bill 183 --Recycling--** A statewide material recovery goal would be established and the Environmental Quality Commission directed to adopt an interim statewide goal and local recycling rates for solid waste. The bill would upgrade the "opportunity to recycle" act and increase the state fee on disposal of domestic solid waste from 50 cents to one dollar per ton.

**Senate Bill 184 --Enforcement--** Updates DEQ's enforcement statutes and increases the amount of certain civil penalty limits to better reflect the risk to public health and damage to the environment.

**Senate Bill 185 --Asbestos--** A survey for the presence of asbestos will be required in any "public access building" before any construction, renovation, remodeling, or demolition can take place. A licensing program for asbestos inspectors will also be established.

**Senate Bill 241 --Hazardous Waste--** The state fee for disposal of hazardous waste will be increased from \$20 to \$30 per ton. Two thirds of the revenues from the fee will be used to fund hazardous waste cleanup activities and one third for hazardous waste management programs.

**Senate Bill 242 --Spill Response--** All ships and facilities that handle bulk oil will be required to have oil spill prevention and emergency response plans. An oil spill prevention fund for DEQ implementation of the program will be established.

**Senate Bill 330 --Water Quality Fees--** Two new fees will be established. The first will be on Section 401 Water Quality Certifications including such activities as dredging in stream channels and fill and removal in jurisdictional wetlands. The second is a fee on point and nonpoint sources which discharge wastes into "water quality limited" receiving streams. The revenues from this fee will be used to conduct water quality assessments and establish the "total maximum daily loads" for these streams.

**House Bill 2175 --Comprehensive Air Emission Fee--** A market-driven program will be established to reduce air emissions. The fee requirement for industrial air pollution sources contained in the federal Clean Air Act will be extended to apply to motor vehicles, residential wood heating, forest slash burning, and agricultural field burning. A mechanism governing expenditure of these fee revenues will be established to assure their use in reducing the sources of air pollution.

**House Bill 2246 --Waste Tires--** The one dollar fee on the sale of

new tires would be extended to June 30, 1993 and minor modifications would be made to the waste tire program.

**House Bill 2276 --Laboratory Certification--** Authorizes development of a certification program for laboratories which submit data to DEQ. All data submitted to DEQ will be required to come from laboratories certified under this program. A fee will be set to implement the program.

# D R A F T

## SUMMARY

Requires fees for sewage treatment permits to cover regulatory expenses of such permits.

Imposes similar requirement for fees for certification of fill and removal projects.

Allows Department of Environmental Quality to charge annual fee to point and nonpoint sources discharging pollutants which cause receiving stream to violate water quality standards.

## A BILL FOR AN ACT

1

2 Relating to environment; creating new provisions; and amending ORS  
3 468.065.

4 **Be It Enacted by the People of the State of Oregon:**

5 **SECTION 1.** ORS 468.065 is amended to read:

6 468.065. Subject to any specific requirements imposed by ORS 448.305,  
7 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535,  
8 454.605 to 454.745 and this chapter:

9 (1) Applications for all permits authorized or required by ORS 448.305,  
10 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535,  
11 454.605 to 454.745 and this chapter shall be made in a form prescribed by the  
12 department. Any permit issued by the department shall specify its duration,  
13 and the conditions for compliance with the rules and standards, if any,  
14 adopted by the commission pursuant to ORS 448.305, 454.010 to 454.040,  
15 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and  
16 this chapter.

17 (2) By rule and after hearing, the commission may establish a schedule  
18 of fees for permits issued pursuant to ORS 468.310, 468.315, 468.555 and

1 468.740. The fees *[contained in the schedule shall be based upon the antic-*  
2 *ipated cost]* **shall be sufficient to cover all regulatory expenses related**  
3 **to the permits. These expenses may include legal expenses and the**  
4 **expenses** of filing and investigating the application, of issuing or denying  
5 the requested permit, and of an inspection program to determine compliance  
6 or noncompliance with the permit. *[The fee shall accompany the application*  
7 *for the permit.]* **The fee may be imposed at the time of application and**  
8 **on an annual basis, as necessary to insure ongoing compliance.**

9 (3) An applicant for certification of a project under ORS 468.732 or 468.734  
10 shall pay as a fee all expenses incurred by the commission and department  
11 related to the review and decision of the director and commission. These  
12 expenses may include legal expenses, expenses incurred in processing and  
13 evaluating the application, issuing or denying certification and expenses of  
14 commissioning an independent study by a contractor of any aspect of the  
15 proposed project. These expenses shall not include the costs incurred in de-  
16 fending a decision of either the director or the commission against appeals  
17 or legal challenges. Every applicant for certification shall submit to the de-  
18 partment a fee at the same time as the application for certification is filed.  
19 The fee for a new project shall be \$5,000, and the fee for an existing project  
20 needing relicensure shall be \$3,000. To the extent possible, the full cost of the  
21 investigation shall be paid from the application fee paid under this section.  
22 However, if the costs exceed the fee, the applicant shall pay any excess costs  
23 shown in an itemized statement prepared by the department. In no event  
24 shall the department incur expenses to be borne by the applicant in excess  
25 of 110 percent of the fee initially paid without prior notification to the ap-  
26 plicant. In no event shall the total fee exceed \$40,000 for a new project or  
27 \$30,000 for an existing project needing relicensure. If the costs are less than  
28 the initial fee paid, the excess shall be refunded to the applicant.

29 (4) The department may require the submission of plans, specifications  
30 and corrections and revisions thereto and such other reasonable information  
31 as it considers necessary to determine the eligibility of the applicant for the



1 permit.

2 (5) The department may require periodic reports from persons who hold  
3 permits under ORS 448.305, 454.010 to 454.040, 454.205 to 454.225, 454.405,  
4 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter. The report  
5 shall be in a form prescribed by the department and shall contain such in-  
6 formation as to the amount and nature or common description of the  
7 pollutant, contaminant or waste and such other information as the depart-  
8 ment may require.

9 (6) **An applicant for certification of a project under section 3 of this**  
10 **1991 Act shall pay as a fee all expenses incurred by the commission**  
11 **and department related to the review and decision of the director and**  
12 **commission. These expenses may include legal expenses, expenses in-**  
13 **curred in evaluating the information presented in the application, ex-**  
14 **penses of issuing or denying certification and expenses of**  
15 **commissioning an independent study by a contractor of any aspects**  
16 **of the proposed project. These expenses shall not include the cost in-**  
17 **curred in defending a decision of either the commission or the director**  
18 **against appeals or legal challenges. Every applicant for certification**  
19 **shall submit to the department a fee at the same time as the applica-**  
20 **tion for certification is filed. By rule and after hearing, the commis-**  
21 **sion shall establish a schedule for fees for certification applications**  
22 **requested under section 3 of this 1991 Act. The fees contained in the**  
23 **schedule shall be based upon the cost of filing and investigating the**  
24 **application; issuing or denying the application; conducting field work**  
25 **necessary to evaluate the potential water quality standards impact;**  
26 **determining the compliance or noncompliance with the water quality**  
27 **program including the numeric and narrative criteria established to**  
28 **protect designated beneficial uses; and allocating, if necessary, a waste**  
29 **load or load allocation for the project.**

30 (7) The department may charge an annual fee to both point and  
31 nonpoint sources discharging or causing the discharge of pollutants

1 which directly or indirectly cause a receiving stream to violate water  
2 quality standards and be identified as a water quality limited receiving  
3 stream. The fee may be charged to point or nonpoint sources from the  
4 time a receiving stream is identified as water quality limited until the  
5 source is in compliance with an approved program plan established for  
6 that source. This fee shall be a permit surcharge to National Pollutant  
7 Discharge Elimination System and Water Pollution Control Facility  
8 permit holders in the hydrologic drainage area affected by or affecting  
9 water quality in the water quality limited receiving stream. The com-  
10 mission and department may also charge a fee to nonpoint source ac-  
11 tivities which contribute to an identified water quality problem  
12 through an appropriate mechanism established through rulemaking.  
13 By rule and after hearing, the commission shall establish a schedule  
14 for fees for identified point and nonpoint sources in or affecting the  
15 water quality in a water quality limited receiving stream. The fee shall  
16 be used by the department and the commission to pay the expenses  
17 of monitoring a water quality limited receiving stream to determine  
18 the extent of the water quality problem; developing, calibrating and  
19 verifying water quality models used to describe water quality condi-  
20 tions; establishing total maximum daily loads, waste load allocations,  
21 load allocations, reserve capacity and assimilative capacity; modifying  
22 affected permits; establishing administrative rules associated with the  
23 Total Maximum Daily Load program; developing, reviewing, and ap-  
24 proving program plans developed to comply with the Total Maximum  
25 Daily Load program; monitoring source compliance with the Total  
26 Maximum Daily Load program; and other essential components of the  
27 Total Maximum Daily Load program.

28 [(6)] (8) Any fee collected under this section shall be deposited in the  
29 State Treasury to the credit of an account of the department. Such fees are  
30 continuously appropriated to meet the administrative expenses of the pro-  
31 gram for which they are collected. The fees accompanying an application to

1 a regional air pollution control authority pursuant to a permit program au-  
2 thorized by the commission shall be retained by and shall be income to the  
3 regional authority. Such fees shall be accounted for and expended in the  
4 same manner as are other funds of the regional authority. However, if the  
5 department finds after hearing that the permit program administered by the  
6 regional authority does not conform to the requirements of the permit pro-  
7 gram approved by the commission pursuant to ORS 468.555, such fees shall  
8 be deposited and expended as are permit fees submitted to the department.

9 **SECTION 2.** Section 3 of this Act is added to and made a part of ORS  
10 chapter 468.

11 **SECTION 3.** The Director of the Department of Environmental Quality  
12 shall approve or deny certification of any permit activity related to fill and  
13 removal under section 401 of the Federal Water Pollution Control Act, P.L.  
14 92-500, as amended. In making this decision as to whether to approve or deny  
15 such certification, the director shall:

16 (1) Consider the comments submitted by affected agencies relative to the  
17 adverse impacts on water quality caused by the project, according to sections  
18 301, 302, 303, 306 and 307 of the Federal Water Pollution Control Act, P.L.  
19 92-500, as amended.

20 (2) Approve or deny a certification only after an evaluation of whether  
21 the project and a determination that the approval or denial is consistent  
22 with:

23 (a) Rules adopted by the Environmental Quality Commission on water  
24 quality;

25 (b) Provisions of sections 301, 302, 303, 306 and 307 of the Federal Water  
26 Pollution Control Act, P.L. 92-500, as amended; and

27 (c) Standards of other state and local agencies that the director deter-  
28 mines are other appropriate requirements of state law according to section  
29 401 of the Federal Water Pollution Control Act, P.L. 92-500, as amended.

30

# D R A F T

## SUMMARY

Requires owner or operator of public access building to have building inspected by licensed asbestos inspector before construction, renovation, remodeling or demolition. Permits Department of Environmental Quality to issue asbestos inspector license to qualified individual. Permits Environmental Quality Commission to establish by rule training and certification requirements for asbestos inspector license. Allows Environmental Quality Commission to establish fee for asbestos inspector licenses.

## A BILL FOR AN ACT

1

2 Relating to pollution control; creating new provisions; and amending ORS  
3 468.125, 468.875, 468.891, 468.893 and 468.895 and section 22, chapter 741,  
4 Oregon Laws 1987.

5 **Be It Enacted by the People of the State of Oregon:**

6 **SECTION 1.** Sections 2 to 4 of this Act are added to and made a part  
7 of ORS 468.875 to 468.899.

8 **SECTION 2.** (1) Before beginning any construction, renovation, remodel-  
9 ing or demolition project, the owner or operator of a public access building  
10 shall have the public access building inspected by a licensed asbestos in-  
11 spector to determine whether materials to be worked on, removed or dis-  
12 turbed contain asbestos. The materials to be inspected may include but need  
13 not be limited to acoustical ceiling tile, spray-on fireproofing, floor tiles,  
14 linoleum, pipe insulation, textured ceiling or interior walls.

15 (2) Before beginning any demolition project, the owner or operator of a  
16 facility shall have the facility inspected by a licensed asbestos inspector to  
17 determine whether any of the materials to be demolished contain asbestos.

18 (3) If the owner or operator of a public access building or facility assumes  
19 that materials to be handled contain asbestos, and handles or provides for  
20 the handling of the materials in accordance with the provisions of ORS

1 468.875 to 468.899 and rules adopted under ORS 468.893, an inspection by a  
2 licensed asbestos inspector is not required.

3 (4) Before beginning any construction, renovation, remodeling or demoli-  
4 tion project in a public access building or demolition of a facility, the owner  
5 or operator shall provide to all project controlling employers either a report  
6 written by a licensed asbestos inspector documenting the inspection required  
7 by subsection (1) or (2) of this section or a written statement assuming the  
8 presence of asbestos-containing materials.

9 **SECTION 3.** No person may begin any construction, renovation, remodel-  
10 eling or demolition project in a public access building or demolition of a  
11 facility without first receiving a copy of the written report or statement re-  
12 quired in section 2 (4) of this 1991 Act.

13 **SECTION 4.** The Department of Environmental Quality may suspend or  
14 revoke an asbestos inspector license if the licensee:

15 (1) Fraudulently obtains or attempts to obtain a license; or

16 (2) Knowingly provides false information regarding the presence or ab-  
17 sence of asbestos-containing materials.

18 **SECTION 5.** ORS 468.875 is amended to read:

19 468.875. As used in ORS 468.875 to 468.899:

20 (1) "Accredited" means a provider of asbestos abatement training courses  
21 is authorized by the department to offer training courses that satisfy de-  
22 partment requirements for contractor licensing, **inspector licensing** and  
23 worker training.

24 (2) "Agent" means an individual who works on an asbestos abatement  
25 project for a contractor but is not an employee of the contractor.

26 (3) "Asbestos" means the asbestiform varieties of serpentine (chrysotile),  
27 riebeckite (crocidolite), cummingtonite-grunerite (amosite), anthophyllite,  
28 actinolite and tremolite.

29 (4) "Asbestos abatement project" means any demolition, renovation, re-  
30 pair, construction or maintenance activity of any public or private facility  
31 that involves the repair, enclosure, encapsulation, removal, salvage, handling

1 or disposal of any material with the potential of releasing asbestos fibers  
2 from asbestos-containing material into the air.

3 (5) "Asbestos-containing material" means any material containing more  
4 than one percent asbestos by weight.

5 (6) "Contractor" means a person that undertakes for compensation an  
6 asbestos abatement project for another person. As used in this subsection,  
7 "compensation" means wages, salaries, commissions and any other form of  
8 remuneration paid to a person for personal services.

9 (7) "Facility" means all or part of any public or private building, struc-  
10 ture, installation, equipment, vehicle or vessel, including but not limited to  
11 ships.

12 (8) "Friable asbestos material" means any asbestos-containing material  
13 that hand pressure can crumble, pulverize or reduce to powder when dry.

14 (9) **"Licensed asbestos inspector" means an individual who has**  
15 **successfully completed accredited training in onsite investigations to**  
16 **identify, classify, record, sample, test and prioritize by exposure po-**  
17 **tential asbestos-containing materials within or on a public access**  
18 **building or a facility.**

19 [(9)] (10) "Person" means an individual, public or private corporation,  
20 nonprofit corporation, association, firm, partnership, joint venture, business  
21 trust, joint stock company, municipal corporation, political subdivision, the  
22 state and any agency of the state or any other entity, public or private,  
23 however organized.

24 (11) **"Project controlling employer" means a person retained by an**  
25 **owner or operator and having authority to manage, direct or control**  
26 **the construction, renovation, remodeling or demolition project.**

27 (12) **"Public access building" means all or part of any public or**  
28 **private building, structure or installation constructed before January**  
29 **1, 1985, that is or may be occupied, frequented or visited by the public.**

30 **"Public access building" does not include:**

31 (a) **The following residential buildings:**

1 (A) Site-built homes;

2 (B) Modular homes built offsite;

3 (C) Condominium units;

4 (D) Mobile homes; or

5 (E) Any multiunit residential building consisting of four units or  
6 less.

7 (b) School buildings that have previously complied with the in-  
8 spection requirements of Section 206 of Title II of the Toxic Substances  
9 Control Act, 15 U.S.C. 2646.

10 [(10)] (13) "Trained worker" means a person who has successfully com-  
11 pleted specified training in and can demonstrate knowledge of the health and  
12 safety aspects of working with asbestos.

13 [(11)] (14) "Worker" means an employee or agent of a contractor or fa-  
14 cility owner or operator.

15 **SECTION 6.** ORS 468.891 is amended to read:

16 468.891. (1) The commission by rule shall provide for accreditation of:

17 (a) Courses that satisfy training requirements contractors must comply  
18 with to qualify for an asbestos abatement license under ORS 468.883;

19 (b) **Courses that an inspector must successfully complete to become**  
20 **licensed under ORS 468.893;** and

21 (c) Courses that workers must successfully complete to become certified  
22 under ORS 468.887.

23 (2) The accreditation requirements established by the commission under  
24 subsection (1) of this section shall reflect the level of training that a course  
25 provider must offer to satisfy the licensing requirements under ORS 468.883  
26 **and 468.893** and the certification requirements under ORS 468.887.

27 (3) In order to be accredited under subsection (1) of this section, a train-  
28 ing course shall include at a minimum material relating to:

29 (a) The characteristics and uses of asbestos and the associated health  
30 hazards;

31 (b) Local, state and federal standards relating to asbestos [*abatement work*

1 *practices*];

2 (c) Methods to protect personal and public health from asbestos hazards;

3 (d) Air monitoring;

4 (e) Safe and proper asbestos abatement **and sampling** techniques; and

5 (f) Proper disposal of waste containing asbestos.

6 (4) In addition to the requirements under subsection (3) of this section,  
7 the person providing a training course for which accreditation is sought  
8 shall demonstrate to the department's satisfaction the ability and proficiency  
9 to conduct the training.

10 (5) Any person providing accredited asbestos abatement training shall  
11 make available to the department for audit purposes, at no cost to the de-  
12 partment, all course materials, records and access to training sessions.

13 (6) Applications for accreditation and renewals of accreditation shall be  
14 submitted according to procedures established by rule by the commission.

15 (7) The department may suspend or revoke training course accreditation  
16 if the provider fails to meet and maintain any standard established by the  
17 commission.

18 (8) The commission by rule shall establish provisions to allow a worker,  
19 [or] contractor **or asbestos inspector** trained in another state to use train-  
20 ing in other states to satisfy Oregon licensing and certification requirements,  
21 if the commission finds that the training received in the other state would  
22 meet the requirements of this section.

23 **SECTION 7.** ORS 468.893 is amended to read:

24 468.893. The Environmental Quality Commission shall adopt rules to carry  
25 out its duties under ORS 279.025, 468.125, 468.535 and 468.875 to 468.899. In  
26 addition, the commission may:

27 (1) Allow variances from the provisions of ORS 468.875 to 468.897 in the  
28 same manner variances are granted under ORS 468.345.

29 (2) Establish training requirements for contractors applying for an  
30 asbestos abatement license.

31 (3) Establish training requirements for workers applying for a certificate



1 to work on asbestos abatement projects.

2 **(4) Establish standards and procedures for inspections and reports.**

3 **(5) Establish training, certification and qualification requirements**  
4 **for an individual applying for an asbestos inspector license.**

5 [(4)] **(6) Establish standards and procedures to accredit asbestos abate-**  
6 **ment training courses for contractors and workers and inspection training**  
7 **courses for asbestos inspectors.**

8 [(5)] **(7) Establish standards and procedures for licensing contractors and**  
9 **inspectors and certifying workers.**

10 [(6)] **(8) Issue, renew, suspend and revoke licenses, certificates and ac-**  
11 **creditations.**

12 [(7)] **(9) Determine those classes of asbestos abatement projects for which**  
13 **the person undertaking the project must notify the department before be-**  
14 **ginning the project.**

15 [(8)] **(10) Establish work practice standards, compatible with standards**  
16 **of the Accident Prevention Division of the Department of Insurance and Fi-**  
17 **nance, for the abatement of asbestos hazards and the handling and disposal**  
18 **of waste materials containing asbestos.**

19 [(9)] **(11) Provide for asbestos abatement training courses that satisfy the**  
20 **requirements for contractor licensing under ORS 468.883, asbestos inspec-**  
21 **tor licensing under subsection (5) of this section or worker certification**  
22 **under ORS 468.887.**

23 **SECTION 8.** ORS 468.895 is amended to read:

24 468.895. (1) By rule and after hearing, the Environmental Quality Com-  
25 mission shall establish a schedule of fees for:

26 (a) Licenses issued under ORS 468.883;

27 **(b) Licenses issued under ORS 468.893;**

28 [(b)] (c) Worker certification under ORS 468.887;

29 [(c)] (d) Training course accreditation under ORS 468.891; and

30 [(d)] (e) Notices of intent to perform an asbestos abatement project under  
31 ORS 468.893 [(7)] (9).

1 (2) The fees established under subsection (1) of this section shall be based  
2 upon the costs of the Department of Environmental Quality in carrying out  
3 the asbestos abatement program established under section 4, chapter 741,  
4 Oregon Laws 1987.

5 (3) In adopting the schedule of fees under this section the commission  
6 shall include provisions and procedures for granting a waiver of a fee.

7 (4) The fees collected under this section shall be paid into the State  
8 Treasury and deposited in the General Fund to the credit of the Department  
9 of Environmental Quality. Such moneys are continuously appropriated to the  
10 Department of Environmental Quality to pay the department's expenses in  
11 administering and enforcing the asbestos abatement program.

12 **SECTION 9.** ORS 468.125 is amended to read:

13 468.125. (1) No civil penalty prescribed under ORS 468.140 shall be im-  
14 posed until the person incurring the penalty has received five days' advance  
15 notice in writing from the department or the regional air quality control  
16 authority, specifying the violation and stating that a penalty will be imposed  
17 if a violation continues or occurs after the five-day period, or unless the  
18 person incurring the penalty shall otherwise have received actual notice of  
19 the violation not less than five days prior to the violation for which a pen-  
20 alty is imposed.

21 (2) No advance notice shall be required under subsection (1) of this sec-  
22 tion if:

23 (a) The violation is intentional or consists of disposing of solid waste or  
24 sewage at an unauthorized disposal site or constructing a sewage disposal  
25 system without the department's permit.

26 (b) The water pollution, air pollution or air contamination source would  
27 normally not be in existence for five days, including but not limited to open  
28 burning.

29 (c) The water pollution, air pollution or air contamination source might  
30 leave or be removed from the jurisdiction of the department or regional air  
31 quality control authority, including but not limited to ships.

1 (d) The penalty to be imposed is for a violation of ORS 466.005 to 466.385.

2 (e) The penalty to be imposed is for a violation of ORS 468.893 [(8)] (10)

3 relating to the control of asbestos fiber releases into the environment.

4 **SECTION 10.** Section 22, chapter 741, Oregon Laws 1987, is amended to  
5 read:

6 Sec. 22. Section 15, **chapter 741, Oregon Laws 1987**, [*of this Act*] is re-  
7 pealed July 1, [1991] **1993**.

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# D R A F T

## SUMMARY

Establishes statewide goal for material recovery from solid waste. Specifies requirements that local jurisdictions must satisfy related to recycling and solid waste management. Includes composting as method for managing solid waste. Directs Environmental Quality Commission to establish interim statewide material recovery goals and recycling rates for 1995 and 2000. Requires annual recycling report from local jurisdictions responsible for solid waste. Specifies \$1 per ton as minimum fee for solid waste disposal. Allows commission to take action against local jurisdiction that fails to provide opportunity to recycle.

## A BILL FOR AN ACT

1  
2 Relating to solid waste; creating new provisions; and amending ORS 459.005,  
3 459.015, 459.085, 459.165, 459.168, 459.170, 459.175, 459.180, 459.185, 459.188,  
4 459.294, 459.376, 459.395 and 459.995.

5 **Be It Enacted by the People of the State of Oregon:**

6 **SECTION 1.** Sections 2 to 4 and 11 of this Act are added to and made a  
7 part of ORS 459.165 to 459.200.

8 **SECTION 2.** It is the goal of the State of Oregon that by January 1, 2000,  
9 the amount of material recovery from the general solid waste stream shall  
10 be at least 40 percent of the total amount of solid waste generated in the  
11 state.

12 **SECTION 3.** (1) On or before July 1, 1992, each city and county respon-  
13 sible for solid waste management shall implement and comply with the fol-  
14 lowing standards:

15 (a) A solid waste collection and disposal rate structure that encourages  
16 and rewards recycling;

17 (b) A comprehensive education and promotion program conducted to in-  
18 form all citizens within the city or county of the manner and benefits of re-  
19 use, recycling and materials recovery; and

1 (c) Recycling notification and education packets provided to all new col-  
2 lection service customers in the city and county.

3 (2) In addition to the requirements of subsection (1) of this section, on  
4 or before July 1, 1992, any city responsible for solid waste management or  
5 any county responsible for solid waste management in the area located be-  
6 tween the city limits of a city with a population of 10,000 or more and the  
7 urban growth boundary of the city shall provide:

8 (a) Weekly on-route recycling collection service for recyclable materials  
9 to all single family dwellings located within the city or within the urban  
10 growth boundary of the city;

11 (b) Weekly recycling collection service for recyclable materials at or ad-  
12 jacent to multifamily residential dwellings with four or more units located  
13 within the city or within the urban growth boundary of the city;

14 (c) Recycling information and promotion to residents of multifamily resi-  
15 dential dwellings;

16 (d) Onsite recycling collection service for recyclable materials to all  
17 commercial sources that:

18 (A) Have 10 or more employees and occupy 1,000 square feet or more; and

19 (B) Are located in the city or within the urban growth boundary of the  
20 city; and

21 (e) At least quarterly, recycling information and education material in  
22 local media.

23 (3) In addition to the requirements of subsections (1) and (2) of this sec-  
24 tion, on or before July 1, 1993, any city responsible for solid waste manage-  
25 ment or any county responsible for solid waste management in the area  
26 located between the city limits of a city with a population of 10,000 or more  
27 and the urban growth boundary for the city shall:

28 (a) Provide recycling containers suitable for source separating recyclable  
29 materials to all on-route recycling collection service customers and to recy-  
30 cling collection service customers in multifamily residential dwellings of four  
31 units or more; and

1 (b) Establish and implement a local government procurement program for  
2 materials made from recyclable material.

3 (4) In addition to the standards established under subsections (1) to (3)  
4 of this section, on or before July 1, 1997, the city or county responsible for  
5 solid waste management shall implement the standards established pursuant  
6 to ORS 459.168 if the 1995 recycling rate is not reached.

7 (5) In addition to the requirements under subsections (1) to (4) of this  
8 section, any city responsible for solid waste management or any county re-  
9 sponsible for solid waste management in the area located between the city  
10 limits of a city with a population of 4,000 or more and the urban growth  
11 boundary of the city shall provide a place to collect recyclable material at  
12 a disposal site as required under ORS 459.165.

13 **SECTION 4.** (1) A city or county may request from the department a  
14 variance under ORS 459.185 from implementation of certain standards  
15 adopted under ORS 459.168 if:

16 (a) Beginning in 1992, the 1995 recycling rate measurement shows that the  
17 per capita waste generation rate is decreasing at a rate of five percent or  
18 more per year; and

19 (b) The 1995 recycling rate was not achieved.

20 (2) A variance shall not relieve the responsible city or county from  
21 meeting the recycling rate for the year 2000, as established under ORS  
22 459.168.

23 **SECTION 5.** ORS 459.005 is amended to read:

24 459.005. As used in ORS 275.275, 459.005 to 459.426, unless the context  
25 requires otherwise:

26 [(1) "Affected person" means a person or entity involved in the solid waste  
27 collection service process including but not limited to a recycling collection  
28 service, disposal site permittee or owner, city, county and metropolitan service  
29 district.]

30 [(2)] (1) "Area of the state" means any city or county or combination or  
31 portion thereof or other geographical area of the state as may be designated

1 by the commission.

2 [(3)] (2) "Board of county commissioners" or "board" includes county  
3 court.

4 [(4)] (3) "Collection franchise" means a franchise, certificate, contract or  
5 license issued by a city or county authorizing a person to provide collection  
6 service.

7 [(5)] (4) "Collection service" means a service that provides for collection  
8 of solid waste or recyclable material or both.

9 (5) **"Commercial" means stores, offices, including manufacturing  
10 and industry offices, restaurants, warehouses, colleges, universities,  
11 hospitals and other nonmanufacturing, nonprocessing activities, but  
12 does not include household, processing or other manufacturing activ-  
13 ities.**

14 (6) "Commission" means the Environmental Quality Commission.

15 (7) "Conditionally exempt small quantity generator" means a person that  
16 generates a hazardous waste but is conditionally exempt from substantive  
17 regulation because the waste is generated in quantities below the threshold  
18 for regulation adopted by the commission pursuant to ORS 466.020.

19 (8) "Department" means the Department of Environmental Quality.

20 (9) "Disposal site" means land and facilities used for the disposal, hand-  
21 ing or transfer of or resource recovery from solid wastes, including but not  
22 limited to dumps, landfills, sludge lagoons, sludge treatment facilities, dis-  
23 posal sites for septic tank pumping or cesspool cleaning service, transfer  
24 stations, resource recovery facilities, incinerators for solid waste delivered  
25 by the public or by a solid waste collection service, composting plants and  
26 land and facilities previously used for solid waste disposal at a land disposal  
27 site; but the term does not include a facility subject to the permit require-  
28 ments of ORS 468.740; a landfill site which is used by the owner or person  
29 in control of the premises to dispose of soil, rock, concrete or other similar  
30 nondecomposable material, unless the site is used by the public either di-  
31 rectly or through a solid waste collection service; or a site operated by a

1 wrecker issued a certificate under ORS 822.110.

2 (10) "General solid waste stream" means material that is discarded  
3 for disposal from general residential, commercial and industrial ac-  
4 tivities and would normally go to a general purpose disposal site.  
5 "General solid waste stream" does not include agricultural,  
6 silvicultural and industrial waste disposed of at a single purpose or  
7 demolition disposal site.

8 [(10)] (11) "Hazardous waste" has the meaning given that term in ORS  
9 466.005.

10 [(11)] (12) "Hazardous waste collection service" means a service that col-  
11 lects hazardous waste from exempt small quantity generators and from  
12 households.

13 [(12)] (13) "Household hazardous waste" means any discarded, useless or  
14 unwanted chemical, material, substance or product that is or may be haz-  
15 ardous or toxic to the public or the environment and is commonly used in  
16 or around households which may include, but is not limited to, some clean-  
17 ers, solvents, pesticides, and automotive and paint products.

18 [(13)] (14) "Land disposal site" means a disposal site in which the method  
19 of disposing of solid waste is by landfill, dump, pit, pond or lagoon.

20 [(14)] (15) "Land reclamation" means the restoration of land to a better  
21 or more useful state.

22 [(15)] (16) "Local government unit" means a city, county, metropolitan  
23 service district formed under ORS chapter 268, sanitary district or sanitary  
24 authority formed under ORS chapter 450, county service district formed un-  
25 der ORS chapter 451, regional air quality control authority formed under  
26 ORS 468.500 to 468.530 and 468.540 to 468.575 or any other local government  
27 unit responsible for solid waste management.

28 [(16)] (17) "Metropolitan service district" means a district organized un-  
29 der ORS chapter 268 and exercising solid waste authority granted to such  
30 district under this chapter and ORS chapter 268.

31 [(17)] (18) "Periodic collection event" means the collection of household



1 hazardous waste or conditionally exempt small quantity generator hazardous  
2 waste at a temporary facility.

3 [(18)] (19) "Permit" includes, but is not limited to, a conditional permit.

4 [(19)] (20) "Person" means the state or a public or private corporation,  
5 local government unit, public agency, individual, partnership, association,  
6 firm, trust, estate or any other legal entity.

7 [(20)] (21) "Recyclable material" means any material or group of materials  
8 that can be collected and sold for recycling at a net cost equal to or less  
9 than the cost of collection and disposal of the same material.

10 [(21)] (22) "Regional disposal site" means:

11 (a) A disposal site selected pursuant to chapter 679, Oregon Laws 1985;  
12 or

13 (b) A disposal site that receives, or a proposed disposal site that is de-  
14 signed to receive more than 75,000 tons of solid waste a year from commer-  
15 cial haulers from outside the immediate service area in which the disposal  
16 site is located. As used in this paragraph, "immediate service area" means  
17 the county boundary of all counties except a county that is within the  
18 boundary of the metropolitan service district. For a county within the met-  
19 ropolitan service district, "immediate service area" means the metropolitan  
20 service district boundary.

21 [(22)] (23) "Resource recovery" means the process of obtaining useful  
22 material or energy resources from solid waste and includes:

23 (a) **"Composting" which means an aerobic degradation process by**  
24 **which plant and other organic wastes decompose under controlled**  
25 **conditions and result in a product that can be returned to the land.**

26 [(a)] (b) "Energy recovery," which means recovery in which all or a part  
27 of the solid waste materials are processed to utilize the heat content, or  
28 other forms of energy, of or from the material.

29 [(b)] (c) "Material recovery," which means any process of obtaining from  
30 solid waste, by presegregation or otherwise, materials which still have useful  
31 physical or chemical properties after serving a specific purpose and can,

1 therefore, be reused or recycled for the same or other purpose or  
2 **composted.**

3 [(c)] (d) "Recycling," which means any process by which [*solid waste ma-*  
4 *terials are transformed into new products in such a manner that the original*  
5 *products may lose their identity*] **materials that would otherwise become**  
6 **solid waste, including but not limited to metals, glass, paper and yard**  
7 **debris, are collected, separated, processed and returned to the eco-**  
8 **nomiç mainstream in the form of raw materials or products.**

9 [(d)] (e) "Reuse," which means the return of a commodity into the eco-  
10 nomic stream for use in the same kind of application as before without  
11 change in its identity.

12 [(23)] (24) "Solid waste collection service" or "service" means the col-  
13 lection, transportation or disposal of or resource recovery from solid wastes  
14 but does not include that part of a business operated under a certificate is-  
15 sued under ORS 822.110.

16 [(24)] (25) "Solid waste" means all putrescible and nonputrescible wastes,  
17 including but not limited to garbage, rubbish, refuse, ashes, waste paper and  
18 cardboard; sewage sludge, septic tank and cesspool pumpings or other sludge;  
19 commercial, industrial, demolition and construction wastes; discarded or  
20 abandoned vehicles or parts thereof; discarded home and industrial appli-  
21 ances; manure, vegetable or animal solid and semisolid wastes, dead animals,  
22 infectious waste as defined in ORS 459.387 and other wastes; but the term  
23 does not include:

24 (a) Hazardous wastes as defined in ORS 466.005.

25 (b) Materials used for fertilizer or for other productive purposes or which  
26 are salvageable as such materials are used on land in agricultural operations  
27 and the growing or harvesting of crops and the raising of fowls or animals.

28 [(25)] (26) "Solid waste management" means prevention or reduction of  
29 solid waste; management of the storage, collection, transportation, treatment,  
30 utilization, processing and final disposal of solid waste; or resource recovery  
31 from solid waste; and facilities necessary or convenient to such activities.

1 [(26)] (27) "Source separate" means that the person who last uses  
2 recyclable material separates the recyclable material from solid waste.

3 [(27)] (28) "Transfer station" means a fixed or mobile facility normally  
4 used, as an adjunct of a solid waste collection and disposal system or re-  
5 source recovery system, between a collection route and a disposal site, in-  
6 cluding but not limited to a large hopper, railroad gondola or barge.

7 [(28)] (29) "Waste" means useless or discarded materials.

8 [(29) "*Wasteshed*" means an area of the state having a common solid waste  
9 disposal system or designated by the commission as an appropriate area of the  
10 state within which to develop a common recycling program.]

11 (30) "Yard debris" means vegetative matter from homes, landscape  
12 maintenance, plant nurseries and greenhouses that would otherwise  
13 be disposed of composted as municipal solid waste.

14 SECTION 6. ORS 459.015 is amended to read:

15 459.015. (1) The Legislative Assembly finds and declares that:

16 (a) The planning, development and operation of recycling programs is a  
17 matter of statewide concern.

18 (b) The opportunity to recycle should be provided to every person in  
19 Oregon.

20 (c) There is a shortage of appropriate sites for landfills in Oregon.

21 (d) It is in the best interests of the people of Oregon to extend the useful  
22 life of existing solid waste disposal sites by encouraging recycling and reuse  
23 of materials whenever recycling is economically feasible, and by requiring  
24 solid waste to undergo volume reduction through recycling and reuse meas-  
25 ures before disposal in landfills to the maximum extent feasible. Implemen-  
26 tation of recycling and reuse measures will not only increase the useful life  
27 of solid waste disposal sites, but also decrease the potential public health  
28 and safety impacts associated with landfill operation.

29 (2) In the interest of the public health, safety and welfare and in order  
30 to conserve energy and natural resources, it is the policy of the State of  
31 Oregon to establish a comprehensive statewide program for solid waste

1 management which will:

2 (a) After consideration of technical and economic feasibility, establish  
3 priority in methods of managing solid waste in Oregon as follows:

4 (A) First, to reduce the amount of solid waste generated;

5 (B) Second, to reuse material for the purpose for which it was originally  
6 intended;

7 (C) Third, to recycle material that cannot be reused;

8 **(D) Fourth, to compost material that cannot be reused or recycled;**

9 ~~[(D) Fourth]~~ **(E) Fifth**, to recover energy from solid waste that cannot  
10 be reused, ~~[or] recycled[,] or composted~~ so long as the energy recovery fa-  
11 cility preserves the quality of air, water and land resources; and

12 ~~[(E) Fifth]~~ **(F) Sixth**, to dispose of solid waste that cannot be reused, re-  
13 cycled, **composted** or from which energy cannot be recovered by landfilling  
14 or other method approved by the department.

15 (b) Clearly express the Legislative Assembly's previous delegation of au-  
16 thority to cities and counties for collection service franchising and regu-  
17 lation and the extension of that authority under the provisions of ORS  
18 459.005, 459.015, 459.035, 459.165 to 459.200, 459.250, 459.992 and 459.995.

19 (c) Retain primary responsibility for management of adequate solid waste  
20 management programs with ~~[local government units]~~ **cities and counties**,  
21 reserving to the state those functions necessary to assure effective programs,  
22 cooperation among ~~[local government units]~~ **cities, counties and metropol-**  
23 **itan service districts** and coordination of solid waste management programs  
24 throughout the state.

25 **(d) Promote, encourage and develop markets for recyclable mate-**  
26 **rial.**

27 ~~[(d)]~~ **(e)** Promote research, surveys and demonstration projects to en-  
28 courage resource recovery.

29 ~~[(e)]~~ **(f)** Promote research, surveys and demonstration projects to aid in  
30 developing more sanitary, efficient and economical methods of solid waste  
31 management.

1 [(f)] (g) Provide advisory technical assistance and planning assistance to  
 2 [*local government units and other affected persons*] **cities, counties and**  
 3 **metropolitan service districts** in the planning, development and imple-  
 4 mentation of solid waste management programs.

5 [(g)] (h) Develop, in coordination with federal, state and local agencies  
 6 [*and other affected persons*], long-range plans including regional approaches  
 7 to promote reuse, to provide land reclamation in sparsely populated areas,  
 8 and in urban areas necessary disposal facilities for resource recovery.

9 [(h)] (i) Provide for the adoption and enforcement of [*minimum*] **recycling**  
 10 **rates and standards as well as** performance standards necessary for safe,  
 11 economic and proper solid waste management.

12 [(i)] (j) Provide authority for counties to establish a coordinated program  
 13 for solid waste management, to regulate solid waste management and to li-  
 14 cense or franchise the providing of service in the field of solid waste man-  
 15 agement.

16 **(k) Provide authority to cities and counties to enforce recycling**  
 17 **standards.**

18 [(j)] (L) Encourage utilization of the capabilities and expertise of private  
 19 industry in accomplishing the purposes of ORS 459.005 to 459.105, 459.205 to  
 20 459.245 and 459.255 to 459.385.

21 [(k)] (m) Promote means of preventing or reducing at the source, materi-  
 22 als which otherwise would constitute solid waste.

23 [(L)] (n) Promote application of resource recovery systems which preserve  
 24 and enhance the quality of air, water and land resources.

25 **SECTION 7.** ORS 459.085 is amended to read:

26 459.085. (1) With respect to areas outside of cities, a board of county  
 27 commissioners may, by ordinance or by regulation or order adopted pursuant  
 28 thereto:

29 (a) Prescribe the quality and character of and rates for solid waste col-  
 30 lection service, and the minimum requirements to guarantee maintenance of  
 31 service.

1 (b) Divide the unincorporated area into service areas, grant franchises to  
2 persons for solid waste collection service within service areas, and establish  
3 and collect fees from persons holding franchises.

4 (c) Prescribe a procedure for issuance, renewal or denial of a franchise  
5 to a person providing or proposing to provide solid waste collection service.

6 (d) Establish an agency to be responsible for investigation or inspection  
7 of solid waste collection service proposed or provided under a franchise or  
8 proposed franchise, such agency to have authority to order modifications,  
9 additions or extensions to the physical equipment, facilities, plan or service  
10 as shall be reasonable and necessary in the public interest.

11 (e) Regulate solid waste management.

12 (2) With respect to areas outside of cities, a board of county commis-  
13 sioners may adopt ordinances to provide for:

14 (a) The licensing of disposal sites as an alternative to franchising of ser-  
15 vice.

16 (b) The regulation, licensing or franchising of salvage businesses or the  
17 operation of salvage sites where such action is found necessary to implement  
18 any part of a solid waste management plan applicable in the county; how-  
19 ever, such an ordinance shall grant the same authority and prescribe the  
20 same procedures as provided for other franchises or licenses under this sec-  
21 tion.

22 (3)(a) Where a city annexes all or a portion of a service area previously  
23 franchised by a county, the city, county [*and affected persons*] or local gov-  
24 ernment units providing solid waste collection service shall attempt to reach  
25 an agreement to protect the extent and quality of service in areas remaining  
26 outside the city, to protect the quality of service within the city and to  
27 protect the rights of [*affected persons or*] local government units.

28 (b) A city and county may, with permission of the city collector, provide  
29 by prior agreement that an area, or portion of an area, annexed by the city  
30 but previously franchised by the county shall continue to be served by the  
31 county franchisee or shall be transferred to the city collector with compen-

1 sation from the city collector to the county franchisee.

2 (c) A city with permission of the city collector, or a city-regulated col-  
3 lector with permission of the city, may provide by prior agreement that an  
4 area, or portion of an area, annexed by the city but previously served by a  
5 collector located in an unfranchised area of the county shall continue to be  
6 served by the county collector or shall be transferred to the city collector  
7 with compensation from the city collector to the county collector.

8 (d) Where no agreement has been reached under paragraph (a), (b) or (c)  
9 of this subsection, upon annexation of territory to a city the county-  
10 franchised collector may continue to serve the annexed area until:

11 (A) The county collector is compensated by the city collector for the  
12 collection service in the annexed area, which compensation shall be the sum  
13 of the fair market value of the service at the time of the annexation and  
14 applicable severance damages; or

15 (B) The expiration of the longer of the county franchise term or the term  
16 of the current city license, contract or franchise regulating solid waste col-  
17 lection; provided that term does not include any renewals or extensions made  
18 after the effective date of the annexation and that the total term does not  
19 exceed 10 years from the effective date of the annexation.

20 (e) Nothing in this subsection shall restrict the right of a county to  
21 franchise, license or regulate solid waste management or any portion thereof  
22 as otherwise provided in subsections (1), (2) and (4) of this section.

23 (4) If a county under the authority of ORS 670.210 to 670.240 (1969 Re-  
24 placement Part) enacted an ordinance providing for the licensing of garbage  
25 dumps prior to July 1, 1971, the ordinance or that portion of the ordinance  
26 dealing specifically with garbage dumps shall be continued in full force and  
27 effect, and licenses issued pursuant thereto shall be in full force and effect  
28 until action is taken by the board of county commissioners under this section  
29 to amend or repeal the ordinance or to suspend or revoke the license.

30 **SECTION 8.** ORS 459.165 is amended to read:

31 459.165. (1) As used in ORS 459.015, 459.165 to 459.200 and 459.250, the

1 "opportunity to recycle" means at least **that the city and county respon-**  
2 **sible for solid waste management:**

3 (a)(A) **Provides** a place for collecting source separated recyclable mate-  
4 rial located either at a disposal site or at another location more convenient  
5 to the population being served and, if a city has a population of 4,000 or  
6 more, collection at least once a month of source separated recyclable mate-  
7 rial from collection service customers within the city's urban growth  
8 boundary or, where applicable, within the urban growth boundary estab-  
9 lished by a metropolitan service district; or

10 [(b)] (B) **Provides** an alternative method which complies with rules of the  
11 commission; and [.]

12 (b) **Complies with the recycling rates and standards established in**  
13 **ORS 459.168 and section 3 of this 1991 Act.**

14 (2) The "opportunity to recycle" defined in subsection (1) of this section  
15 also includes a public education and promotion program that:

16 (a) Gives notice to each person of the opportunity to recycle; and

17 (b) Encourages source separation of recyclable material.

18 (3) **The opportunity to recycle shall be provided to residents of sin-**  
19 **gle and multifamily dwellings and to occupants of commercial**  
20 **buildings.**

21 **SECTION 9.** ORS 459.168 is amended to read:

22 459.168. The commission shall:

23 (1) Amend the state solid waste management plan to conform to the re-  
24 quirements of ORS 459.005, 459.015, 459.035, 459.165 to 459.200, 459.250, 459.992  
25 and 459.995.

26 (2) **Develop and enforce the standards established under section 3**  
27 **of this 1991 Act.**

28 (3) **Not later than July 1, 1992:**

29 (a) **Develop and establish an interim statewide goal for the year 1995**  
30 **and county or metropolitan service district material recovery goals**  
31 **and recycling rates for years 1995 and 2000; and**



1       **(b) Establish and enforce standards that a city, county or metro-**  
 2 **politan service district must comply with if the 1995 recycling rate is**  
 3 **not met.**

4       [(2)] **(4)** Review department reports on compliance with and implementa-  
 5 tion of ORS 459.005, 459.015, 459.035, 459.165 to 459.200, 459.250, 459.992 and  
 6 459.995.

7       [(3)] **(5)** Submit a report to each regular session of the Legislative As-  
 8 sembly regarding compliance with and implementation of the provisions of  
 9 ORS 459.005, 459.015, 459.035, 459.165 to 459.200, 459.250, 459.992 and 459.995.

10       **SECTION 10.** ORS 459.170 is amended to read:

11       459.170. (1) [*By January 1, 1985, and*] According to the requirements of  
 12 ORS 183.310 to 183.550, the commission shall adopt rules and guidelines  
 13 necessary to carry out the provisions of ORS 459.005, 459.015, 459.035, 459.165  
 14 to 459.200, 459.250, 459.992 and 459.995, including but not limited to:

15       (a) Acceptable alternative methods for providing the opportunity to recy-  
 16 cle;

17       (b) Education, promotion and notice requirements, which requirements  
 18 may be different for disposal sites and collection systems;

19       [(c) *Identification of the wastesheds within the state;*]

20       [(d)] **(c)** Identification of the principal recyclable material in each  
 21 [*wasteshed*] **county;**

22       [(e)] **(d)** Guidelines for local governments and other persons responsible  
 23 for implementing the provisions of ORS 459.005, 459.015, 459.035, 459.165 to  
 24 459.200, 459.250, 459.992 and 459.995;

25       [(f)] **(e)** Standards for the [*joint*] submission of the recycling report re-  
 26 quired under ORS 459.180 (1); [*and*]

27       **(f) Establishing uniform criteria and reporting standards to apply**  
 28 **to any solid waste composition study done within the state;**

29       **(g) Uniform reporting requirements in order to:**

30       **(A) Collect information for a state profile on recycling and the re-**  
 31 **duction of the amount of solid waste generated; and**

1       **(B) Determine compliance with recycling and solid waste reduction**  
 2 **requirements;**

3       **(h) Monitoring procedures and reporting requirements for the re-**  
 4 **use, recycling and materials recovery activities statewide; and**

5       [(g)] **(i)** Subject to prior approval of the appropriate legislative agency,  
 6 the amount of an annual or permit fee or both under ORS 459.235, 459.245  
 7 and 468.065 necessary to carry out the provisions of ORS 459.005, 459.015,  
 8 459.035, 459.165 to 459.200, 459.250, 459.992 and 459.995.

9       (2) In adopting rules or guidelines under this section, the commission  
 10 shall consider:

11       (a) The purposes and policy stated in ORS 459.015.

12       (b) Systems and techniques available for recycling, including but not  
 13 limited to existing recycling programs.

14       (c) Availability of markets for recyclable material.

15       (d) Costs of collecting, storing, transporting and marketing recyclable  
 16 material.

17       (e) Avoided costs of disposal.

18       (f) Density and characteristics of the population to be served.

19       (g) Composition and quantity of solid waste generated and potential  
 20 recyclable material found in *[each wasteshed]* **the waste stream.**

21       **SECTION 11.** (1) The department shall conduct a solid waste composition  
 22 study at least once per biennium for all areas of the state not covered by  
 23 other composition studies.

24       (2) The department shall conduct a comprehensive solid waste reuse, re-  
 25 cycling and materials recovery study at least once per biennium. The study  
 26 may include:

27       (a) The status of recycling markets; or

28       (b) Processing capabilities.

29       **SECTION 12.** ORS 459.175 is amended to read:

30       459.175. (1) *[After the commission identifies a wasteshed,]* The department  
 31 shall notify each **city or county of** *[affected person to the extent such affected*

1 *persons are known to the department, of the following:]*

2 *[(a) That the affected person is within the wasteshed; and]*

3 *[(b)] the recyclable material for which [affected persons within] the*  
 4 *[wasteshed] city or county must provide the opportunity to recycle [in all*  
 5 *or part of that wasteshed].*

6 (2) Any *[affected person]* **city or county** may:

7 *[(a) Appeal to the commission the inclusion of all or part of a city, county*  
 8 *or local government unit in a wasteshed;]*

9 *[(b)] (a) Request the commission to modify the recyclable material for*  
 10 *which the commission determines the opportunity to recycle must be pro-*  
 11 *vided; or*

12 *[(c)] (b) Request a variance under ORS 459.185 [(8)].*

13 **SECTION 13.** ORS 459.180 is amended to read:

14 459.180. *[(1) Upon final determination of the wasteshed and identification*  
 15 *of recyclable material and any variance, the cities and counties within the*  
 16 *wasteshed shall coordinate with all other affected persons in the wasteshed to*  
 17 *jointly develop a recycling report to submit to the department. The report to*  
 18 *the department shall explain how the affected persons within the wasteshed*  
 19 *are implementing the opportunity to recycle.]*

20 **(1) Any city with a population of 4,000 or more or all counties or**  
 21 **metropolitan service districts shall submit to the department an an-**  
 22 **ual recycling report which meets the criteria set out by rule under**  
 23 **ORS 459.170 (1)(f). The report to the department shall document how**  
 24 **the opportunity to recycle is being implemented within the various**  
 25 **jurisdictions, the quantity and type of material recycled or otherwise**  
 26 **recovered from the waste stream, any other information necessary to**  
 27 **measure achievement of recycling goals and rates, determine per**  
 28 **capita waste generation and determine recyclability of specific mate-**  
 29 **rials and any other information required by rule.**

30 (2) Unless extended by the commission upon application under ORS  
 31 459.185 after the *[affected persons show]* **city, county or metropolitan ser-**

1 **vice district shows** good cause for an extension, the [*affected persons within*  
2 *the wasteshed*] **city, county or metropolitan service district** shall imple-  
3 ment the opportunity to recycle. **The county shall** [*and*] submit the recycl-  
4 ing report **at least annually** to the department [*not later than July 1,*  
5 *1986*].

6 **SECTION 14.** ORS 459.185 is amended to read:

7 459.185. [(1) *The department shall review a recycling report submitted under*  
8 *ORS 459.180 to determine whether the opportunity to recycle is being provided*  
9 *within all of the affected portion of the wasteshed.*]

10 [(2) *The department shall notify the affected persons who participated in*  
11 *preparing the report of acceptance or disapproval of the recycling report based*  
12 *on written findings.*]

13 [(3)] (1) If the department [*disapproves a recycling report*] **determines**  
14 **that the opportunity to recycle is not being provided or that the re-**  
15 **cyclng rate has not been achieved:**

16 (a) [*An affected person may:*] **The department shall issue a notice of**  
17 **noncompliance to the responsible city or county.**

18 [(A) *Request a meeting with the department to review the department's*  
19 *findings, which meeting may include all or some of the affected persons who*  
20 *prepared the report; or*]

21 [(B) *Correct the deficiencies that the department found in the report.*]

22 (b) The department may grant a reasonable extension of time **not to ex-**  
23 **ceed 180 days** for the [*affected persons to correct deficiencies in the recycling*  
24 *report*] **city or county to implement the opportunity to recycle.**

25 [(c) *The affected persons submitting the report shall notify the department*  
26 *of any action taken to correct a cited deficiency.*]

27 [(4) *In the event of disapproval and after a reasonable extension of time to*  
28 *correct deficiencies in the opportunity to recycle, the director of the department*  
29 *shall notify the commission that the affected persons within a wasteshed have*  
30 *failed to implement the opportunity or submit a recycling report.*]

31 [(5) *Upon notification under subsection (4) of this section, the commission*

1 *shall hold a public hearing within the affected area of the wasteshed.]*

2 [(6)] (2) If, after [*the public hearing*] **a reasonable extension of time to**  
 3 **correct deficiencies**, and based on the department's findings [*on review of*  
 4 *the recycling report and the hearing record*], the [*commission*] **department**  
 5 determines that all or part of the opportunity to recycle is not being pro-  
 6 vided, the [*commission shall*] **department may** by order require the oppor-  
 7 tunity to recycle to be provided. The [*commission*] **department** order may  
 8 include, but need not be limited to:

9 (a) The materials which are recyclable;

10 (b) The manner in which recyclable material is to be collected;

11 (c) The responsibility of each person in the solid waste collection and  
 12 disposal process for providing the opportunity to recycle;

13 (d) A timetable for development or implementation of the opportunity to  
 14 recycle **including any standards that must be implemented**;

15 (e) Methods for providing the public education and promotion program;

16 (f) A requirement that as part of the recycling program a city or county  
 17 franchise to provide for collection service; and

18 (g) Minimum standards for the mandatory franchising.

19 [(7) *If a recycling program is ordered under this section, the department*  
 20 *shall work with affected persons and designate the responsibilities of each of*  
 21 *them.*]

22 [(8)] (3)(a) Upon written application by [*an affected person*] **a city,**  
 23 **county or metropolitan service district**, the commission may, to accom-  
 24 modate special conditions in the [*wasteshed*] **city or county** or a portion  
 25 thereof, grant a variance from specific requirements of the rules or guide-  
 26 lines adopted under ORS 459.170, [*or*] a recycling program ordered by the  
 27 [*commission*] **department** under subsection [(6)] (2) of this section **or, if the**  
 28 **city or county complies with the criteria established in section 4 of**  
 29 **this 1991 Act, from the standards established under ORS 459.168.**

30 (b) The commission may grant all or part of a variance under this section.

31 (c) Upon granting a variance, the commission may attach any condition

1 the commission considers necessary to carry out the provisions of ORS  
2 459.015, 459.165 to 459.200 and 459.250.

3 (d) In granting a variance, the commission must find that:

4 (A) Conditions exist that are beyond the control of the applicant;

5 (B) Special conditions exist that render compliance unreasonable or im-  
6 practical; or

7 (C) Compliance may result in a reduction in recycling.

8 [(9)] (4) [An affected person] **A city, county or metropolitan service**  
9 **district** may apply to the commission to extend the time permitted under  
10 ORS 459.005, 459.015, 459.035, 459.165 to 459.200, 459.250, 459.992 and 459.995  
11 for providing for all or a part of the opportunity to recycle or submitting a  
12 recycling report to the department. The commission may:

13 (a) Grant an extension upon a showing of good cause;

14 (b) Impose any necessary conditions on the extension; or

15 (c) Deny the application in whole or in part.

16 **SECTION 15.** ORS 459.188 is amended to read:

17 459.188. (1) Upon findings made under subsection (3) of this section, the  
18 commission may require one or more classes of solid waste generators within  
19 all or part of a [wasteshed] **city or county** to source separate identified  
20 recyclable material from other solid waste and make the material available  
21 for recycling.

22 (2) In determining which materials are recyclable for purposes of manda-  
23 tory participation, the cost of recycling from commercial or industrial  
24 sources shall include the generator's cost of source separating and making  
25 the material available for recycling or reuse.

26 (3) Before requiring solid waste generators to participate in recycling  
27 under this section, the commission must find, after a public hearing, that:

28 (a) The opportunity to recycle has been provided for a reasonable period  
29 of time and the level of participation by generators does not fulfill the pur-  
30 poses of ORS 459.015;

31 (b) The mandatory participation program is economically feasible within

1 the affected [*wasteshed or portion of the wasteshed*] **city, county or metro-**  
2 **politan service district**; and

3 (c) The mandatory participation program is the only practical alternative  
4 to carry out the purposes of ORS 459.015.

5 (4) After a mandatory participation program is established for a class of  
6 generators of solid waste, no person within the identified class of generators  
7 shall put solid waste out to be collected nor dispose of solid waste at a dis-  
8 posal site unless the person has separated the identified recyclable material  
9 according to the requirements of the mandatory participation program and  
10 made the recyclable material available for recycling.

11 **SECTION 16.** ORS 459.294 is amended to read:

12 459.294. (1) In addition to the permit fees provided in ORS 459.235, the  
13 commission shall establish a schedule of fees [*to begin July 1, 1990,*] for all  
14 disposal sites that receive domestic solid waste except transfer stations. The  
15 schedule shall be based on the estimated tonnage or the actual tonnage, if  
16 known, received at the site and any other similar or related factors the  
17 commission finds appropriate. The fees collected pursuant to the schedule  
18 shall be sufficient to assist in the funding of programs to reduce the amount  
19 of domestic solid waste generated in Oregon and to reduce environmental  
20 risks at domestic waste disposal sites.

21 (2) For solid waste generated within the boundaries of a metropolitan  
22 service district, the schedule of fees, but not the permit fees provided in ORS  
23 459.235, established by the commission in subsection (1) of this section shall  
24 be levied on the district, not the disposal site.

25 (3) The commission also may require submittal of information related to  
26 volumes and sources of waste or recycled material if necessary to carry out  
27 the activities in ORS 459.295.

28 (4)(a) A local government that franchises or licenses a domestic solid  
29 waste site shall allow the disposal site to pass through the amount of the  
30 fees established by the commission in subsection (1) of this section to the  
31 users of the site.

1 (b) If a disposal site that receives domestic solid waste passes through all  
2 or a portion of the fees established by the commission in subsection (1) of  
3 this section to a solid waste collector who uses the site, a local government  
4 that franchises or licenses the collection of solid waste shall allow the  
5 franchisee or licensee to include the amount of the fee in the solid waste  
6 collection service rate.

7 (5) The fees generated under subsection (1) of this section shall be suffi-  
8 cient to accomplish the purposes set forth in ORS 459.295 but shall be no  
9 more than [50 cents] \$1 per ton.

10 **SECTION 17.** ORS 459.376 is amended to read:

11 459.376. (1) The commission may take whatever action is appropriate for  
12 the enforcement of its regulations or orders.

13 (2) The commission may institute proceedings to enforce compliance with  
14 or restrain violations of this chapter, or any rule, standard, permit or order  
15 adopted, entered or issued pursuant to this chapter, in the same manner  
16 provided for enforcement proceedings under ORS 448.305, 454.010 to 454.040,  
17 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and  
18 ORS chapter 468.

19 **(3)(a) The city, county or metropolitan service district shall be re-**  
20 **sponsible for the implementation of the recycling programs under ORS**  
21 **459.165 to 459.200.**

22 **(b) Failure to provide the opportunity to recycle may subject the**  
23 **city, county or metropolitan service district to action by the commis-**  
24 **sion under subsection (1) of this section.**

25 **SECTION 18.** ORS 459.395 is amended to read:

26 459.395. (1) Pathological wastes shall be treated by incineration in an  
27 incinerator that provides complete combustion of waste to carbonized or  
28 mineralized ash. The ash shall be disposed of as provided in rules adopted  
29 by the Environmental Quality Commission. However, if the Department of  
30 Environmental Quality determines that incineration is not reasonably avail-  
31 able within [a wasteshed] **an area of the state**, pathological wastes may be



1 disposed of in the same manner provided for cultures and stocks.

2 (2) Cultures and stocks shall be incinerated as described in subsection (1)  
3 of this section or sterilized by other means prescribed by Health Division  
4 rule. Sterilized waste may be disposed of in a permitted land disposal site if  
5 it is not otherwise classified as hazardous waste.

6 (3) Liquid or soluble semisolid biological wastes may be discharged into  
7 a sewage treatment system that provides secondary treatment of waste.

8 (4) Sharps and biological wastes may be incinerated as described in sub-  
9 section (1) of this section or sterilized by other means prescribed by Health  
10 Division rule. Sharps may be disposed of in a permitted land disposal site  
11 only if the sharps are in containers as required in ORS 459.390 (3) and are  
12 placed in a segregated area of the landfill.

13 (5) Other methods of treatment and disposal may be approved by rule of  
14 the Environmental Quality Commission.

15 **SECTION 19.** ORS 459.995 is amended to read:

16 459.995. (1) In addition to any other penalty provided by law:

17 (a) Any person who violates ORS 459.205, 459.270 or the provisions of ORS  
18 459.180, 459.188, 459.190, 459.195, 459.710 or 459.715 or the provisions of ORS  
19 459.386 to 459.400 or any rule or order of the Environmental Quality Com-  
20 mission pertaining to the disposal, collection, storage or reuse or recycling  
21 of solid wastes, as defined by ORS 459.005, shall incur a civil penalty not to  
22 exceed \$500 a day for each day of the violation.

23 (b) Any person who violates the provisions of ORS 459.420 to 459.426 shall  
24 incur a civil penalty not to exceed \$500 for each violation. Each battery that  
25 is disposed of improperly shall be a separate violation. Each day an estab-  
26 lishment fails to post the notice required under ORS 459.426 shall be a sep-  
27 arate violation.

28 (c) **Any city, county or metropolitan service district that fails to**  
29 **provide the opportunity to recycle as required under ORS 459.165 to**  
30 **459.200 may be subject to a civil penalty.**

31 (2) The civil penalty authorized by subsection (1) of this section shall be

1 established, imposed, collected and appealed in the same manner as civil  
2 penalties are established, imposed and collected under ORS 448.305, 454.010  
3 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to  
4 454.745 and ORS chapter 468.

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# DRAFT

## SUMMARY

Increases fee for disposal of hazardous waste. Distributes two-thirds of fees collected to hazardous waste cleanup activities and one-third to Department of Environmental Quality for hazardous waste reduction and management activities. Appropriates money.

### A BILL FOR AN ACT

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Relating to hazardous waste; amending ORS 465.375 and 465.380; and appropriating money.

**Be It Enacted by the People of the State of Oregon:**

**SECTION 1.** ORS 465.375 is amended to read:

465.375. (1) Every person who operates a facility for the purpose of disposing of hazardous waste or PCB that is subject to interim status or a permit issued under ORS 466.005 to 466.385 and 466.890 shall pay a monthly hazardous waste management fee by the 45th day after the last day of each month in the amount of [~~\$20~~] **\$30** per ton of all waste brought into the facility for treatment by incinerator or for disposal by landfill at the facility.

**(2) Two-thirds of the fee collected under subsection (1) of this section shall be deposited into the Hazardous Substance Remedial Action Fund under ORS 465.380.**

**(3) One-third of the fee collected under subsection (1) of this section shall be deposited in the State Treasury to the credit of an account of the department. Such fees and interest earned on the fees shall be continuously appropriated to the department to carry out the department's duties under ORS 465.003 to 465.037 related to reduction in the use of toxic substances and reduction of hazardous waste generated and ORS 466.005 to 466.385 related to management of hazardous waste.**

**SECTION 2.** ORS 465.380 is amended to read:

1 465.380. (1) The Hazardous Substance Remedial Action Fund is established  
2 separate and distinct from the General Fund in the State Treasury. Interest  
3 earned by the fund shall be credited to the fund.

4 (2) The following shall be deposited into the State Treasury and credited  
5 to the Hazardous Substance Remedial Action Fund:

6 (a) **Two-thirds of the** fees received by the department under ORS 465.375.

7 (b) Moneys recovered or otherwise received from responsible parties for  
8 remedial action costs. Moneys recovered from responsible parties for costs  
9 paid by the department from the Orphan Site Account established under  
10 subsection (6) of this section shall be credited to the Orphan Site Account.

11 (c) Moneys received under the schedule of fees established under ORS  
12 453.402 (2)(c), under ORS 459.236 and under ORS 465.101 to 465.131 for the  
13 purpose of providing funds for the Orphan Site Account which shall be  
14 credited to the Orphan Site Account established under subsection (6) of this  
15 section.

16 (d) Any penalty, fine or punitive damages recovered under ORS 465.255,  
17 465.260, 465.335 or 465.900.

18 (e) Fees received by the department under ORS 465.305.

19 (f) Moneys and interest, that are paid, recovered or otherwise received  
20 under financial assistance agreements.

21 (g) Moneys appropriated to the fund by the Legislative Assembly.

22 (h) Moneys from any grant made to the fund by a federal agency.

23 (3) The State Treasurer may invest and reinvest moneys in the Hazardous  
24 Substance Remedial Action Fund in the manner provided by law.

25 (4) The moneys in the Hazardous Substance Remedial Action Fund are  
26 appropriated continuously to the department to be used as provided in sub-  
27 section (5) of this section.

28 (5) Moneys in the Hazardous Substance Remedial Action Fund may be  
29 used for the following purposes:

30 (a) Payment of the department's remedial action costs;

31 (b) Funding any action or activity authorized by ORS 465.200 to 465.420

1 and 465.900, including but not limited to providing financial assistance pur-  
2 suant to an agreement entered into under ORS 465.285; and

3 (c) Providing the state cost share for a removal or remedial action, as  
4 required by section 104(c)(3) of the federal Comprehensive Environmental  
5 Response, Compensation and Liability Act, P.L. 96-510 and as amended by  
6 P.L. 99-499.

7 (6)(a) The Orphan Site Account is established in the Hazardous Substance  
8 Remedial Action Fund in the State Treasury. All moneys credited to the  
9 Orphan Site Account are continuously appropriated to the department for:

10 (A) Expenses of the department related to facilities or activities associ-  
11 ated with the removal or remedial action where the department determines  
12 the responsible party is unknown, unwilling or unable to undertake all re-  
13 quired removal or remedial action; and

14 (B) Grants and loans to local government units for facilities or activities  
15 associated with the removal or remedial action of a hazardous substance.

16 (b) The Orphan Site Account may not be used to pay the state's remedial  
17 action costs at facilities owned by the state.

18 (c) The Orphan Site Account may be used to pay claims for reimburse-  
19 ment filed and approved under ORS 465.260 (7).

20 (d) If bonds have been issued under ORS 468.195 to provide funds for re-  
21 moval or remedial action, the department shall first transfer from the Or-  
22 phan Site Account to the Pollution Control Sinking Fund, solely from the  
23 fees collected pursuant to ORS 453.402 (2)(c), under ORS 459.236 and from  
24 ORS 465.101 to 465.131 for such purposes, any amount necessary to provide  
25 for the payment of the principal and interest upon such bonds. Moneys from  
26 repayment of financial assistance or recovered from a responsible party shall  
27 not be used to provide for the payment of the principal and interest upon  
28 such bonds.

29 (7)(a) Of the funds in the Orphan Site Account derived from the fees col-  
30 lected pursuant to ORS 453.402 (2)(c), under ORS 459.236 and 465.101 to  
31 465.131 for the purpose of providing funds for the Orphan Site Account, and

1 the proceeds of any bond sale under ORS 468.195 supported by the fees col-  
2 lected pursuant to ORS 453.402 (2)(c), under ORS 459.236 and 465.101 to  
3 465.131 for the purpose of providing funds for the Orphan Site Account, no  
4 more than 25 percent may be obligated in any biennium by the department  
5 to pay for removal or remedial action at facilities determined by the de-  
6 partment to have an unwilling responsible party, unless the department first  
7 receives approval from the Legislative Assembly or the Emergency Board.

8 (b) Before the department obligates money from the Orphan Site Account  
9 derived from the fees collected pursuant to ORS 453.402 (2)(c), under ORS  
10 459.236 and 465.101 to 465.131 for the purpose of providing funds for the Or-  
11phan Site Account, and the proceeds from any bond sale under ORS 468.195  
12 supported by fees collected pursuant to ORS 453.402 (2)(c), under ORS 459.236  
13 and 465.101 to 465.131 for the purpose of providing funds for the Orphan Site  
14 Account, for removal or remedial action at a facility determined by the de-  
15 partment to have an unwilling responsible party, the department must first  
16 determine whether there is a need for immediate removal or remedial action  
17 at the facility to protect public health, safety, welfare or the environment.  
18 The department shall determine the need for immediate removal or remedial  
19 action in accordance with rules adopted by the Environmental Quality  
20 Commission.

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# D R A F T

## SUMMARY

Requires person collecting or transporting waste tires to have permit. Specifies how waste tire generator may dispose of waste tires. Extends fee on retail sale of replacement tires to June 30, 1993. Allows Department of Environmental Quality to conduct hearing after abatement of danger or nuisance caused by waste tires to determine financial responsibility of party involved.

Declares emergency, effective on passage.

## A BILL FOR AN ACT

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Relating to solid waste; creating new provisions; amending ORS 459.509, 459.549, 459.705, 459.715, 459.780, 459.790 and 459.995; and declaring an emergency.

**Be It Enacted by the People of the State of Oregon:**

**SECTION 1.** Sections 2 and 3 of this Act are added to and made a part of ORS 459.705 to 459.790.

**SECTION 2.** (1) No person shall collect or transport waste tires for the purpose of storage, processing or disposal unless the person has a waste tire carrier permit issued by the department under ORS 459.705 to 459.790.

(2) As a condition to holding a permit issued under subsection (1) of this section, each waste tire carrier shall:

(a) Comply with the provisions of ORS 459.705 to 459.790.

(b) Report periodically to the department on numbers of waste tires transported and the manner of disposition.

(c) Maintain financial assurance in the amount of \$5,000 in the name of the State of Oregon.

(d) Maintain other plans and exhibits pertaining to the tire carrier operation as determined by the department to be reasonably necessary to protect the public health, welfare or safety or the environment.

1 (3) Subsection (1) of this section shall not apply to:

2 (a) A solid waste collector operating under a license or franchise from a  
3 local government unit;

4 (b) A private individual transporting the individual's own waste tires to  
5 a processor or for proper disposal;

6 (c) A private carrier transporting the carrier's own waste tires to a  
7 processor or for proper disposal; or

8 (d) The United States, the State of Oregon, any county, city, town or  
9 municipality in this state or any agency of the United States, the State of  
10 Oregon or a county, city, town or municipality of this state.

11 **SECTION 3.** (1) After the effective date of this 1991 Act, any person who  
12 generates waste tires shall either:

13 (a) Have the waste tires transported by a waste tire carrier operating  
14 under a permit issued by the department under ORS 459.705 to 459.790; or

15 (b) Transport the waste tires generated by the person to a waste tire  
16 storage site operating under a permit issued by the department, to a solid  
17 waste disposal site permitted by the department to accept waste tires or to  
18 another site authorized by the department.

19 (2) After the effective date of this 1991 Act, any person who generates  
20 waste tires shall maintain a written record of the disposition of the waste  
21 tires including:

22 (a) Receipts indicating the disposition of the waste tires;

23 (b) The name and permit number of the waste tire carrier to whom waste  
24 tires were given for disposal;

25 (c) The name and location of the disposal site where waste tires were  
26 taken, including the date and number of waste tires; and

27 (d) Any other information the department may require.

28 **SECTION 4.** ORS 459.509 is amended to read:

29 459.509. (1) Beginning January 1, 1988, and ending June 30, [1991] 1993, a  
30 fee is hereby imposed upon the retail sale of all new replacement tires in this  
31 state of \$1 per tire sold. The fee shall be imposed on retail dealers at the



1 time the retail dealer sells a new replacement tire to the ultimate consumer.

2 (2) The amount remitted to the Department of Revenue by the retail  
3 dealer for each quarter shall be equal to 85 percent of the total fees due and  
4 payable by the retail dealer for the quarter.

5 **SECTION 5.** ORS 459.549 is amended to read:

6 459.549. (1) Every retail dealer shall keep at each registered place of  
7 business complete and accurate records for that place of business, including  
8 itemized invoices, of new tire products held, purchased, manufactured,  
9 brought in or caused to be brought in from without the state or shipped or  
10 transported to retail dealers in this state, and of all new tire sales made to  
11 the ultimate consumer.

12 (2) The records required by subsection (1) of this section shall show the  
13 names and addresses of purchasers, the inventory of all new tires on hand  
14 on January 1, 1988, and other pertinent papers and documents relating to the  
15 sale of new tires.

16 (3) When a certified retail dealer sells new tires exclusively to the ulti-  
17 mate consumer at the address given in the certificate, itemized invoices shall  
18 be made of all new tires sold by that certified retail dealer.

19 (4)(a) All books, records and other papers and documents required by this  
20 section to be kept shall be preserved for a period of at least three years after  
21 the initial date of the books, records and other papers or documents, or the  
22 date of entries appearing therein, unless the Department of Revenue, in  
23 writing, authorizes their destruction or disposal at an earlier date.

24 (b) The department or its authorized representative, upon oral or written  
25 reasonable notice, may make such examinations of the books, papers, records  
26 and equipment required to be kept under this section as it may deem neces-  
27 sary in carrying out the provisions of ORS 459.504 to 459.619.

28 **(c) Upon the request of the Department of Environmental Quality,**  
29 **the Department of Revenue shall provide the Department of Environ-**  
30 **mental Quality with records, papers or other documents an individual**  
31 **retail dealer is required to keep under this section.**

1 [(c)] (d) If the department, or any of its agents or employees, are denied  
 2 free access or are hindered or interfered with in making such examination,  
 3 the certificate of the retail dealer at such premises shall be subject to revo-  
 4 cation by the department.

5 **SECTION 6.** ORS 459.705 is amended to read:

6 459.705. As used in ORS 459.705 to 459.790:

7 (1) "Commission" means the Environmental Quality Commission.

8 (2) "Consumer" means a person who purchases a new tire to satisfy a di-  
 9 rect need, rather than for resale.

10 (3) **"Danger" or "nuisance" includes but is not limited to the un-**  
 11 **permitted storage of waste tires or the storage of waste tires in a**  
 12 **manner that does not comply with a condition of a permittee's waste**  
 13 **tire storage permit.**

14 [(3)] (4) "Department" means the Department of Environmental Quality.

15 [(4)] (5) "Director" means the Director of the Department of Environ-  
 16 mental Quality.

17 [(5)] (6) "Dispose" means to deposit, dump, spill or place any waste tire  
 18 on any land or into any waters of the state as defined by ORS 468.700.

19 [(6)] (7) "Person" means the United States, the state or a public or private  
 20 corporation, local government unit, public agency, individual, partnership,  
 21 association, firm, trust, estate or any other legal entity.

22 (8) **"Private carrier" means a person who receives waste tires and**  
 23 **who operates a motor vehicle over the public highways of this state**  
 24 **for the purpose of transporting persons or property when the trans-**  
 25 **portation is incidental to a primary business enterprise, other than**  
 26 **transportation, in which the person is engaged. "Private carrier" does**  
 27 **not include a person whose primary tire business is collecting, sorting**  
 28 **or transporting used or waste tires.**

29 (9) **"Retreadable casing" means a waste tire suitable for retreading.**

30 [(7)] (10) "Store" or "storage" means [*the placing*] **possession** of waste  
 31 tires in a manner that does not constitute disposal of the waste tires.

1 "Storage" includes the beneficial use of waste tires as fences and other  
2 uses with similar potential for causing environmental risks.  
3 "Storage" does not include a beneficial use such as a planter except  
4 when the department determines the use creates an environmental  
5 risk.

6 [(8)] (11) "Tire" means a continuous solid or pneumatic rubber covering  
7 encircling the wheel of a vehicle in which a person or property is or may  
8 be transported in or drawn by upon a highway.

9 [(9)] (12) "Tire carrier" means any person engaged in picking up or  
10 transporting waste tires for the purpose of storage, **removal to a processor**  
11 or disposal. *[This] "Tire carrier" does not include a solid waste [collectors]*  
12 **collector** operating under a license or franchise from any local government  
13 unit, **a private individual or private carrier who transports the person's**  
14 **own waste tires to a processor or for proper disposal, or the United**  
15 **States, the State of Oregon, any county, city, town or municipality in**  
16 **this state, or any agency of the United States, the State of Oregon or**  
17 **a county, city, town or municipality of this state** *[and who transport*  
18 *fewer than 10 tires at any one time or persons transporting fewer than five*  
19 *tires with their own solid waste for disposal].*

20 [(10)] (13) "Tire retailer" means any person engaged in the business of  
21 selling new replacement tires.

22 [(11)] (14) "Waste tire" means a tire that is no longer suitable for its or-  
23 iginal intended purpose because of wear, damage or defect.

24 (15) "Wrecking business" means a business operating according to  
25 a certificate issued under ORS 822.110.

26 SECTION 7. ORS 459.715 is amended to read:

27 459.715. (1) *[After July 1, 1988,]* No person shall store more than 100 waste  
28 tires anywhere in this state except at a waste tire storage site operated un-  
29 der a permit issued under ORS 459.715 to 459.760.

30 (2) Subsection (1) of this section shall not apply to:

31 (a) A solid waste disposal site permitted by the department if the permit

1 has been modified by the department to authorize the storage of tires;

2 (b) A tire retailer with not more than 1,500 waste tires in storage; [or]

3 (c) A tire retreader with not more than 3,000 waste tires [*stored outside*]  
4 **in storage so long as the waste tires are of the type the retreader is**  
5 **actively retreading; or**

6 (d) A wrecking business with not more than 1,500 waste tires in  
7 **storage.**

8 **SECTION 8.** ORS 459.780 is amended to read:

9 459.780. (1) The department, as a condition of a waste tire storage site  
10 permit issued under ORS 459.715 to 459.760, may require the permittee to  
11 remove or process the waste tires according to a plan approved by the de-  
12 partment.

13 (2) The department may use moneys from the Waste Tire Recycling Ac-  
14 count to assist a permittee in removing or processing the waste tires. Moneys  
15 may be used only after the commission finds that:

16 (a) Special circumstances make such assistance appropriate; or

17 (b) Strict compliance with the provisions of ORS 459.705 to 459.790 would  
18 result in substantial curtailment or closing of the permittee's business or  
19 operation or the bankruptcy of the permittee.

20 (3) The department may [*use*] **proceed under** subsections (4) to (7) of this  
21 section if:

22 (a) A person fails to apply for or obtain a waste tire storage site permit  
23 under ORS 459.715 to 459.760; or

24 (b) A permittee fails to meet the conditions of such permit.

25 (4) The department may abate any danger or nuisance created by waste  
26 tires by removing or processing the tires. Before taking any action to abate  
27 the danger or nuisance, the department shall give any persons having the  
28 care, custody or control of the waste tires, or owning the property upon  
29 which the tires are located, notice of the department's intentions and order  
30 the person to abate the danger or nuisance in a manner approved by the  
31 department. [*Any order issued by the department under this subsection shall*

1 *be subject to appeal to the commission and judicial review of a final order*  
2 *under the applicable provisions of ORS 183.310 to 183.550.] After the abate-*  
3 **ment, the department, upon request, may conduct a hearing according**  
4 **to the provisions of ORS 183.310 to 183.550 applicable to contested case**  
5 **hearings to determine the financial responsibility of any party in-**  
6 **olved. If a hearing is not requested, the department may proceed to**  
7 **recover the costs incurred in abating the waste tires.**

8 (5) If a person fails to take action as required under subsection (4) of this  
9 section within the time specified the director may abate the danger or nui-  
10 sance. The order issued under subsection (4) of this section may include en-  
11 tering the property where the danger or nuisance is located, taking the tires  
12 into public custody and providing for their processing or removal.

13 (6) The department may [*request the Attorney General to*] bring an action  
14 [*to*] **or proceeding against the property owner or the person having**  
15 **care, custody or control of the waste tires to enforce the abatement**  
16 **order issued under subsection (4) of this section and recover any rea-**  
17 **sonable and necessary expenses incurred by the department for abatement**  
18 **costs, including administrative and legal expenses. The department's certif-**  
19 **ication of expenses shall be prima facie evidence that the expenses are rea-**  
20 **sonable and necessary.**

21 (7) **In lieu of entering an order and conducting a contested case**  
22 **hearing, the department may enter into a stipulation, agreed settle-**  
23 **ment or consent order with the applicable parties, allowing the de-**  
24 **partment to enter and remove the waste tires on the property. The**  
25 **stipulation, agreed settlement or consent order may provide that the**  
26 **parties shall pay to the department a specified sum of money repre-**  
27 **senting the department's share of costs incurred in removing the**  
28 **waste tires from the property.**

29 [(7)] (8) Nothing in ORS 459.705 to 459.790 shall affect the right of any  
30 person or local government unit to abate a danger or nuisance or to recover  
31 for damages to real property or personal injury related to the transportation,

1 storage or disposal of waste tires. The department may reimburse a person  
2 or local government unit for the cost of abatement.

3 **(9) No state or local government shall be liable for costs or damages**  
4 **as a result of actions taken under the provisions of ORS 459.705 to**  
5 **459.790. This subsection shall not preclude liability for costs or dam-**  
6 **ages as a result of gross negligence or intentional misconduct by the**  
7 **state or local government. For purposes of this subsection, reckless,**  
8 **willful or wanton misconduct shall constitute gross negligence.**

9 **SECTION 9.** ORS 459.790 is amended to read:

10 459.790. **Except for the purposes of waste tire removal under ORS**  
11 **459.780 (2) and (4) to (8), the provisions of ORS 459.705 to 459.785 do not**  
12 **apply to:**

13 **(1) Tires from:**

14 **[(1)] (a) Any device moved exclusively by human power.**

15 **[(2)] (b) Any device used exclusively upon stationary rails or tracks.**

16 **[(3)] (c) A motorcycle.**

17 **[(4)] (d) An all-terrain vehicle.**

18 **[(5)] (e) Any device used exclusively for farming purposes, except a farm**  
19 **truck.**

20 **(2) A retreadable casing while under the control of a tire retreader,**  
21 **or while being delivered to a retreader.**

22 **SECTION 10.** ORS 459.995 is amended to read:

23 459.995. (1) In addition to any other penalty provided by law:

24 (a) Any person who violates ORS 459.205, 459.270 or the provisions of ORS  
25 459.180, 459.188, 459.190, 459.195, *[459.710 or 459.715 or the provisions of*  
26 *ORS]* 459.386 to 459.400 **or 459.705 to 459.790**, or any rule or order of the  
27 Environmental Quality Commission pertaining to the disposal, collection,  
28 storage or reuse or recycling of solid wastes, as defined by ORS 459.005, **or**  
29 **any rule or order pertaining to the disposal, storage or transportation**  
30 **of waste tires, as defined by ORS 459.705**, shall incur a civil penalty not  
31 to exceed \$500 a day for each day of the violation.

1 (b) Any person who violates the provisions of ORS 459.420 to 459.426 shall  
2 incur a civil penalty not to exceed \$500 for each violation. Each battery that  
3 is disposed of improperly shall be a separate violation. Each day an estab-  
4 lishment fails to post the notice required under ORS 459.426 shall be a sep-  
5 arate violation.

6 (2) The civil penalty authorized by subsection (1) of this section shall be  
7 established, imposed, collected and appealed in the same manner as civil  
8 penalties are established, imposed and collected under ORS 448.305, 454.010  
9 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to  
10 454.745 and ORS chapter 468.

11 **SECTION 11.** ORS 459.705 to 459.790 are added to and made a part of  
12 ORS 459.005 to 459.426.

13 **SECTION 12.** This Act being necessary for the immediate preservation  
14 of the public peace, health and safety, an emergency is declared to exist, and  
15 this Act takes effect on its passage.

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# D R A F T

## SUMMARY

Requires oil contingency plan. Directs Environmental Quality Commission to adopt standards for plan. Permits Environmental Quality Commission to establish reasonable fees for review and approval of plan. Provides for compliance with Federal Oil Pollution Act of 1990. Directs Environmental Quality Commission to adopt rules to test adequacy of plan. Establishes harbor safety committees to operate under direction of Ports Division of Economic Development Department. Creates Oil Spill Prevention Fund. Imposes civil and criminal penalties. Appropriates money.

## A BILL FOR AN ACT

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Relating to oil spills; creating new provisions; amending ORS 468.780 and 777.817; and appropriating money.

**Be It Enacted by the People of the State of Oregon:**

**SECTION 1.** ORS 468.780 is amended to read:

468.780. As used in ORS 468.020, 468.095, 468.140 (3) and 468.780 to 468.833:

(1) **"Cargo vessel" means a ship in commerce, other than a tank vessel, of 300 gross tons or more.**

(2) **"Contingency plan" means an oil spill prevention and emergency response plan required under section 4 of this 1991 Act.**

(3) **"Covered vessel" means a tanker vessel, oil barge, cargo vessel or passenger vessel.**

(4) **"Discharge" means spilling, leaking, pumping, pouring, emitting, emptying or dumping into the environment.**

(5) **"Exploration facility" means a platform, vessel or other facility used to explore for oil in the waters of the state. "Exploration facility" does not include platforms or vessels used for stratigraphic drilling or other operations that are not authorized or intended to drill to a producing formation.**

~~(1)~~ (6) **"Hazardous material" has the meaning given that term in ORS**



1 466.605.

2 **(7) "Oil barge" means a vessel that is not self-propelled and which**  
3 **is constructed or converted to carry oil as cargo in bulk.**

4 [(2)] **(8) "Oils" or "oil" means oil, including gasoline, crude oil, fuel oil,**  
5 **diesel oil, lubricating oil, sludge, oil refuse and any other petroleum related**  
6 **product.**

7 **(9)(a) "Oil terminal facility" means an onshore or offshore facility**  
8 **of any kind, and related appurtenances, including but not limited to**  
9 **a deepwater port, bulk storage facility or marina, located in, on or**  
10 **under the surface of the land or waters of the state, including tide and**  
11 **submerged land, that is used for transferring, processing, refining or**  
12 **storing oil.**

13 **(b) "Oil terminal facility" includes a vessel only when used to make**  
14 **a ship-to-ship transfer of oil and when the vessel is traveling between**  
15 **the place of the ship-to-ship transfer of oil and an oil terminal facility.**

16 **(c) "Oil terminal facility" does not include a railroad car, motor**  
17 **vehicle or other rolling stock used to transport oil over the highways**  
18 **or rail lines of the state.**

19 **(10) "Passenger vessel" means a ship of 300 or more gross tons**  
20 **carrying passengers for compensation.**

21 **(11) "Person" has the meaning given the term in ORS 468.005.**

22 [(3)] **(12) "Person having control over oil" includes but is not limited to**  
23 **any person using, storing or transporting oil immediately prior to entry of**  
24 **such oil into the waters of the state, and shall specifically include carriers**  
25 **and bailees of such oil.**

26 **(13) "Pipeline" means the facilities, including piping, compressors,**  
27 **pump stations and storage tanks, used to transport oil between pro-**  
28 **duction facilities and oil terminal facilities or from one or more pro-**  
29 **duction facilities or oil terminal facilities to marine vessels.**

30 **(14) "Production facility" means a drilling rig, drill site, flow sta-**  
31 **tion, gathering center, pump station, storage tank, well and related**

1 appurtenances on other facilities to produce, gather, clean, dehydrate,  
2 condition or store crude oil in or on the waters of the state or on land  
3 in the state, and gathering and flow lines used to transport crude oil  
4 to the inlet of a pipeline system for delivery to a marine facility, re-  
5 finery or other production facility.

6 (15) "Realistic maximum oil discharge" means the maximum and  
7 most damaging oil discharge that the department estimates could oc-  
8 cur during the lifetime of the tanker vessel, oil barge, oil terminal  
9 facility or pipeline based on:

10 (a) The size, location and capacity of the tanker vessel, oil barge,  
11 oil terminal facility or pipeline or with similar tanker vessels, oil  
12 barges, facilities or pipelines; and

13 (b) The department's analysis of possible mishaps to the tanker  
14 vessel or oil barge or at the oil terminal facility or pipeline or to  
15 similar tanker vessels or oil barges or at similar facilities or pipelines.

16 (16) "Region of operation" with respect to the holder of a contin-  
17 gency plan, means the area where the operations of the holder that  
18 require a contingency plan are located.

19 [(4)] (17) "Ship" means any boat, ship, vessel, barge or other floating craft  
20 of any kind.

21 (18) "Tanker vessel" means a self-propelled waterborne vessel that  
22 is constructed or converted to carry liquid bulk cargo in tanks and  
23 includes tankers, tankships and combination carriers when carrying  
24 oil. "Tanker vessel" does not include a vessel carrying oil in drums,  
25 barrels or other packages or a vessel carrying oil as fuel or stores for  
26 that vessel.

27 (19) "Worst case spill" means a spill of the entire cargo of a tanker  
28 vessel or oil barge complicated by adverse weather conditions.

29 SECTION 2. Sections 3 to 27 of this Act are added to and made a part  
30 of ORS 468.780 to 468.815.

31 SECTION 3. It is the intention of sections 4 to 27 of this 1991 Act to

1 establish a program to promote:

2 (1) The prevention of oil spills;

3 (2) Oil spill response preparedness including the identification of actions  
4 and content required for an effective contingency plan;

5 (3) A consistent west coast approach to oil spill prevention and response;  
6 and

7 (4) The establishment, coordination and duties of harbor safety commit-  
8 tees as provided in section 24 of this 1991 Act.

9 **SECTION 4.** (1) Each oil terminal facility, pipeline and covered vessel  
10 operating in the state shall have a contingency plan for:

11 (a) The prevention of oil spills into the waters of the state;

12 (b) The containment and cleanup of oil spills from an oil terminal facility,  
13 pipeline or covered vessel into the waters of the state; and

14 (c) The protection of fisheries and wildlife, natural resources and public  
15 and private property from oil spills.

16 (2) A contingency plan shall be submitted for renewal every five years.

17 **SECTION 5.** (1) The Environmental Quality Commission shall adopt by  
18 rule standards for the preparation of a contingency plan for an oil terminal  
19 facility, pipeline or covered vessel.

20 (2) The commission shall exclude from the rules adopted under subsection  
21 (1) of this section standards for tanker vessels of less than 20,000 deadweight  
22 tons, cargo vessels and passenger vessels operating on the portion of the  
23 Columbia River for which the department determines that the States of  
24 Oregon and Washington should cooperate in the adoption of standards for  
25 contingency plans. After consultation with the appropriate state agencies in  
26 the State of Washington, the commission shall adopt the rules establishing  
27 standards for contingency plans for this portion of the Columbia River as  
28 soon as possible, but not later than July 1, 1993.

29 **SECTION 6.** The contingency plan required under section 4 of this 1991  
30 Act shall at a minimum meet the following standards:

31 (1) Include full details concerning the response to oil spills of various

1 sizes from any covered vessel, pipeline or oil terminal facility covered by the  
2 contingency plan.

3 (2) To the maximum extent possible, the contingency plan shall be de-  
4 signed, in terms of personnel, materials and equipment, to remove oil and  
5 minimize any damage to the environment resulting from a realistic maximum  
6 oil discharge and a worst case spill.

7 (3) Provide a detailed description of how the contingency plan relates to  
8 and is integrated with the response plan developed by the department under  
9 ORS 468.831 and 468.833 and relevant oil or hazardous material spill response  
10 plans that have been prepared by cooperatives, ports, regional entities, the  
11 state and the Federal Government.

12 (4) Provide procedures for early detection of oil spills and timely notifi-  
13 cation of spills to appropriate federal, state and local authorities under ap-  
14 plicable state and federal law.

15 (5) Demonstrate ownership of or access to an emergency response com-  
16 munications network covering all locations of operation or transit by cov-  
17 ered vessels. An emergency response communications network also shall  
18 provide for immediate notification and continual emergency communications  
19 during cleanup response.

20 (6) State the number, training preparedness and fitness of all dedicated,  
21 pre-positioned personnel assigned to direct and implement the plan.

22 (7) Incorporate periodic training and drill programs to evaluate whether  
23 the personnel and equipment provided under the plan are in a state of oper-  
24 ational readiness at all times.

25 (8) State the means of protecting and mitigating the effects on the envi-  
26 ronment, including fish, marine mammals and other wildlife, and insure that  
27 implementation of the plan does not pose unacceptable risks to the public  
28 or to the environment.

29 (9) Provide a detailed description of equipment and procedures to be used  
30 by the crew of a covered vessel to minimize vessel damage, stop or reduce  
31 any spilling from the vessel and, only when appropriate and the safety of the

1 vessel is assured, contain and clean up the spilled oil.

2 (10) Provide arrangements for the pre-positioning of oil spill containment  
3 and cleanup equipment and trained personnel at strategic locations from  
4 which the equipment and personnel can be deployed to the spill site to  
5 promptly and properly remove the spilled oil.

6 (11) Provide arrangements for enlisting the use of qualified and trained  
7 cleanup personnel to implement the plan.

8 (12) Provide for disposal of recovered oil in accordance with local, state  
9 and federal laws.

10 (13) State the measures taken to reduce the likelihood that a spill will  
11 occur, including but not limited to design and operation of a covered vessel,  
12 pipeline or oil terminal facility, training of personnel, number of personnel  
13 and backup systems designed to prevent a spill.

14 (14) State the amount and type of equipment available to respond to a  
15 spill, where the equipment is located and the extent to which other oil or  
16 hazardous material spill response plans rely on the same equipment.

17 (15) If the commission has adopted rules permitting the use of dispersants,  
18 a contingency plan shall describe the circumstances and the manner for the  
19 application of the dispersants in conformance with the rules of the commis-  
20 sion.

21 **SECTION 7.** (1) Contingency plans for all oil terminal facilities, pipelines  
22 and covered vessels shall be submitted to the department according to a  
23 schedule adopted by the Environmental Quality Commission on or before  
24 July 1, 1992.

25 (2) The contingency plan for an oil terminal facility or pipeline required  
26 under section 4 of this 1991 Act shall be submitted by the owner or operator  
27 of the oil terminal facility or pipeline.

28 (3) The contingency plan for a tanker vessel or oil barge shall be sub-  
29 mitted by:

30 (a) The owner or operator of the tanker vessel or oil barge; or

31 (b) The owner or operator of the oil terminal facilities at which the

1 tanker vessel or oil barge will be loading or unloading its cargo.

2 (4) Subject to conditions imposed by the department, the contingency plan  
3 for a tanker vessel or oil barge, if submitted by the owner or operator of an  
4 oil terminal facility, may be submitted as a single contingency plan for  
5 tanker vessels or oil barges of a particular class that will be loading or un-  
6 loading cargo at the oil terminal facility.

7 (5) The contingency plan for a cargo vessel or passenger vessel may be  
8 submitted by the owner or operator of the vessel or the agent in this state  
9 for the vessel. Subject to conditions imposed by the department, the owner,  
10 operator or agent may submit a single contingency plan for cargo vessels or  
11 passenger vessels of a particular class.

12 (6) A person who has contracted with an oil terminal facility or covered  
13 vessel to provide containment and cleanup services and who meets the stan-  
14 dards established under section 6 of this 1991 Act, may submit the contin-  
15 gency plan for any oil terminal facility, pipeline or covered vessel for which  
16 the person is contractually obligated to provide services. Subject to condi-  
17 tions imposed by the department, the person may submit a single contingency  
18 plan for more than one covered vessel.

19 **SECTION 8.** Before the department approves or modifies a contingency  
20 plan required under section 4 of this 1991 Act, the department shall provide  
21 a copy of the contingency plan to the State Department of Fish and Wildlife  
22 and to the Department of Land Conservation and Development for review.  
23 The agencies shall review the contingency plan according to procedures and  
24 time limits established by rule of the Environmental Quality Commission.

25 **SECTION 9.** In reviewing a contingency plan required and submitted  
26 under sections 4 to 7 of this 1991 Act, the department shall consider at least  
27 the following factors:

28 (1) The adequacy of containment and cleanup equipment, the contingency  
29 plan required under section 4 of this 1991 Act, the call-down lists, the re-  
30 sponse time and the logistical arrangements for coordination and implemen-  
31 tation of response efforts to remove oil spills promptly and properly and to

1 protect the environment;

2 (2) The nature and amount of covered vessel traffic within the area cov-  
3 ered by the plan;

4 (3) The volume and type of oil being transported within the area covered  
5 by the plan;

6 (4) The existence of navigational hazards within the area covered by the  
7 plan;

8 (5) The history and circumstances surrounding prior spills of oil within  
9 the area covered by the plan;

10 (6) The sensitivity of fisheries and wildlife and other natural resources  
11 within the area covered by the plan;

12 (7) Relevant information on previous spills contained in on-scene coordi-  
13 nator reports covered by the plan; and

14 (8) The extent to which reasonable, cost-effective measures to reduce the  
15 likelihood that a spill will occur have been incorporated into the plan.

16 **SECTION 10.** (1) The department is the only state agency that may ap-  
17 prove, modify or revoke a contingency plan.

18 (2) The department shall approve or disapprove a proposed contingency  
19 plan within 65 days after it receives a complete application for approval  
20 under sections 4 to 7 of this 1991 Act.

21 (3) The department may attach any reasonable term or condition to its  
22 approval or modification of a contingency plan that the department deter-  
23 mines is necessary to insure that the applicant:

24 (a) Has access to sufficient resources to protect environmentally sensitive  
25 areas and to prevent, contain, clean up and mitigate potential oil discharges  
26 from the oil terminal facility, pipeline or covered vessel; and

27 (b) Complies with the contingency plan.

28 (4) The contingency plan must provide for the use by the applicant of the  
29 best technology available at the time the contingency plan was submitted  
30 or renewed.

31 (5) The department may require an applicant or a holder of an approved

1 contingency plan to take steps necessary to demonstrate its ability to carry  
2 out the contingency plan, including:

3 (a) Periodic training;

4 (b) Response team exercises; and

5 (c) Verification of access to inventories of equipment, supplies and per-  
6 sonnel identified as available in the approved contingency plan.

7 (6) The department may consider evidence that oil discharge prevention  
8 measures such as double hulls or double bottoms on vessels or barges, sec-  
9 ondary containment systems, hydrostatic testing, enhanced vessel traffic  
10 systems or enhanced crew or staffing levels have been implemented and in  
11 its discretion, may make exceptions to the requirements of section 6 of this  
12 1991 Act to reflect the reduced risk of oil discharges from the oil terminal  
13 facility, pipeline, vessel or barge for which the plan is submitted or being  
14 modified.

15 (7) It is not a defense to an action brought for a violation of sections 3  
16 to 27 of this 1991 Act that the person charged believed that a current con-  
17 tingency plan was approved by the department.

18 **SECTION 11.** (1) The Environmental Quality Commission by rule may  
19 establish a schedule of reasonable fees to be assessed for the review of a  
20 contingency plan submitted under section 7 of this 1991 Act and inspections,  
21 exercises and training conducted under sections 17 and 22 of this 1991 Act.  
22 The fees shall be subject to the approval of the Joint Legislative Committee  
23 on Ways and Means during legislative sessions or the legislative Emergency  
24 Board during the interim between sessions. The fees shall be sufficient to  
25 recover the costs of reviewing the plans and conducting the inspections, ex-  
26 ercises and training. The fees shall be assessed in increments up to the  
27 maximum amount.

28 (2) Moneys collected under this section shall be deposited in the State  
29 Treasury to the credit of an account of the Department of Environmental  
30 Quality.

31 **SECTION 12.** Upon approval of a contingency plan, the department shall



1 issue to the plan holder a certificate stating that the contingency plan has  
2 been approved. The certificate shall include the name of the oil terminal fa-  
3 cility, pipeline or covered vessel for which the certificate is issued, the ef-  
4 fective date of the contingency plan and the date by which the contingency  
5 plan must be submitted for renewal.

6 **SECTION 13.** (1) Upon request of a plan holder or on the department's  
7 own initiative, the department, after notice and opportunity for hearing, may  
8 modify its approval of a contingency plan if the department determines that  
9 a change has occurred in the operation of the oil terminal facility, pipeline  
10 or covered vessel necessitating an amended or supplemental plan, or that the  
11 operator's discharge experience demonstrates a necessity for modification.

12 (2) The department, after notice and opportunity for hearing, may revoke  
13 its approval of a contingency plan if the department determines that:

14 (a) Approval was obtained by fraud or misrepresentation;

15 (b) The operator does not have access to the quality or quantity of re-  
16 sources identified in the plan;

17 (c) A term or condition of approval or modification has been violated; or

18 (d) The plan holder is not in compliance with the plan and the deficiency  
19 materially affects the plan holder's response capability.

20 (3) Failure of a holder of an approved or modified contingency plan to  
21 comply with the plan or to have access to the quality or quantity of re-  
22 sources identified in the plan or to respond with those resources within the  
23 shortest possible time in the event of a spill, is a violation of sections 3 to  
24 27 of this 1991 Act for purposes of ORS 466.890, 468.140, 468.992 and any other  
25 applicable law.

26 (4) If the holder of an approved or modified contingency plan fails to re-  
27 spond to and conduct cleanup operations of an unpermitted discharge of oil  
28 with the quality and quantity of resources identified in the plan and in a  
29 manner required under the plan, the holder is strictly liable, jointly and se-  
30 verally, for the civil penalty assessed under ORS 466.890 and 468.140.

31 (5) In order to be considered in compliance with a contingency plan, the

1 plan holder must:

2 (a) Establish and carry out procedures identified in the plan as being the  
3 responsibility of the holder of the plan;

4 (b) Have access to and have on hand the quantity and quality of equip-  
5 ment, personnel and other resources identified as being accessible or on hand  
6 in the plan;

7 (c) Fulfill the assurances espoused in the plan in the manner described  
8 in the plan;

9 (d) Comply with terms and conditions attached to the plan by the de-  
10 partment under sections 5 to 11 of this 1991 Act; and

11 (e) Successfully demonstrate the ability to carry out the plan when re-  
12 quired by the department under section 17 of this 1991 Act.

13 **SECTION 14.** It is a defense to an action brought for a violation of  
14 sections 4 to 11 of this 1991 Act that the person charged relied on a certifi-  
15 cate of approval issued by the department under section 12 of this 1991 Act  
16 unless the person knew or had reason to know at the time of the alleged  
17 violation that approval of the plan had been revoked or that the holder of  
18 the plan was not capable of carrying out the plan.

19 **SECTION 15.** In addition to the contingency plan required under section  
20 4 of this 1991 Act, any tanker vessel carrying oil in the waters of the state  
21 shall:

22 (1) Have two licensed officers present on the bridge at all times;

23 (2) Maintain crew levels sufficient to carry out the emergency operation  
24 needs as identified in the tanker vessel's contingency plan approved under  
25 section 10 of this 1991 Act;

26 (3) Store spill response booms on board in amounts and types appropriate  
27 to the tanker vessel's class and size;

28 (4) Submit to the department evidence of an annual structural and me-  
29 chanical integrity inspection of the tanker vessel equipment and hull struc-  
30 tures; and

31 (5) Place booms, in-water oil sensors or other detection equipment around

1 tanker vessels during transfers of oil.

2 **SECTION 16.** (1) No person shall cause or permit the operation of an oil  
3 terminal facility in the state unless the person has furnished to the depart-  
4 ment, and the department has approved, evidence of compliance with Section  
5 1016 of the Federal Oil Pollution Act of 1990 (P.L. 101-380).

6 (2) No person may cause or permit the operation of an offshore explora-  
7 tion or production facility in the state unless the person has furnished to the  
8 department, and the department has approved, proof of compliance with  
9 Section 1016 of the Federal Oil Pollution Act of 1990 (P.L. 101-380).

10 (3) Except for an oil barge that does not carry oil as cargo or fuel, the  
11 owner of any vessel over 300 gross tons shall provide evidence of insurance  
12 for the following vessels:

13 (a) For tanker vessels and oil barges over 300 gross tons:

14 (A) \$1,200 per gross ton or \$2 million for vessels under 3,000 gross tons,  
15 whichever is greater; and

16 (B) \$1,200 per gross ton or \$10 million for vessels over 3,000 gross tons,  
17 whichever is greater; or

18 (b) For any other covered vessel over 300 gross tons; \$600 per gross ton  
19 or \$500,000, whichever is greater.

20 **SECTION 17.** (1) The Environmental Quality Commission by rule shall  
21 adopt procedures to determine the adequacy of a contingency plan approved  
22 under section 10 of this 1991 Act.

23 (a) The rules shall require random practice drills without prior notice to  
24 test the adequacy of the responding entities. The rules may provide for un-  
25 announced practice drills of an individual contingency plan.

26 (b) The rules may require the contingency plan holder to publish a report  
27 on the drills. This report shall include an assessment of response time and  
28 available equipment and personnel compared to those listed in the contin-  
29 gency plan relying on the responding entities and requirements, if any, for  
30 changes in the plans or their implementation. The department shall review  
31 the report and assess the adequacy of the drill.

1 (c) The department may require additional drills and changes in arrange-  
2 ments for implementing the approved plan that are necessary to insure the  
3 effective implementation of the plan.

4 (2) A tanker vessel or oil barge that is conducting, or is available only  
5 for conducting, oil discharge response operations is exempt from the re-  
6 quirements of subsection (1) of this section if the tanker vessel or oil barge  
7 has received prior approval of the department. The department may approve  
8 exemptions under this subsection upon application and presentation of in-  
9 formation required by the department.

10 **SECTION 18.** A holder of an approved contingency plan does not violate  
11 the terms of the contingency plan by furnishing to another plan holder, with  
12 the approval of the department, equipment, materials or personnel to assist  
13 the other plan holder in a response to an oil discharge. The plan holder shall  
14 replace or return the transferred equipment, materials and personnel as soon  
15 as feasible.

16 **SECTION 19.** Any person employed as a crew member of a tugboat in-  
17 volved in operations of covered vessels carrying oil shall be trained in oil  
18 spill response under the program developed under section 23 of this 1991 Act.

19 **SECTION 20.** (1) The department shall annually review and revise the  
20 interagency response plan for oil and hazardous material spills in certain  
21 waters of the state developed under ORS 468.831 and 468.833.

22 (2) In its annual review and revision of the plan developed under ORS  
23 468.831 and 468.833, the department shall:

24 (a) Consult with all affected local, state and federal agencies, municipal  
25 and community officials and representatives of industry;

26 (b) Provide training in the use of the plan; and

27 (c) Conduct spill exercises to test the adequacy of the plan.

28 **SECTION 21.** The provisions of sections 4 to 10 of this 1991 Act shall  
29 not apply to an oil terminal facility that has an effective storage capacity  
30 of less than 10,000 gallons of oil.

31 **SECTION 22.** In addition to any other right of access or inspection con-

1 ferred upon the department by section 17 of this 1991 Act, the department  
2 may at reasonable times and in a safe manner enter and inspect oil terminal  
3 facilities, pipelines, exploration and production facilities, tanker vessels and  
4 oil barges in order to:

5 (1) Insure compliance with the provisions of sections 3 to 27 of this 1991  
6 Act; or

7 (2) Participate in an examination of the structural integrity and the op-  
8 erating and mechanical systems of those vessels, barges, pipelines and facil-  
9 ities by federal and state agencies.

10 **SECTION 23.** The Department of Environmental Quality shall:

11 (1) In cooperation with other natural resource agencies, develop a method  
12 of natural resource valuation that fully incorporates nonmarket and market  
13 values in assessing damages resulting from oil discharges;

14 (2) Establish a pilot program for a near-miss reporting system that is co-  
15 ordinated with vessel inspection information compiled as a result of in-  
16 spections under sections 6 and 22 of this 1991 Act;

17 (3) Work with other potentially affected states to develop a joint oil dis-  
18 charge prevention education program for operators of fishing vessels, ferries,  
19 ports, cruise ships and marinas;

20 (4) Review the adequacy of and make recommendations for improvements  
21 in equipment, operating procedures and the appropriateness of west coast  
22 locations for transfer of oil;

23 (5) In cooperation with industry and the United States Coast Guard, de-  
24 velop local programs to provide oil discharge response training to fishing  
25 boat operators and marinas;

26 (6) Adopt an incident command system to enhance the department's abil-  
27 ity to manage responses to a major oil discharge; and

28 (7) Coordinate oil spill research with other west coast states and develop  
29 a framework for information sharing and combined funding of research  
30 projects.

31 **SECTION 24.** (1) There are established harbor safety committees for

1 Oregon International Port of Coos Bay, Yaquina Bay, the Port of Astoria  
2 and the Port of Portland. The harbor safety committees shall operate under  
3 the direction of the Ports Division of the Economic Development Department  
4 pursuant to ORS 777.817.

5 (2) Each committee shall consist of 11 members, appointed by the Director  
6 of the Economic Development Department, representing the following groups:

- 7 (a) Local port authorities;
- 8 (b) Tanker vessel operators;
- 9 (c) Tug and barge operators;
- 10 (d) Pilots' organizations;
- 11 (e) Cargo vessel operators;
- 12 (f) Commercial fishermen;
- 13 (g) Pleasure boat operators;
- 14 (h) Environmental organizations; and
- 15 (i) Local planning authorities.

16 (3) The members shall be appointed to the harbor safety committees for  
17 a term of four years. The Director of the Economic Development Department  
18 shall appoint the chair of each committee to serve a term of four years.

19 (4) A majority of the members shall constitute a quorum for the trans-  
20 action of business.

21 (5) The harbor safety committees duties shall include but are not limited  
22 to:

23 (a) Planning for safe navigation and operation of covered vessels within  
24 each harbor;

25 (b) Developing harbor safety plans that shall be reviewed by the Depart-  
26 ment of Environmental Quality;

27 (c) Establishing pilotage requirements for all single boiler or single en-  
28 gine and single screw tanker vessels carrying oil in pilotage grounds;

29 (d) Reviewing and, if appropriate, reducing deadweight tonnage specifica-  
30 tions for pilotage service for vessels carrying oil;

31 (e) Developing and implementing a mandatory set of guidelines for tugs

1 on tow cable size and material specifications, cable maintenance practices,  
2 cable handling equipment design and barge recovery plan preparation;

3 (f) Establishing regional speed limits, based on escort vehicle limitations,  
4 for all tanker vessels in inland waters and critical approaches to inland  
5 waters; and

6 (g) Requiring towing systems and plans on all tanker vessels carrying oil.

7 (6) Members of the harbor safety committees established under this sec-  
8 tion are entitled to compensation and expenses as provided in ORS 292.495.

9 (7) The Department of Environmental Quality shall serve in an advisory  
10 capacity to the harbor safety committees. In addition, the United States  
11 Coast Guard shall be invited to also act in an advisory capacity to the har-  
12 bor safety committees.

13 **SECTION 25.** The State Department of Fish and Wildlife shall develop  
14 a program to provide wildlife rescue training for volunteers. In developing  
15 the program, the department shall work with agencies responsible for  
16 wildlife protection in other west coast states.

17 **SECTION 26.** (1) The Oil Spill Prevention Fund is established separate  
18 and distinct from the General Fund in the State Treasury. Interest earned  
19 on the fund shall be credited to the fund. Moneys received by the Department  
20 of Environmental Quality for the purpose of oil spill prevention and the fees  
21 collected under section 11 of this 1991 Act shall be paid into the State  
22 Treasury and credited to the fund.

23 (2) The State Treasurer shall invest and reinvest moneys in the Oil Spill  
24 Prevention Fund in the manner prescribed by law.

25 (3) The moneys in the Oil Spill Prevention Fund are appropriated con-  
26 tinuously to the Department of Environmental Quality to be used in the  
27 manner described in section 27 of this 1991 Act.

28 **SECTION 27.** The Oil Spill Prevention Fund may be used by the De-  
29 partment of Environmental Quality to:

30 (1) Pay all costs of the department incurred to:

31 (a) Review the contingency plans submitted under section 7 of this 1991

1 Act;

2 (b) Conduct training, response exercises, inspection and tests in order to  
3 verify equipment inventories and ability to prevent and respond to oil release  
4 emergencies and to undertake other activities intended to verify or establish  
5 the preparedness of the state, a municipality or a party required by sections  
6 5 to 12 of this 1991 Act to have an approved contingency plan to act in ac-  
7 cordance with that plan; and

8 (c) Verify or establish proof of financial responsibility required by section  
9 16 of this 1991 Act.

10 (2) Review and revise the oil or hazardous material spill response plan  
11 required by ORS 468.831 and 468.833.

12 **SECTION 28.** ORS 777.817 is amended to read:

13 777.817. (1) The Ports Division shall provide managerial assistance and  
14 technical referral services to ports organized under this chapter.

15 (2) The Ports Division shall:

16 (a) Disseminate such research and technical information as is available  
17 to the division; and

18 (b) Provide managerial assistance to ports **and the harbor safety com-**  
19 **mittees created under section 24 of this 1991 Act**, requesting such as-  
20 sistance.

21 (3) The Ports Division shall work cooperatively with existing organiza-  
22 tions and agencies that provide research and technical services, including,  
23 but not limited to:

24 (a) The Division of State Lands;

25 (b) The State Marine Board; and

26 (c) The Sea Grant College and marine extension services at Oregon State  
27 University.

28 **SECTION 29.** The Environmental Quality Commission shall first adopt  
29 rules under section 5 of this Act on or before July 1, 1992.

30 **SECTION 30.** In addition to and not in lieu of any other appropriation,  
31 there is appropriated to the Ports Division of the Department of Economic



1 Development, out of the General Fund, for the biennium beginning July 1,  
2 1991, the sum of \$ \_\_\_\_\_ for the administrative expenses incurred by the  
3 harbor safety committees created under section 24 of this Act.

4

# D R A F T

## SUMMARY

Increases civil penalty Environmental Quality Commission may impose for extreme violations not to exceed \$100,000. Requires Environmental Quality Commission to establish by rule criteria to determine amount of civil penalty for extreme violations. Increases civil penalty for violation not to exceed \$10,000 per day. Adds hazardous substance to those materials not to be discharged into waters of Oregon. Renames Oil Spillage Control Fund to Oil and Hazardous Substance Spillage Control Fund. Removes mandatory clean up oversight by Department of Environmental Quality.

## A BILL FOR AN ACT

1  
2 Relating to environmental enforcement; creating new provisions; amending  
3 ORS 459.995, 459.997, 466.645, 468.130, 468.135, 468.140, 468.780, 468.817,  
4 468.819 and 468.893; and repealing ORS 468.125.

5 **Be It Enacted by the People of the State of Oregon:**

6 **SECTION 1.** Section 2 of this Act is added to and made a part of ORS  
7 chapter 468.

8 **SECTION 2.** In addition to any other penalty provided by law, any person  
9 who intentionally or negligently violates any provision of ORS 164.785,  
10 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to  
11 454.535, 454.605 to 454.745, ORS chapter 467 and this chapter or any rule or  
12 standard or order of the commission adopted or issued pursuant to ORS  
13 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to  
14 454.535, 454.605 to 454.745, ORS chapter 467 and this chapter, which results  
15 in or creates the likelihood for an extreme hazard to the public health or  
16 which causes extensive damage to the environment shall incur a civil penalty  
17 not to exceed \$100,000. The Environmental Quality Commission shall adopt  
18 by rule a schedule and the criteria for determining the amount of a civil  
19 penalty that may be imposed for an extreme violation.

20 **SECTION 3.** ORS 459.995 is amended to read:

NOTE: Matter in bold face in an amended section is new; matter *[italic and bracketed]* is existing law to be omitted.

1 459.995. (1) In addition to any other penalty provided by law:

2 (a) Any person who violates ORS 459.205, 459.270 or the provisions of ORS  
3 459.180, 459.188, 459.190, 459.195, 459.710 or 459.715 or the provisions of ORS  
4 459.386 to 459.400 or any rule or order of the Environmental Quality Com-  
5 mission pertaining to the disposal, collection, storage or reuse or recycling  
6 of solid wastes, as defined by ORS 459.005, shall incur a civil penalty not to  
7 exceed [~~\$500~~] **\$10,000** a day for each day of the violation.

8 (b) Any person who violates the provisions of ORS 459.420 to 459.426 shall  
9 incur a civil penalty not to exceed [~~\$500~~] **\$10,000** for each violation. Each  
10 battery that is disposed of improperly shall be a separate violation. Each day  
11 an establishment fails to post the notice required under ORS 459.426 shall  
12 be a separate violation.

13 (2) The civil penalty authorized by subsection (1) of this section shall be  
14 established, imposed, collected and appealed in the same manner as civil  
15 penalties are established, imposed and collected under ORS 448.305, 454.010  
16 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to  
17 454.745 and ORS chapter 468.

18 **SECTION 4.** ORS 459.997 is amended to read:

19 459.997. (1) If a person or an officer or employee of a corporation or a  
20 member or employee of a partnership violates ORS 459.569 (1)(a) or (b), the  
21 Department of Revenue shall assess against the person a civil penalty of not  
22 more than [~~\$1,000~~] **\$10,000**. The penalty shall be recovered as provided in  
23 subsection (4) of this section.

24 (2) A person or an officer or employee of a corporation or a member or  
25 employee of a partnership who violates ORS 459.569 (1)(c) or (2), is liable to  
26 a penalty of not more than [~~\$1,000~~] **\$10,000**, to be recovered in the manner  
27 provided in subsection (4) of this section.

28 (3) If any person violates any provision of ORS 459.504 to 459.619 other  
29 than ORS 459.569, the Department **of Revenue** shall assess against the per-  
30 son a civil penalty of not more than [~~\$1,000~~] **\$10,000**, to be recovered as  
31 provided in subsection (4) of this section.

1 (4) Any person against whom a penalty is assessed under this section may  
2 appeal to the Director of the Department of Revenue as provided in ORS  
3 305.275. If the penalty is not paid within 10 days after the order of the De-  
4 partment of Revenue becomes final, the Department of Revenue may record  
5 the order and collect the amount assessed in the same manner as income tax  
6 deficiencies are recorded and collected under ORS 314.430.

7 **SECTION 5.** ORS 468.130 is amended to read:

8 468.130. (1) The commission shall adopt by rule a schedule or schedules  
9 establishing the amount of civil penalty that may be imposed for a particular  
10 violation. Except as provided in ORS 468.140 (3), no civil penalty shall exceed  
11 [~~\$500~~] \$10,000 per day. Where the classification involves air pollution, the  
12 commission shall consult with the regional air quality control authorities  
13 before adopting any classification or schedule.

14 (2) In imposing a penalty pursuant to the schedule or schedules author-  
15 ized by this section, the commission and regional air quality control au-  
16 thorities shall consider the following factors:

17 (a) The past history of the person incurring a penalty in taking all fea-  
18 sible steps or procedures necessary or appropriate to correct any violation.

19 (b) Any prior violations of statutes, rules, orders and permits pertaining  
20 to water or air pollution or air contamination or solid waste disposal.

21 (c) The economic and financial conditions of the person incurring a pen-  
22 alty.

23 (d) The gravity and magnitude of the violation.

24 (e) Whether the violation was repeated or continuous.

25 (f) Whether the cause of the violation was an unavoidable accident,  
26 negligence or an intentional act.

27 (g) The violator's cooperativeness and efforts to correct the violation.

28 (h) Any relevant rule of the commission.

29 (3) The penalty imposed under this section may be remitted or mitigated  
30 upon such terms and conditions as the commission or regional authority  
31 considers proper and consistent with the public health and safety.

1 (4) The commission may by rule delegate to the department, upon such  
2 conditions as deemed necessary, all or part of the authority of the commis-  
3 sion provided in subsection (3) of this section to remit or mitigate civil  
4 penalties.

5 **SECTION 6.** ORS 468.140 is amended to read:

6 468.140. (1) In addition to any other penalty provided by law, any person  
7 who violates any of the following shall incur a civil penalty for each day  
8 of violation in the amount prescribed by the schedule adopted under ORS  
9 468.130:

10 (a) The terms or conditions of any permit required or authorized by law  
11 and issued by the department or a regional air quality control authority.

12 (b) Any provision of ORS 164.785, 448.305, 454.010 to 454.040, 454.205 to  
13 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745, ORS chapter  
14 467 and this chapter.

15 (c) Any rule or standard or order of the commission adopted or issued  
16 pursuant to ORS 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405,  
17 454.425, 454.505 to 454.535, 454.605 to 454.745, ORS chapter 467 and this  
18 chapter.

19 (d) Any term or condition of a variance granted by the commission or  
20 department pursuant to ORS 467.060.

21 (e) Any rule or standard or order of a regional authority adopted or is-  
22 sued under authority of ORS 468.535 (1).

23 (f) The financial assurance requirement under ORS 468.825 and 468.827  
24 or any rule related to the financial assurance requirement under ORS  
25 468.825.

26 (2) Each day of violation under subsection (1) of this section constitutes  
27 a separate offense.

28 (3)(a) In addition to any other penalty provided by law, any person who  
29 intentionally or negligently causes or permits the discharge of oil **or a**  
30 **hazardous substance** into the waters of the state shall incur a civil penalty  
31 not to exceed the amount of \$20,000 for each violation.

1 (b) In addition to any other penalty provided by law, the following per-  
2 sons shall incur a civil penalty not to exceed the amount of \$10,000 for each  
3 day of violation:

4 (A) Any person who violates the terms or conditions of a permit author-  
5 izing waste discharge into the air or waters of the state.

6 (B) Any person who violates any law, rule, order or standard in ORS  
7 448.305, 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to  
8 454.535, 454.605 to 454.745 and this chapter relating to air or water pollution.

9 (C) Any person who violates the provisions of a rule adopted or an order  
10 issued under ORS 468.869.

11 (4) Paragraphs (c) and (e) of subsection (1) of this section do not apply  
12 to violations of motor vehicle emission standards which are not violations  
13 of standards for control of noise emissions.

14 (5) Notwithstanding the limits of ORS 468.130 (1) and in addition to any  
15 other penalty provided by law, any person who intentionally or negligently  
16 causes or permits open field burning contrary to the provisions of ORS  
17 468.450, 468.455 to 468.480, 476.380 and 478.960 shall be assessed by the de-  
18 partment a civil penalty of at least \$20 but not more than \$40 for each acre  
19 so burned. Any fines collected by the department pursuant to this subsection  
20 shall be deposited with the State Treasurer to the credit of the General Fund  
21 and shall be available for general governmental expense.

22 **SECTION 7.** ORS 468.780 is amended to read:

23 468.780. As used in ORS 468.020, 468.095, 468.140 (3) and 468.780 to 468.833:

24 (1) "Hazardous material" has the meaning given that term in ORS 466.605.

25 **(2) "Hazardous substance" has the meaning given the term in ORS**  
26 **465.200.**

27 [(2)] (3) "Oils" or "oil" means oil, including gasoline, crude oil, fuel oil,  
28 diesel oil, lubricating oil, sludge, oil refuse and any other petroleum related  
29 product.

30 [(3)] (4) "Person having control over oil" includes but is not limited to  
31 any person using, storing or transporting oil immediately prior to entry of

1 such oil into the waters of the state, and shall specifically include carriers  
2 and bailees of such oil.

3 [(4)] (5) "Ship" means any boat, ship, vessel, barge or other floating craft  
4 of any kind.

5 **SECTION 8.** ORS 468.817 is amended to read:

6 468.817. (1) Any person who wilfully or negligently causes or permits the  
7 discharge of oil **or a hazardous substance** into the waters of the state shall  
8 incur, in addition to any other penalty provided by law, a civil penalty  
9 commensurate with the amount of damage incurred. The amount of the pen-  
10 alty shall be determined by the Director of the Department of Environmental  
11 Quality with the advice of the State Fish and Wildlife Director after taking  
12 into consideration the gravity of the violation, the previous record of the  
13 violator in complying, or failing to comply, with the provisions of ORS  
14 468.817 to 468.821, and such other considerations as the director considers  
15 appropriate. The penalty provided for in this subsection shall be imposed and  
16 enforced in accordance with ORS 468.135.

17 (2) The director may, upon written application therefor received within  
18 15 days after receipt of notice under ORS 468.135, and when considered in  
19 the best interest of this state in carrying out the purposes of this chapter,  
20 remit or mitigate any penalty provided for in subsection (1) of this section  
21 or discontinue any prosecution to recover the same upon such terms as the  
22 director in the director's discretion considers proper.

23 **SECTION 9.** ORS 468.819 is amended to read:

24 468.819. (1) There is established an Oil **and Hazardous Substance**  
25 Spillage Control Fund within the General Fund. This account shall be a re-  
26 volving fund, the interest of which accrues to the Oil **and Hazardous Sub-**  
27 **stance** Spillage Control Fund.

28 (2) All penalties recovered under ORS 468.817 (1) shall be paid into the  
29 Oil **and Hazardous Substance** Spillage Control Fund. Such moneys are  
30 continuously appropriated to the Department of Environmental Quality for  
31 the advancement of costs incurred in carrying out cleanup activities and for

1 the rehabilitation of affected fish and wildlife as provided under ORS 468.745.

2 (3) With the approval of the commission, the moneys in the Oil **and**  
3 **Hazardous Substance** Spillage Control Fund may be invested as provided  
4 by ORS 293.701 to 293.776, and earnings from such investment shall be cred-  
5 ited to the fund.

6 (4) The Oil **and Hazardous Substance** Spillage Control Fund shall not  
7 be used for any purpose other than that for which the fund was created.

8 **SECTION 10.** ORS 466.645 is amended to read:

9 466.645. (1) Any person liable for a spill or release or threatened spill or  
10 release under ORS 466.640 shall immediately clean up the spill or release  
11 [*under the direction of the department*]. The department may require the re-  
12 sponsible person to undertake such investigations, monitoring, surveys, test-  
13 ing and other information gathering as the department considers necessary  
14 or appropriate to:

15 (a) Identify the existence and extent of the spill or release;

16 (b) Identify the source and nature of oil or hazardous material involved;

17 and

18 (c) Evaluate the extent of danger to the public health, safety, welfare or  
19 the environment.

20 (2) If any person liable under ORS 466.640 does not immediately commence  
21 and promptly and adequately complete the cleanup, the department may  
22 clean up, or contract for the cleanup of the spill or release or the threatened  
23 spill or release.

24 (3) Whenever the department is authorized to act under subsection (2) of  
25 this section, the department directly or by contract may undertake such in-  
26 vestigations, monitoring, surveys, testing and other information gathering  
27 as it may deem appropriate to identify the existence and extent of the spill  
28 or release, the source and nature of oil or hazardous material involved and  
29 the extent of danger to the public health, safety, welfare or the environment.  
30 In addition, the department directly or by contract may undertake such  
31 planning, fiscal, economic, engineering and other studies and investigations



1 it may deem appropriate to plan and direct clean up actions, to recover the  
2 costs thereof and legal costs and to enforce the provisions of ORS 466.605 to  
3 466.680.

4 **SECTION 11.** ORS 468.135 is amended to read:

5 468.135. (1) [*Subject to the advance notice provisions of ORS 468.125,*] Any  
6 civil penalty imposed under ORS 468.140 shall become due and payable when  
7 the person incurring the penalty receives a notice in writing from the di-  
8 rector of the department, or from the director of a regional air quality con-  
9 trol authority, if the violation occurs within its territory. The notice referred  
10 to in this section shall be sent by registered or certified mail and shall in-  
11 clude:

12 (a) A reference to the particular sections of the statute, rule, standard,  
13 order or permit involved;

14 (b) A short and plain statement of the matters asserted or charged;

15 (c) A statement of the amount of the penalty or penalties imposed; and

16 (d) A statement of the party's right to request a hearing.

17 (2) The person to whom the notice is addressed shall have 20 days from  
18 the date of mailing of the notice in which to make written application for  
19 a hearing before the commission or before the board of directors of a re-  
20 gional air quality control authority.

21 (3) All hearings shall be conducted pursuant to the applicable provisions  
22 of ORS 183.310 to 183.550.

23 (4) When an order assessing a civil penalty under this section becomes  
24 final by operation of law or on appeal, and the amount of penalty is not paid  
25 within 10 days after the order becomes final, the order may be recorded with  
26 the county clerk in any county of this state. The clerk shall thereupon record  
27 the name of the person incurring the penalty and the amount of the penalty  
28 in the County Clerk Lien Record.

29 (5) All penalties recovered under ORS 468.140 shall be paid into the State  
30 Treasury and credited to the General Fund, or in the event the penalty is  
31 recovered by a regional air quality control authority, it shall be paid into

1 the county treasury of the county in which the violation occurred.

2 **SECTION 12.** ORS 468.893 is amended to read:

3 468.893. The Environmental Quality Commission shall adopt rules to carry  
4 out its duties under ORS 279.025, [468.125,] 468.535 and 468.875 to 468.899. In  
5 addition, the commission may:

6 (1) Allow variances from the provisions of ORS 468.875 to 468.897 in the  
7 same manner variances are granted under ORS 468.345.

8 (2) Establish training requirements for contractors applying for an  
9 asbestos abatement license.

10 (3) Establish training requirements for workers applying for a certificate  
11 to work on asbestos abatement projects.

12 (4) Establish standards and procedures to accredit asbestos abatement  
13 training courses for contractors and workers.

14 (5) Establish standards and procedures for licensing contractors and cer-  
15 tifying workers.

16 (6) Issue, renew, suspend and revoke licenses, certificates and accredi-  
17 tations.

18 (7) Determine those classes of asbestos abatement projects for which the  
19 person undertaking the project must notify the department before beginning  
20 the project.

21 (8) Establish work practice standards, compatible with standards of the  
22 Accident Prevention Division of the Department of Insurance and Finance,  
23 for the abatement of asbestos hazards and the handling and disposal of waste  
24 materials containing asbestos.

25 (9) Provide for asbestos abatement training courses that satisfy the re-  
26 quirements for contractor licensing under ORS 468.883 or worker certif-  
27 ication under ORS 468.887.

28 **SECTION 13.** ORS 468.125 is repealed and section 14 of this Act is en-  
29 acted in lieu thereof.

30 **SECTION 14.** (1) No civil penalty prescribed under ORS 468.140 shall be  
31 imposed for a violation of an air, water or solid waste permit issued by the

1 department until the permittee has received five days' advance warning in  
2 writing from the department, specifying the violation and stating that a  
3 penalty will be imposed for the violation unless the permittee submits the  
4 following to the department in writing within five working days after receipt  
5 of the advance warning:

6 (a) A response certifying that the permitted facility is complying with  
7 applicable law; or

8 (b) A proposal to bring the facility into compliance with applicable law  
9 that is acceptable to the department and that includes but is not limited to  
10 proposed compliance dates.

11 (2) No advance notice shall be required under subsection (1) of this sec-  
12 tion if:

13 (a) The violation is intentional;

14 (b) The water or air violation would not normally occur for five consec-  
15 utive days; or

16 (c) The permittee has received prior advance warning of any violation of  
17 the permit within the 36 months immediately preceding the violation.

18

# D R A F T

## SUMMARY

Requires chemical, physical and biological data submitted to Department of Environmental Quality to be performed by environmental laboratory certified by department. Establishes criteria for certification. Appropriates money.

Declares emergency, effective July 1, 1991.

## A BILL FOR AN ACT

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Relating to environmental quality; appropriating money; and declaring an emergency.

**Be It Enacted by the People of the State of Oregon:**

**SECTION 1.** Sections 2 to 6 of this Act are added to and made a part of ORS chapter 468.

**SECTION 2.** As used in sections 3 to 6 of this 1991 Act, "environmental laboratory" means a facility that performs one or more of the following services:

(1) Chemical, physical or biological analysis or testing of the environment;

(2) Environmental sample collection and analysis; or

(3) Other analysis as determined by the Department of Environmental Quality.

**SECTION 3.** (1) The Department of Environmental Quality shall develop and implement criteria for the certification of an environmental laboratory that conducts chemical, physical or biological analysis or testing for submittal to the department.

(2) The criteria developed by the department shall not duplicate any laboratory certification requirements imposed by the United States Environmental Protection Agency.

(3) The criteria may include:

NOTE: Matter in bold face in an amended section is new; matter [italic and bracketed] is existing law to be omitted.

1 (a) Determining the accuracy and precision of test results;

2 (b) Quality assurance and quality control procedures;

3 (c) Proficiency in analysis of audit samples approved by the department;

4 (d) Whether the laboratory has received prior certification by an adjacent  
5 state or a federal agency whose certification criteria is not less stringent  
6 than that of the department;

7 (e) Documentation that sampling procedures approved by the department  
8 are followed in the collection of samples;

9 (f) Documentation that analytical procedures approved by the department  
10 are followed to analyze or test samples; and

11 (g) Other criteria the department considers appropriate.

12 **SECTION 4.** All chemical, physical and biological data required to be  
13 submitted to the Department of Environmental Quality shall be the result  
14 of analyses performed by an environmental laboratory certified by the de-  
15 partment for the type of testing being conducted.

16 **SECTION 5.** The Department of Environmental Quality may require that  
17 any person submitting laboratory data or test results to the department use  
18 a laboratory certified by the department or a laboratory that is certified by  
19 the United States Environmental Protection Agency for the type of testing  
20 performed.

21 **SECTION 6.** The Environmental Quality Commission by rule may estab-  
22 lish an application fee and an annual fee for environmental laboratory cer-  
23 tification. All moneys received under this section shall be paid into the State  
24 Treasury and deposited into the General Fund to the credit of an account  
25 of the Department of Environmental Quality. Such moneys and interest are  
26 appropriated continuously to the Department of Environmental Quality for  
27 the administration and implementation of the certification program estab-  
28 lished under section 3 of this 1991 Act.

29 **SECTION 7.** Sections 2 to 5 of this Act first become operative on  
30 \_\_\_\_\_.

31 **SECTION 8.** This Act being necessary for the immediate preservation of

1 the public peace, health and safety, an emergency is declared to exist, and  
2 this Act takes effect July 1, 1991.

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# LC 1205

## 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 as introduced.

Establishes air pollution emission fee program. Imposes fee for emissions of air contaminants from industrial, residential wood heating, motor vehicles, forest prescribed burning and agricultural field burning sources and activities. Establishes Air Quality Improvement Fund and specifies programs and projects eligible to receive moneys from fund. Appropriates moneys.

## A BILL FOR AN ACT

1

2 Relating to air pollution; creating new provisions; amending ORS 468.065,  
3 468.290, 468.325 and 468.480 and section 8, chapter 920, Oregon Laws 1989;  
4 and appropriating money.

5 Whereas air pollution continues to present a threat to the public health  
6 and welfare of the state despite enactment and implementation of long-  
7 standing regulatory programs at the federal, state and local levels;

8 Whereas providing the purity of the air expected by citizens of the state,  
9 particularly in light of anticipated growth, requires new and innovative ap-  
10 proaches;

11 Whereas tightening of traditional regulatory programs has not met with  
12 widespread support in recent times, particularly for nonindustrial sources,  
13 while the use of a market driven approach has gained increasing support as  
14 a method of motivating and providing assistance to public and industry ef-  
15 forts to prevent and control air pollution; and

16 Whereas an emission fee-based program offers the opportunity to reduce  
17 total statewide air contaminant emissions by up to 40 percent within a 5 to  
18 10-year period.

19 **Be It Enacted by the People of the State of Oregon:**

1       **SECTION 1.** As used in ORS 468.480, section 8, chapter 920, Oregon Laws  
2 1989, and sections 1 to 4, 7 to 9, 11 and 13 to 24 of this 1991 Act:

3       (1) "Agricultural field burning" means the burning of any perennial or  
4 annual grass seed or cereal grain crop, or associated residue, including but  
5 not limited to open burning, stack burning and propane flaming.

6       (2) "Consumer price index" means the average of the Consumer Price In-  
7 dex for All Urban Consumers of the Portland, Oregon, Standard Metropol-  
8 itan Statistical Area or the revision that is most consistent with the  
9 Consumer Price Index for the calendar year 1989, published by the United  
10 States Department of Labor, Bureau of Labor Statistics, as of the close of  
11 the 24-month period ending on July 31 of each biennium.

12       (3) "Federal permit program" means the permit program submitted to the  
13 United States Environmental Protection Agency in accordance with section  
14 502 (d) of the Clean Air Act Amendments of 1990 (P.L. 101-549).

15       (4) "Nonattainment area" means an area of the state that exceeds, on or  
16 after January 1, 1990, the air quality standard for an air contaminant as es-  
17 tablished by the Environmental Quality Commission pursuant to ORS  
18 468.295.

19       **SECTION 2.** The Legislative Assembly declares the purpose of this 1991  
20 Act is to:

21       (1) Authorize the imposition of air contaminant emission fees on indus-  
22 trial sources as required by the Clean Air Act Amendments of 1990.

23       (2) Provide an economic incentive to reduce air contamination from all  
24 major source categories of air contaminants in the state.

25       (3) Establish a fund for financing public and private sector programs and  
26 projects in all areas of the state that substantially improve air quality.

27       (4) Enhance the air quality of the state while conserving energy and en-  
28 couraging orderly growth and economic development.

29       (5) Develop an awareness that the air resources of the state are not a free  
30 dumping ground for air contaminants and that emissions of air contaminants  
31 may have a negative environmental or economic effect on a neighbor, a local



airshed or the state as a whole or even on a global basis.

**SECTION 3.** (1) An emission fee is imposed on activities or sources that result directly or indirectly in the discharge of air contaminants into the outdoor atmosphere of this state. The amount of the fee shall be based on an average base rate of \$25 per ton of emissions. The specific amount of the fee for each source or activity set forth in subsection (4) of this section as established by the Environmental Quality Commission shall be based on the product of the average base rate and the following factors for each major air contaminant which are weighted to the potential environmental impact of the contaminant:

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Contaminant	Factor
(a) Volatile Organic Compounds: .....	1.75
(b) PM10: .....	1.68
(c) Nitrogen Oxides: .....	0.87
(d) Sulfur Oxides: .....	0.66
(e) Carbon Monoxide: .....	0.04

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(2) For any toxic air contaminant from an industrial source not included under subsection (1) of this section for which the Environmental Quality Commission adopts standards pursuant to section 112 of the Clean Air Act Amendments of 1990 (P.L. 101-549), the specific factor shall be adopted by rule by the commission. The specific fee for emissions of such toxic air contaminants shall be the product of the specific factor and an average base rate of \$25 per ton of emissions. The factor adopted by the commission shall average approximately 1.00 and not exceed 2.00.

(3) The average base rate of the emission fees established in subsections (1) and (2) of this section shall be increased biennially by the percentage, if any, by which the Consumer Price Index increases.

(4) The emission fees established under subsections (1) and (2) of this section shall apply to emissions from:

1 (a) Industrial sources, as specified in section 4 of this 1991 Act;

2 (b) Residential wood heating sources, as specified in section 7 of this 1991  
3 Act;

4 (c) Motor vehicle sources, as specified in section 8 of this 1991 Act;

5 (d) Forest prescribed burning sources as specified in section 8, chapter  
6 920, Oregon Laws 1989, and section 9 of this 1991 Act; and

7 (e) Agricultural field burning sources as specified in ORS 468.480 and  
8 section 11 of this 1991 Act.

9 (5) A person shall be liable for the payment of a fee established under this  
10 section for activities resulting in the emission of air contaminants that occur  
11 on or after July 1, 1992, or such later date as established by the commission  
12 by rule. The person shall pay the emission fee in accordance with a schedule  
13 established by the commission.

14 **SECTION 4.** (1) All industrial emission sources subject to the federal  
15 permit program shall be subject to an emission fee as specified in section 3  
16 of this 1991 Act. The fees shall be assessed on permitted emissions. The fees  
17 shall be collected by either the Department of Environmental Quality or by  
18 a regional authority having jurisdiction over the source.

19 (2) An industrial emission source may apply to the department for a par-  
20 tial refund of the fee submitted under subsection (1) of this section if actual  
21 emissions are less than permitted emissions. Any industrial source applying  
22 for a partial refund shall do so in accordance with rules adopted by the  
23 Environmental Quality Commission under section 24 of this 1991 Act.

24 (3) Any penalty paid under section 510 of the Clean Air Act Amendments  
25 of 1990 for emissions in excess of allowances possessed by a source and any  
26 amount paid under section 519 of the Clean Air Act Amendments of 1990 for  
27 the purchase of allowances shall be credited in the year paid against emis-  
28 sion fees due for emissions of the same air contaminants in excess of 4,000  
29 tons per year.

30 (4) All fees collected under this section from an industrial source shall  
31 be deposited in the State Treasury to the credit of the Industrial Programs

1 Subaccount of the Air Quality Improvement Fund created under section 13  
2 of this 1991 Act.

3 **SECTION 5.** ORS 468.065 is amended to read:

4 468.065. Subject to any specific requirements imposed by ORS 448.305,  
5 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535,  
6 454.605 to 454.745 and this chapter:

7 (1) Applications for all permits authorized or required by ORS 448.305,  
8 454.010 to 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535,  
9 454.605 to 454.745 and this chapter shall be made in a form prescribed by the  
10 department. Any permit issued by the department shall specify its duration,  
11 and the conditions for compliance with the rules and standards, if any,  
12 adopted by the commission pursuant to ORS 448.305, 454.010 to 454.040,  
13 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and  
14 this chapter.

15 (2) By rule and after hearing, the commission may establish a schedule  
16 of fees for permits issued pursuant to ORS 468.310, 468.315, 468.555 and  
17 468.740. **Except for permits issued under ORS 468.310 and 468.315 for an**  
18 **industrial source subject to the fee assessed under section 4 of this 1991**  
19 **Act,** the fees contained in the schedule shall be based upon the anticipated  
20 cost of filing and investigating the application, of issuing or denying the  
21 requested permit, and of an inspection program to determine compliance or  
22 noncompliance with the permit. The fee shall accompany the application for  
23 the permit. **For a permit issued under ORS 468.310 and 468.315 for an**  
24 **industrial source subject to the fee assessed under section 4 of this 1991**  
25 **Act, the schedule of fees and the payment due dates shall be as es-**  
26 **tablished by rule by the commission under section 24 of this 1991 Act.**

27 (3) An applicant for certification of a project under ORS 468.732 or 468.734  
28 shall pay as a fee all expenses incurred by the commission and department  
29 related to the review and decision of the director and commission. These  
30 expenses may include legal expenses, expenses incurred in processing and  
31 evaluating the application, issuing or denying certification and expenses of

1 commissioning an independent study by a contractor of any aspect of the  
2 proposed project. These expenses shall not include the costs incurred in de-  
3 fending a decision of either the director or the commission against appeals  
4 or legal challenges. Every applicant for certification shall submit to the de-  
5 partment a fee at the same time as the application for certification is filed.  
6 The fee for a new project shall be \$5,000, and the fee for an existing project  
7 needing relicense shall be \$3,000. To the extent possible, the full cost of the  
8 investigation shall be paid from the application fee paid under this section.  
9 However, if the costs exceed the fee, the applicant shall pay any excess costs  
10 shown in an itemized statement prepared by the department. In no event  
11 shall the department incur expenses to be borne by the applicant in excess  
12 of 110 percent of the fee initially paid without prior notification to the ap-  
13 plicant. In no event shall the total fee exceed \$40,000 for a new project or  
14 \$30,000 for an existing project needing relicense. If the costs are less than  
15 the initial fee paid, the excess shall be refunded to the applicant.

16 (4) The department may require the submission of plans, specifications  
17 and corrections and revisions thereto and such other reasonable information  
18 as it considers necessary to determine the eligibility of the applicant for the  
19 permit.

20 (5) The department may require periodic reports from persons who hold  
21 permits under ORS 448.305, 454.010 to 454.040, 454.205 to 454.225, 454.405,  
22 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter. The report  
23 shall be in a form prescribed by the department and shall contain such in-  
24 formation as to the amount and nature or common description of the  
25 pollutant, contaminant or waste and such other information as the depart-  
26 ment may require.

27 (6) Any fee collected under this section shall be deposited in the State  
28 Treasury to the credit of an account of the department. Such fees are con-  
29 tinuously appropriated to meet the administrative expenses of the program  
30 for which they are collected. The fees accompanying an application to a re-  
31 gional air pollution control authority pursuant to a permit program author-

1 ized by the commission shall be retained by and shall be income to the  
2 regional authority. Such fees shall be accounted for and expended in the  
3 same manner as are other funds of the regional authority. However, if the  
4 department finds after hearing that the permit program administered by the  
5 regional authority does not conform to the requirements of the permit pro-  
6 gram approved by the commission pursuant to ORS 468.555, such fees shall  
7 be deposited and expended as are permit fees submitted to the department.

8 **SECTION 6.** ORS 468.325 is amended to read:

9 468.325. (1) The commission may require notice prior to the construction  
10 of new air contamination sources specified by class or classes in its rules  
11 or standards relating to air pollution.

12 (2) Within 30 days of receipt of such notice, the commission may require,  
13 as a condition precedent to approval of the construction, the submission of  
14 plans and specifications. After examination thereof, the commission may re-  
15 quest corrections and revisions to the plans and specifications. The commis-  
16 sion may also require any other information concerning air contaminant  
17 emissions as is necessary to determine whether the proposed construction is  
18 in accordance with the provisions of ORS 448.305, 454.010 to 454.040, 454.205  
19 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this  
20 chapter and applicable rules or standards adopted pursuant thereto.

21 (3) If the commission determines that the proposed construction is in ac-  
22 cordance with the provisions of ORS 448.305, 454.010 to 454.040, 454.205 to  
23 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to 454.745 and this chapter  
24 and applicable rules or standards adopted pursuant thereto, it shall enter an  
25 order approving such construction. If the commission determines that the  
26 construction does not comply with the provisions of ORS 448.305, 454.010 to  
27 454.040, 454.205 to 454.255, 454.405, 454.425, 454.505 to 454.535, 454.605 to  
28 454.745 and this chapter and applicable rules or standards adopted pursuant  
29 thereto, it shall notify the applicant and enter an order prohibiting the  
30 construction.

31 (4) If within 60 days of the receipt of plans, specifications or any subse-

1 quently requested revisions or corrections to the plans and specifications or  
2 any other information required pursuant to this section, the commission fails  
3 to issue an order, the failure shall be considered a determination that the  
4 construction may proceed. The construction must comply with the plans,  
5 specifications and any corrections or revisions thereto or other information,  
6 if any, previously submitted.

7 (5) Any person against whom the order is directed may, within 20 days  
8 from the date of mailing of the order, demand a hearing. The demand shall  
9 be in writing, shall state the grounds for hearing and shall be mailed to the  
10 director of the department. The hearing shall be conducted pursuant to the  
11 applicable provisions of ORS 183.310 to 183.550.

12 (6) The commission may delegate its duties under subsections (2) to (4)  
13 of this section to the Director of the Department of Environmental Quality.  
14 If the commission delegates its duties under this section, any person against  
15 whom an order of the director is directed may demand a hearing before the  
16 commission as provided in subsection (5) of this section.

17 (7) Any person applying for a permit required under ORS 468.310 for  
18 a new source or a major modification which, upon construction and  
19 operation, would be subject to the emission fee assessed under section  
20 4 of this 1991 Act shall submit with the permit application a  
21 nonrefundable permit issuance fee. All permit issuance fees shall be  
22 in an amount sufficient to pay for the department's extraordinary  
23 application processing costs as established by the commission under  
24 section 24 of this 1991 Act. All fees collected under this subsection  
25 shall be deposited in the State Treasury to the credit of an account  
26 of the department and are continuously appropriated to the depart-  
27 ment to be used to carry out the department's responsibilities relating  
28 to processing applications for new sources or major modifications of  
29 existing sources.

30 [(7)] (8) For the purposes of this section, "construction" includes instal-  
31 lation and establishment of new air contamination sources. Addition to or

1 enlargement or replacement of an air contamination source, or any major  
2 alteration or modification therein that significantly affects the emission of  
3 air contaminants shall be considered as construction of a new air contam-  
4 ination source.

5 **SECTION 7.** (1) Any federal, state or private land manager providing  
6 cordwood shall pay to the Department of Environmental Quality the emis-  
7 sion fee imposed under section 3 of this 1991 Act.

8 (2) Any private land manager whose forestland holdings in this state are  
9 less than 1,000 acres shall be exempt from the fee required under subsection  
10 (1) of this section.

11 (3) All fees collected under this section shall be deposited in the State  
12 Treasury to the credit of the Residential Wood Heating Subaccount of the  
13 Air Quality Improvement Fund created under section 13 of this 1991 Act.

14 (4) As used in this section, "cordwood" means any split or unsplit logs  
15 or branches of any length, other than artificially compressed logs or  
16 pelletized fuel, that are to be used, sold or resold as fuel for residential space  
17 heating.

18 **SECTION 8.** (1) The emission fee imposed under section 3 of this 1991  
19 Act shall be assessed on motor vehicle emissions. This fee shall include a  
20 statewide component and a regional component for ozone nonattainment  
21 areas to address the significant portion of ozone precursors emitted by motor  
22 vehicles.

23 (2) All moneys collected under this section shall be deposited in the State  
24 Treasury to the credit of the Transportation Programs Subaccount of the  
25 Air Quality Improvement Fund created under section 13 of this 1991 Act.

26 **SECTION 9.** (1) The emission fee imposed under section 3 of this 1991  
27 Act shall be collected from any person who conducts forest prescribed burn-  
28 ing in Class 1 forestland under ORS 526.324 that is privately owned or  
29 managed by the state or Federal Government.

30 (2) For those forestlands subject to the registration requirements of sec-  
31 tion 8, chapter 920, Oregon Laws 1989, the fee required under subsection (1)

1 of this section shall be collected as a surcharge on the fee collected under  
2 section 8, chapter 920, Oregon Laws 1989. For all prescribed burning con-  
3 ducted on forestlands not subject to chapter 920, Oregon Laws 1989, the En-  
4 vironmental Quality Commission shall select the lowest cost mechanism for  
5 collecting the emission fee.

6 (3) All emission fees collected under this section shall be deposited in the  
7 State Treasury to the credit of the Forest Prescribed Burning Subaccount  
8 of the Air Quality Improvement Fund created under section 13 of this 1991  
9 Act.

10 (4) As used in this section, "forest prescribed burning" includes broadcast  
11 and pile burning.

12 **SECTION 10.** Section 8, chapter 920, Oregon Laws 1989, is amended to  
13 read:

14 Sec. 8. (1) The department shall collect a nonrefundable registration fee  
15 for forestland to be burned lying within the restricted area described under  
16 ORS 477.515 (3).

17 (2) Any owner of Class 1 forestland under ORS 526.324 and any agency  
18 managing Class 1 forestland under ORS 526.324 lying within the restricted  
19 area as described in the plan required under ORS 477.515 (3) shall register  
20 with the State Forester, in accordance with rules adopted by the State  
21 Forester, the number of acres to be burned prior to December 31 of the same  
22 year.

23 (3) The State Forester shall establish by rule the amount of fees to be  
24 collected under this section. The fees shall not exceed:

25 (a) Fifty cents per acre for registration.

26 (b) \$1.50 per acre for forestland classified as Class 1 under ORS 526.324  
27 that has been treated by any prescription burn method authorized by the is-  
28 suance of a permit under ORS 477.515 (1).

29 (4) Federal lands included within the restricted area under the provision  
30 of the smoke management plan approved under ORS 477.515 (3)(a) shall also  
31 be subject to the fees authorized under subsection (3) of this section for



1 forest land to be treated by any prescription burn method subject to the  
2 provisions of the State of Oregon Clean Air Act Implementation Plan and  
3 the Federal Clean Air Act as amended by the Clean Air Act Amend-  
4 ments of 1990 (P.L. 101-549).

5 (5) Except as provided in subsection (6) of this section,  
6 notwithstanding ORS 291.238, moneys collected under this section shall be  
7 deposited in the Oregon Forest Smoke Management Account established un-  
8 der section 7, chapter 920, Oregon Laws 1989 [*of this 1989 Act*].

9 (6) For any forestlands subject to the registration under this sec-  
10 tion, the emission fee imposed under section 3 of this 1991 Act shall  
11 be collected as a surcharge from the person conducting the forest  
12 prescribed burning. All fees collected as a surcharge under this sub-  
13 section shall be deposited in the State Treasury to the credit of the  
14 Forest Prescribed Burning Subaccount of the Air Quality Improve-  
15 ment Fund created under section 13 of this 1991 Act.

16 (7) As used in this section, "forest prescribed burning" includes  
17 broadcast and pile burning.

18 SECTION 11. (1) The emission fee imposed under section 3 of this 1991  
19 Act shall be collected from any person who conducts agricultural field  
20 burning.

21 (2) For all agricultural field burning in areas of the state not subject to  
22 ORS 468.455 to 468.490, the Environmental Quality Commission shall select  
23 the lowest cost mechanism for collecting the emission fee.

24 (3) All emission fees collected under this section shall be deposited in the  
25 State Treasury to the credit of the Agricultural Burning Subaccount of the  
26 Air Quality Improvement Fund created under section 13 of this 1991 Act.

27 SECTION 12. ORS 468.480 is amended to read:

28 468.480. (1)(a) On or before April 1 of each year, the grower of a grass  
29 seed crop shall register with the county court or board of county commis-  
30 sioners or the fire chief of a rural fire protection district, or the designated  
31 representative of the fire chief, the number of acres to be burned in the re-

1 mainder of the year. At the time of registration the Department of Environ-  
2 mental Quality shall collect a nonrefundable fee of \$1 per acre registered.  
3 The department may contract with counties and rural fire protection dis-  
4 tricts for the collection of the fees which shall be forwarded to the depart-  
5 ment. Any person registering after the dates specified in this subsection shall  
6 pay an additional fee of \$1 per acre registered if the late registration is due  
7 to the fault of the late registrant or one under the control of the late regis-  
8 trant. Late registrations must be approved by the department. Copies of the  
9 registration form shall be forwarded to the department. The required regis-  
10 tration must be made and the fee paid before a permit shall be issued under  
11 ORS 468.458.

12 (b) Except as provided in paragraph (c) of this subsection, after July 2,  
13 1975, the department shall collect a fee of \$2.50 per acre of crop burned prior  
14 to the issuance of any permit for open burning of perennial or annual grass  
15 seed crops or cereal grain crops under ORS 468.140, 468.150, 468.290 and  
16 468.455 to 468.480. The department may contract with counties and rural fire  
17 protection districts for the collection of the fees which shall be forwarded  
18 to the department.

19 (c) The fee required by paragraph (b) of this subsection shall be refunded  
20 for any acreage where efficient burning of stubble is accomplished with  
21 equipment using an auxiliary fuel or mobile field sanitizer which has been  
22 approved by the department for field sanitizing purposes or with any other  
23 certified alternative method to open field burning. The fee required by par-  
24 agraph (b) of this subsection shall be refunded for any acreage not harvested  
25 prior to burning and for any acreage not burned.

26 (2) With regard to the disbursement of funds collected pursuant to sub-  
27 section (1) of this section, the department shall:

28 (a) Pay an amount to the county or board of county commissioners or the  
29 fire chief of the rural fire protection district, for each fire protection district  
30 50 cents per acre registered for each of the first 5,000 acres registered in the  
31 district, 35 cents per acre registered for each of the second 5,000 acres reg-

1 istered in the district and 20 cents per acre registered for all acreage regis-  
2 tered in the district in excess of 10,000 acres, to cover the cost of and to be  
3 used solely for the purpose of administering the program of registration of  
4 acreage to be burned, issuance of permits, keeping of records and other  
5 matters directly related to agricultural field burning.

6 (b) Designate and retain an amount not to exceed \$500,000 for the  
7 biennium beginning July 1, 1979, to be used for the smoke management pro-  
8 gram defined in ORS 468.453. The department by contract with the Oregon  
9 Seed Council or otherwise shall organize rural fire protection districts and  
10 growers, coordinate and provide communications, hire ground support per-  
11 sonnel, provide aircraft surveillance and provide such added support services  
12 as are necessary.

13 (c) Deposit the balance of acreage fees in the State Treasury to be cred-  
14 ited to the account of the department. Such fees shall be segregated from  
15 other funds and used for the carrying out of the provisions of ORS 468.470,  
16 but if the amount designated in paragraph (b) of this subsection is not suf-  
17 ficient to support the carrying out of the smoke management program, the  
18 fees shall be used for the smoke management program.

19 **(3) For any area of the state subject to registration under this sec-**  
20 **tion, the emission fee imposed under section 3 of this 1991 Act shall**  
21 **be collected as a surcharge from the person conducting the agricul-**  
22 **tural field burning. All fees collected as a surcharge under this sub-**  
23 **section shall be deposited in the State Treasury to the credit of the**  
24 **Agricultural Burning Subaccount of the Air Quality Improvement**  
25 **Fund created under section 13 of this 1991 Act.**

26 **SECTION 13.** (1) There is created within the State Treasury a fund  
27 known as the Air Quality Improvement Fund, separate and distinct from the  
28 General Fund. The fund shall include six subaccounts to be managed sepa-  
29 rately:

- 30 (a) The Transportation Programs Subaccount;  
31 (b) The Residential Wood Heating Subaccount;

- 1 (c) The Agricultural Burning Subaccount;
- 2 (d) The Forest Prescribed Burning Subaccount;
- 3 (e) The Industrial Programs Subaccount; and
- 4 (f) The Common Subaccount.

5 (2) The following moneys shall be credited to the Air Quality Improve-  
6 ment Fund:

7 (a) Such moneys as may be appropriated to the fund and separate subac-  
8 counts by the Legislative Assembly.

9 (b) All moneys received as fees under ORS 468.480, section 8, chapter 920,  
10 Oregon Laws 1989, and sections 4, 7 to 9 and 11 of this 1991 Act.

11 (3) The State Treasurer may invest and reinvest the moneys in the fund  
12 as provided in ORS 293.701 to 293.776. Interest from the moneys deposited in  
13 the fund and earnings from investment of the moneys in the fund shall ac-  
14 crue to the fund and shall be credited to the subaccount from which the in-  
15 terest or earnings are derived.

16 **SECTION 14.** (1) An Air Quality Improvement Fund Advisory Board is  
17 established to advise the Environmental Quality Commission on uses of the  
18 moneys available in the Air Quality Improvement Fund. The advisory board  
19 shall consist of nine members as specified in subsection (2) of this section.

20 (2) The Air Quality Improvement Fund Advisory Board shall consist of:

21 (a) Two members of the public, appointed by the Governor, one of whom  
22 shall serve as chair;

23 (b) The chair of the Economic Development Commission, or designee;

24 (c) The chair of the Energy Facility Siting Council, or designee;

25 (d) The chair of the Land Conservation and Development Commission, or  
26 designee;

27 (e) The chair of the Public Health Advisory Board, or designee;

28 (f) The chair of the State Board of Agriculture, or designee;

29 (g) The chair of the State Board of Forestry, or designee; and

30 (h) The chair of the Oregon Transportation Commission, or designee.

31 (3) A member of the board is entitled to compensation and expenses as

1 provided in ORS 292.495 which shall be payable from the Air Quality Im-  
2 provement Fund.

3 **SECTION 15.** At least biennially, the Department of Environmental  
4 Quality shall solicit and compile a list of projects and programs eligible for  
5 air quality improvement funding along with an analysis of the relative merits  
6 of each project and present this information to the Air Quality Improvement  
7 Fund Advisory Board for consideration. In preparing this analysis, the de-  
8 partment shall request comments from other state departments and agencies  
9 whose programs may be affected by the projects or programs.

10 **SECTION 16.** (1) At least biennially, the Air Quality Improvement Fund  
11 Advisory Board shall recommend to the Environmental Quality Commission  
12 projects and programs to be funded from the Air Quality Improvement Fund.

13 (2) Before submitting its recommendations to the commission, the board  
14 shall consider the list of projects and programs compiled by the Department  
15 of Environmental Quality under section 15 of this 1991 Act and shall conduct  
16 public hearings on its proposed recommendations in order to obtain com-  
17 ments from interested persons, including but not limited to persons in in-  
18 dustry, city government, county government, automobile organizations,  
19 environmental organizations, agriculture, forestry, the woodstove industry  
20 and public health. The board shall conduct public hearings according to the  
21 provisions under ORS 183.310 to 183.550 applicable to hearings in noncon-  
22 tested cases.

23 **SECTION 17.** (1) At least once each biennium, the Environmental Qual-  
24 ity Commission shall select the projects and programs to be funded from  
25 moneys available in the Air Quality Improvement Fund. In selecting the  
26 programs and projects, the commission shall take into consideration the  
27 recommendations received under section 16 of this 1991 Act and the public  
28 comments received in the public hearings conducted under section 16 of this  
29 1991 Act.

30 (2) The selected projects and programs shall be submitted to the Legisla-  
31 tive Assembly as part of the biennial budget process. Up to 20 percent of

1 available moneys may be budgeted for projects and programs to be selected  
2 by the commission during the biennium.

3 **SECTION 18.** Moneys remaining in the Air Quality Improvement Fund  
4 after paying for refunds, fee collection costs and expenses of the Department  
5 of Environmental Quality to administer the federal permit program and the  
6 Air Quality Improvement Fund programs shall be allocated in accordance  
7 with the following guidelines:

8 (1) To be eligible, a project or program must relate in some manner to  
9 preventing or reducing air contaminant emissions in the State of Oregon.

10 (2) Moneys may be allocated to a federal, state, local government, public  
11 or private project or program including but not limited to those identified  
12 in sections 19 to 23 of this 1991 Act.

13 (3) The moneys may be used in any reasonable and appropriate manner,  
14 including but not limited to:

15 (a) Capital improvement projects;

16 (b) Low or no interest loan programs;

17 (c) Program operating subsidies; and

18 (d) Grants.

19 (4) Priority shall be given to those projects or programs that:

20 (a) Achieve the largest reductions in emissions and exposure to air con-  
21 taminants;

22 (b) Are principally dedicated to full-scale air quality improvement  
23 projects;

24 (c) Achieve larger emission reductions per dollar expended than alternate  
25 projects or programs;

26 (d) Receive additional funding or in-kind services from the Federal Gov-  
27 ernment, state government, local governments or private industry;

28 (e) Provide energy or other environmental benefits; and

29 (f) Address airshed problems that are barriers to orderly growth and  
30 economic development.

31 **SECTION 19.** (1) Moneys credited to the Industrial Programs Subaccount

1 from industrial sources are continuously appropriated for the following pur-  
2 poses:

3 (a) To pay for partial refunds of the emission fees collected under section  
4 4 of this 1991 Act if actual emissions are less than permitted emissions.

5 (b) To pay for all costs incurred by the Department of Environmental  
6 Quality and any regional authority in administering the federal permit pro-  
7 gram, collecting emission fees assessed under section 4 of this 1991 Act,  
8 maintaining industrial emission inventories, analyzing projects and programs  
9 proposed for funding and administering projects and programs selected for  
10 funding under this section.

11 (2) Of the moneys remaining in the Industrial Programs Subaccount after  
12 payment of the costs and refunds under subsection (1) of this section:

13 (a) Eighty percent shall be used for projects and programs relating to the  
14 reduction in emissions from industrial sources subject to the federal permit  
15 program; and

16 (b) Twenty percent shall be transferred to the Common Subaccount within  
17 the Air Quality Improvement Fund to be used for any eligible project or  
18 program. Any moneys remaining in the Industrial Programs Subaccount at  
19 the end of a biennium after all eligible projects and programs are funded also  
20 shall be transferred to the Common Subaccount.

21 **SECTION 20.** (1) Moneys credited to the Residential Wood Heating Sub-  
22 account from the cordwood emission fee collected under section 7 of this 1991  
23 Act are continuously appropriated for the following purposes:

24 (a) To pay all costs incurred by the Department of Environmental Quality  
25 to collect the emission fee imposed under section 7 of this 1991 Act; and

26 (b) To pay all costs incurred by the department in maintaining residential  
27 wood heating emissions inventories, analyzing projects and programs pro-  
28 posed for funding in accordance with this section, and administering projects  
29 and programs selected for funding in accordance with this section.

30 (2) Of the moneys remaining in the Residential Wood Heating Subaccount  
31 after payment of the costs under subsection (1) of this section:

1 (a) Eighty percent shall be used for projects and programs relating to the  
2 reduction in emissions from residential wood burning; and

3 (b) Twenty percent shall be transferred to the Common Subaccount to be  
4 used for any eligible project or program. Any moneys remaining in the Res-  
5 idential Wood Heating Subaccount at the end of a biennium after all eligible  
6 projects and programs are funded also shall be transferred to the Common  
7 Subaccount.

8 (3) A portion of the moneys available under paragraph (a) of subsection  
9 (2) of this section shall be used to fund the following projects and programs  
10 at the level determined by the commission under section 17 of this 1991 Act:

11 (a) All reasonable costs of local government public education, curtailment  
12 and opacity programs to reduce residential wood heating emissions in an  
13 area that is a nonattainment area for suspended particulates with a diameter  
14 below 10 microns.

15 (b) A statewide low or no interest loan program to replace traditional  
16 woodstoves. The statewide program shall include the following elements:

17 (A) All forms of new high efficiency, low air contaminant emitting heat-  
18 ing systems are allowed;

19 (B) Any removed woodstove must be destroyed; and

20 ~~(C)~~ Installations of used woodstoves that were not certified for sale as  
21 new on or after July 1, 1988, under ORS 468.655 (1) shall be prohibited by the  
22 state building code as defined in ORS 455.010.

23 (4) In addition to other projects and programs that comply with the  
24 guidelines set forth in section 18 of this 1991 Act, the commission also shall  
25 consider for funding at a level determined by the commission under section  
26 17 of this 1991 Act, local government programs to provide subsidies to low  
27 income persons in PM10 nonattainment areas for improvements in  
28 weatherization and replacement of woodstoves that were not certified under  
29 ORS 468.655 for sale as new on or after July 1, 1988. The local government  
30 programs must include the following elements to be eligible for funding:

31 (a) All forms of new high efficiency, low emitting heating systems are



1 allowed.

2 (b) All woodstoves removed are destroyed.

3 (c) The local government adopts and enforces an ordinance that limits  
4 emissions from woodstoves to no visible smoke, except for steam and heat  
5 waves, during periods of air stagnation and to 20 percent opacity at all other  
6 times. This requirement shall not be in lieu of any final stage of woodstove  
7 curtailment required during air stagnation if the final stage of curtailment  
8 is necessary to prevent exceeding air quality standards established under  
9 ORS 468.295.

10 (d) In an airshed requiring more than a 50 percent reduction in  
11 woodheating emissions as specified in the PM10 State Implementation Plan  
12 control strategy, program participants are required to have a backup heat  
13 source if a certified wood stove is selected.

14 **SECTION 21.** (1) Moneys credited to the Transportation Programs Sub-  
15 account from fees received under section 8 of this 1991 Act are continuously  
16 appropriated for the following purposes:

17 (a) To pay all costs incurred by the Department of Environmental Quality  
18 and other entities to collect the emission fees imposed under section 8 of this  
19 1991 Act.

20 (b) To pay for all costs incurred by the department in maintaining trans-  
21 portation emission inventories, analyzing projects and programs proposed for  
22 funding under this section and administering projects and programs selected  
23 for funding under this section.

24 (2) Of the moneys remaining in the Transportation Programs Subaccount  
25 after payment of the costs under subsection (1) of this section:

26 (a) Eighty percent shall be used for projects and programs relating to the  
27 reduction in emissions from transportation; and

28 (b) Twenty percent shall be transferred to the Common Subaccount within  
29 the Air Quality Improvement Fund to be used for any eligible project or  
30 program. Any moneys remaining in the Transportation Programs Subaccount  
31 at the end of a biennium after all eligible projects and programs are funded

1 also shall be transferred to the Common Subaccount.

2 (3) A portion of the moneys available under paragraph (a) of subsection  
3 (2) of this section shall be used to fund the following projects and programs  
4 at the level determined by the commission under section 17 of this 1991 Act:

5 (a) A rebate program for resident individuals who purchase new  
6 alternative-fueled vehicles or convert a gasoline or diesel powered vehicle,  
7 in whole or in part, to an alternative-fueled vehicle. The amount of a rebate  
8 shall not exceed \$2,000 a vehicle;

9 (b) A feasibility study and pilot demonstration project to collect tolls on  
10 transportation routes congested by peak commuter traffic. At least one such  
11 study shall be conducted in the Portland metropolitan area;

12 (c) Transit service improvements including transit equipment acquisition  
13 and related operating expenses; and

14 (d) Work trip reduction projects sponsored by private or public employers  
15 of over 100 employees if the project meets the following conditions:

16 (A) The employer submits a trip reduction plan, in accordance with rules  
17 adopted by the commission under section 24 of this 1991 Act, to achieve an  
18 average vehicle ridership for employee vehicles of at least 1.5; and

19 (B) The application provides specific funding requests which may include  
20 transit service improvements, van pool or car pool equipment, transit subsi-  
21 dies or other measures designed to achieve the vehicle ridership target  
22 specified in the trip reduction plan.

23 (4) As used in this section, "average vehicle ridership" means the figure  
24 derived by dividing the average employee population at a given worksite that  
25 reports to work weekdays between 6:00 a.m. and 10:00 a.m. by the number  
26 of motor vehicles, excluding transit vehicles and vehicles stopping enroute  
27 to other worksites, driven by these employees commuting from home to the  
28 worksite during these hours.

29 **SECTION 22.** (1) Moneys credited to the Agricultural Burning Subac-  
30 count are continuously appropriated for the following purposes:

31 (a) To pay for all costs incurred by the Department of Environmental

1 Quality and other entities to collect the emission fees imposed under ORS  
2 468.480 and section 11 of this 1991 Act; and

3 (b) To pay for all costs incurred by the department in maintaining agri-  
4 cultural burning emissions inventories, analyzing projects and programs  
5 proposed for funding in accordance with this section and administering  
6 projects and programs selected for funding in accordance with this section.

7 (2) Of the moneys remaining in the Agricultural Burning Subaccount af-  
8 ter payment of the costs under subsection (1) of this section:

9 (a) Eighty percent shall be used for projects and programs relating to the  
10 reduction of emissions from agricultural field burning; and

11 (b) Twenty percent shall be transferred to the Common Subaccount within  
12 the Air Quality Improvement Fund to be used for any eligible project or  
13 program. Any moneys remaining in the Agricultural Burning Subaccount at  
14 the end of a biennium after all eligible projects and programs are funded also  
15 shall be transferred returned to the Common Subaccount.

16 **SECTION 23.** (1) Moneys credited to the Forest Prescribed Burning  
17 Subaccount are continuously appropriated for the following purposes:

18 (a) To pay for all costs incurred by the Department of Environmental  
19 Quality and other entities to collect the forest prescribed burning emission  
20 fees imposed under section 8, chapter 920, Oregon Laws 1989, and section 9  
21 of this 1991 Act; and

22 (b) To pay for all costs incurred by the department in maintaining forest  
23 prescribed burning emissions inventories, analyzing projects and programs  
24 proposed for funding in accordance with this section and administering  
25 projects and programs selected for funding in accordance with this section.

26 (2) Of the moneys remaining in the Forest Prescribed Burning Subaccount  
27 after payment of the costs under subsection (1) of this section:

28 (a) Eighty percent shall be used for projects and programs relating to the  
29 reduction of emissions from forest prescribed burning; and

30 (b) Twenty percent shall be transferred to the Common Subaccount within  
31 the Air Quality Improvement Fund to be used for any eligible project or

1 program. Any moneys remaining in the Forest Prescribed Burning Subac-  
2 count at the end of a biennium after all eligible projects and programs are  
3 funded also shall be transferred to the Common Subaccount.

4 **SECTION 24.** The Environmental Quality Commission shall establish  
5 rules necessary to implement the provisions of sections 1 to 4, 7 to 9, 11 and  
6 13 to 24 of this 1991 Act. The rules shall include but need not be limited to:

7 (1) The specific factor to be used to determine the specific emission fee  
8 for any toxic air contaminant under section 3 (2) of this 1991 Act.

9 (2) Emission calculation methodologies, specific fee schedules based on  
10 the fees established under section 3 of this 1991 Act and fee payment due  
11 dates for sources subject to emission fees. To the extent practicable, the fee  
12 schedule shall relate to actual emissions. The fee schedule for each category  
13 of sources shall be enumerated and assessed in the following units:

14 (a) Dollars per ton of emissions for emissions fees assessed under section  
15 4 of this 1991 Act.

16 (b) Dollars per cord of wood for residential wood heating emissions fees  
17 assessed under section 7 of this 1991 Act. The specific fee schedules estab-  
18 lished for cordwood shall take into account the effect of wood species on  
19 emissions.

20 (c) Dollars per vehicle for the emission fees assessed under section 8 of  
21 this 1991 Act.

22 (d) Dollars per acre for prescribed forest burning emission fees assessed  
23 under section 8, chapter 920, Oregon Laws 1989, or section 9 of this 1991 Act.  
24 The specific fee schedule shall take into consideration fuel moisture, fuel  
25 loadings, lighting and mop-up techniques.

26 (e) Dollars per acre for agricultural field burning emission fees assessed  
27 under ORS 468.480 and section 11 of this 1991 Act. The specific fee schedule  
28 shall take into consideration fuel moisture, fuel loading and lighting tech-  
29 niques.

30 (3) Procedures for submitting project and program proposals for funding  
31 from the Air Quality Improvement Fund including, but not limited to, the

1 content, format and due date for proposals.

2 (4) Criteria for selecting projects and programs for funding from the Air  
3 Quality Improvement Fund.

4 (5) Minimum conditions to be included in any agreement approving a  
5 project or program including but not limited to oversight, evaluation, fiscal  
6 control and accounting procedures.

7 (6) The portion of the emission fees that may be retained by an entity that  
8 collects an emission fee to reimburse the entity for the reasonable costs in-  
9 curred in collecting the fee. The maximum may not exceed 15 percent of the  
10 amount of fees collected by the entity.

11 (7) Requirements for obtaining partial refunds under section 4 of this 1991  
12 Act. The requirements shall specify acceptable and accurate methods for de-  
13 termining actual emissions including but not limited to emission monitoring,  
14 material balances, fuel use and production data. The maximum total refund  
15 shall be the difference between the revenues actually received from fees  
16 collected under section 4 of this 1991 Act and the amount of the fee due when  
17 calculated on actual emissions, but in no case shall the refund result in a  
18 net fee of less than the total costs, including fee collection costs, incurred  
19 by the Department of Environmental Quality and any regional authority to  
20 operate the federal permit program in the year for which the refund is being  
21 sought. The rules shall establish a method to reduce all refunds by an equal  
22 percentage in any year during which the total amount of applications ap-  
23 proved for refunds exceeds the maximum available refund.

24 (8) A graduated schedule for the permit issuance fee imposed under ORS  
25 468.325 based on the anticipated complexity of the analysis and permit issu-  
26 ance process above and beyond normal permit issuance costs. The schedule  
27 at a minimum shall reflect work performed in control technology analysis,  
28 modeling, toxic risk assessment and emission trading evaluation.

29 (9) Requirements for trip reduction plans and applications for funding  
30 under section 21 of this 1991 Act. At a minimum, these rules shall specify  
31 that trip reduction plans include designation of an individual responsible for

1 implementation of the plan, an estimate of the existing average vehicle  
2 ridership, a list of existing incentives used to increase average vehicle  
3 ridership and a list of specific incentives the employer will undertake that  
4 can reasonably be expected to lead to the achievement and maintenance of  
5 the target average vehicle ridership within 12 months after plan approval.  
6 The commission also shall prepare guidelines for incentive programs that  
7 may be incorporated by an employer in the plan.

8 (10) The lowest cost mechanism for collecting emission fees for:

9 (a) Prescribed burning on land not subject to the registration require-  
10 ments under section 8, chapter 920, Oregon laws 1989; and

11 (b) Agricultural field burning on land not subject to the requirements of  
12 ORS 468.455 to 468.490.

13 **SECTION 25.** ORS 468.290 is amended to read:

14 468.290. Except as provided in this section and in ORS 468.450, 476.380 and  
15 478.960 **and in section 11 of this 1991 Act**, the air pollution laws contained  
16 in this chapter do not apply to:

17 (1) Agricultural operations and the growing or harvesting of crops and  
18 the raising of fowls or animals, except field burning which shall be subject  
19 to regulation pursuant to ORS 468.140, 468.150, 468.455 to 468.480 and this  
20 section;

21 (2) Use of equipment in agricultural operations in the growth of crops or  
22 the raising of fowls or animals, except field burning which shall be subject  
23 to regulation pursuant to ORS 468.140, 468.150, 468.455 to 468.480 and this  
24 section;

25 (3) Barbecue equipment used in connection with any residence;

26 (4) Agricultural land clearing operations or land grading;

27 (5) Heating equipment in or used in connection with residences used ex-  
28 clusively as dwellings for not more than four families, except woodstoves  
29 which shall be subject to regulation under this section and ORS 468.630 to  
30 468.655;

31 (6) Fires set or permitted by any public agency when such fire is set or

1 permitted in the performance of its official duty for the purpose of weed  
2 abatement, prevention or elimination of a fire hazard, or instruction of em-  
3 ployees in the methods of fire fighting, which in the opinion of the agency  
4 is necessary;

5 (7) Fires set pursuant to permit for the purpose of instruction of employ-  
6 ees of private industrial concerns in methods of fire fighting, or for civil  
7 defense instruction; or

8 (8) The propagation and raising of nursery stock, except boilers used in  
9 connection with the propagation and raising of nursery stock.

10 **SECTION 26.** The Department of Environmental Quality shall submit a  
11 biennial report to the Legislative Assembly evaluating the improvements in  
12 the air quality of the state resulting from the air contaminant emission fee  
13 program. The report shall include a detailed account of air contaminants,  
14 emissions and changes caused by the program.

15 **SECTION 27.** The Executive Department shall submit a biennial report  
16 to the Legislative Assembly evaluating the overall effectiveness of the emis-  
17 sion fee program including the project and program selection process, the  
18 incentives created by emission fees, the management of major projects funded  
19 from the Air Quality Improvement Fund, the consistency of major projects  
20 with the purpose specified in section 2 of this 1991 Act, the adequacy of the  
21 fund to meet air quality improvement objectives and the reasonableness of  
22 the fee collection costs.

23 **SECTION 28.** (1) The Environmental Quality commission and the De-  
24 partment of Environmental Quality are authorized to perform or cause to be  
25 performed any act necessary to gain delegation of authority for regulatory  
26 programs under the provisions of the Federal Clean Air Act (42 U.S.C. 1857  
27 et seq.), as amended by the Clean Air Act Amendments of 1990 (P.L. 101-549)  
28 and federal regulations and interpretive and guidance documents issued  
29 pursuant to the Federal Clean Air Act.

30 (2) The commission may adopt, amend or repeal any rule or license and  
31 the commission or department may enter into any agreement necessary to

1 implement this section.

2       **SECTION 29.** Section 8, chapter 920, Oregon Laws 1989, and sections 1  
3 to 4, 7 to 9, 11, 13 to 24 and 26 to 28 of this Act are added to and made a  
4 part of ORS chapter 468.

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# COMPREHENSIVE AIR EMISSION FEE

Department of Environmental Quality

House Bill 2175

## THE NEED

Air pollution continues to be a problem in many areas of Oregon—a threat to public health and the environment which will increase with anticipated population and economic growth. Further tightening of the existing traditional regulatory controls will be difficult, especially for significant non-industrial sources of air pollution such as woodstoves and motor vehicles. New and innovative approaches to reducing air pollution are needed to augment current regulatory controls.

## THE PROPOSAL

House Bill 2175 addresses Oregon's present and future air quality problems through a non-regulatory, market-based incentive program. It would establish a comprehensive air pollution emission fee on contaminants from industry, residential wood heating, motor vehicles, forest slash burning and agricultural field burning. Revenue from the fees would be used to develop and lower the cost of less-polluting alternatives.

This comprehensive Emission Fee Program has the potential to reduce air pollution statewide by up to 40 percent within 5-10 years. At the same time, it would conserve energy and encourage orderly growth and development.

## THE HIGHLIGHTS

The Emission Fee Program authorizes application of a \$25 per ton fee for air pollution from industry. The federal Clean Air Act of 1990 requires states to implement such a fee on industrial emissions. HB 2175 extends the fee concept to emissions from all other major sources of air pollution in Oregon.

HB 2175 does not specify the amount of the fee to be applied to each source. It requires the Environmental Quality Commission to develop fee schedules based on the amount of emissions produced and the potential environmental impact involved.

Both emission fees and revenues from those fees provide an incentive to reduce air pollution. Emission fees make the polluting activities more expensive, while fee revenues will be used to make alternative, less-polluting activities more available and affordable. People can decide for themselves whether to pay the fees or switch to less-polluting activities.

The table (see other side) shows the major sources of air pollution in Oregon and the percentage of statewide emissions each source produces. The approximate fees shown and projected revenue are based on average emission rates.

Source Category	% of Statewide Emissions*	Approx. Fee (\$25/ton basis)	Total Annual Revenue
Motor Vehicles	36.1%	\$ 3 per vehicle yearly**	\$7.8 million
Forest Slash Burning	18.0%	\$16 per acre burned	\$3.6 "
Woodstoves	11.6%	\$ 3 per cord sold	\$3.3 "
Industry	5.7%	\$25 per ton emitted	\$2.7 "
Field Burning	2.4%	\$ 4 per acre burned	\$0.9 "

\*The remaining 26.2% of emissions are from a wide variety of smaller sources (for example, windblown dust), for which emission fees cannot be readily collected.

\*\*The fee on motor-vehicle emissions would be statewide. A supplemental fee is proposed for areas which violate ozone pollution standards (Portland only, at the present time). The supplemental fee is needed to change driving habits and fund needed transit programs in major urban areas.

Eighty percent of the fees collected from a source category would be dedicated to funding air quality improvement programs for that category. The remaining fees would be pooled to fund the highest priority projects.

Examples of projects that may be funded include improvements in mass transit, development of alternative fuel supplies and vehicle conversions, subsidies of power-plant construction and operation to burn forest slash and grass-straw residue, subsidies for weatherization and upgrading of traditional residential wood-heating systems, and financial assistance to local governments to operate wood-heating emissions reduction programs.

Air quality improvement projects would be selected for funding by the Environmental Quality Commission based on recommendations from an advisory board composed of inter-agency representatives and the general public.

The Emission Fee Program would be evaluated every two years by DEQ on its effectiveness in reducing emissions and by the Executive Department on its overall effectiveness in meeting program objectives.

# WASTE TIRES

Department of Environmental Quality

House Bill 2246

## THE CURRENT SITUATION

Currently, waste tire laws limit the disposal of waste tires; require permits for persons who want to store or transport waste tires; assist in cleaning up waste tire piles; and provide reimbursement for persons who recycle tires or use them for energy recovery.

A one dollar fee on new replacement tires was established to fund DEQ's waste tire program but is due to expire on June 30, 1991.

By the end of this biennium, every large tire pile in Oregon will either be cleaned up or under a DEQ-approved cleanup schedule. The reimbursement program has doubled the use of waste tires.

## THE NEED

The market for waste tires is not yet firmly established enough to eliminate the reimbursement. In addition, the scheduled cleanup of the remaining large piles needs continuing oversight. There are also approximately 100 smaller tire piles that remain to be cleaned up with an additional 500 sites that need to be inspected to determine whether waste tires have been removed. Waste tire storage, transportation and disposal will need continuing regulation to ensure that progress made in removing used tires from the waste stream is not lost.

## THE PROPOSAL

House Bill 2246 would extend the one dollar fee on new replacement tires to June 30, 1993. The fee extension will allow operation of the reimbursement for an additional five years and cleanup of anticipated sites. DEQ does not anticipate requiring a further extension beyond this date.

Other proposed program modifications include:

- Exempting units of government, franchised garbage haulers, and persons transporting their own waste tires from carrier permitting requirements.
- Clarifying regulation of tire fences and other claimed beneficial uses of waste tires.
- Allowing wrecking yards to store up to 1500 waste tires before being required to get a storage permit (present law allows up to 100 tires).
- Requiring waste tire generators to give their waste tires only to permitted waste tire carriers.

# LABORATORY CERTIFICATION

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Department of Environmental Quality

House Bill 2276

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## THE NEED

Data submitted to DEQ from outside the agency must be of the highest quality. This information is used to evaluate and model environmental impacts and control strategies, set discharge standards for permitted sources, and support enforcement activities. To carry out these programs, DEQ must have accurate data of known and sufficient quality. Currently, DEQ is limited in its ability to document the quality of the data it receives.

## THE PROPOSAL

House Bill 2276 establishes a certification program that would provide a means to insure that appropriate and consistent sampling and analytical methods are being used, appropriate and sufficient documentation of quality control and quality assurance activities are available, and that data are legally defensible.

The Bill would require entities engaged in environmental sampling and chemical analyses to meet minimum criteria for performance, training, quality control, quality assurance and documentation of data quality. This would be accomplished by certification based on audits and on-site inspection of facilities, written procedures and documentation.

The program would be funded by a one-time registration fee and an annual certification fee based on analytical category, number of analyses, volume of testing, complexity and sophistication of the analysis method. Out-of-state laboratories would not be exempt.

# RECYCLING LEGISLATION

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Department of Environmental Quality

Senate Bill 183

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## THE NEED

Recycling is an important component of Oregon's solid waste strategy that emphasizes keeping valuable resources out of our landfills. Recycling not only saves natural resources, it results in energy savings and conserves landfill space.

Oregonians currently do a good job recycling newspaper, cardboard and beverage containers. Recovery rates for those materials are much higher than the national average. However, participation in curbside recycling programs has been low. Current curbside programs focus on single family dwellings, while the largest amount of recoverable waste from multifamily dwellings and commercial establishments is untapped.

## THE PROPOSAL

Senate Bill 183 would significantly improve recycling participation by setting requirements for recycling programs and by setting statewide goals for material recovery.

The program would be funded by an increase in the statewide disposal fee from 50 cents a ton to \$1.00 a ton. This is equivalent to adding less than 10 cents to a residence's monthly garbage collection bill.

## THE HIGHLIGHTS

- Requires weekly curbside collection, coupled with provision of recycling containers in cities with a population over 10,000. Weekly collection and containers has proven to be the most effective means to encourage recycling participation in other cities across the nation.
- Requires that recycling service be provided to multi-family dwellings and commercial businesses.
- Establishes a statewide solid waste material recovery goal of 40% for the year 2000. Requires the Environmental Quality Commission to set local goals for 1995 and 2000, and to develop a process requiring communities to upgrade their recycling programs if the 1995 goal is not met.
- Requires DEQ to determine actual recycling levels and the status of recycling markets, processing capabilities and collection programs.
- Requires local governments to report on recycling activities.
- Establishes a state policy to promote, encourage, develop, and assist businesses involved in recycling or using recycled materials.

# ENFORCEMENT ENHANCEMENT

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Department of Environmental Quality

Senate Bill 184

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## THE NEED

The Department of Environmental Quality is the state's primary environmental law enforcement agency. The Department has the authority to take enforcement action, including civil penalty assessments, when it documents violations of environmental statutes and regulations.

The Department enforces laws governing air pollution, water pollution, hazardous and solid waste, in addition to a number of other pollution problems such as asbestos, noise, sewage treatment, and underground storage tanks.

Many of the enforcement statutes were developed in the early 1970s and are not consistent with recently-enacted environmental programs. For example, the current law requires the Department to give the violator an advanced warning of the violation and document an additional violation before the violator can be assessed a civil penalty. The "one free bite" statute is not consistent with the intent of the substantive environmental laws, requires additional investigations, and may be an obstacle to consistently and predictably enforcing all environmental regulations.

For some environmental violations, the civil penalty amount authorized by statute is inadequate based on the risk of harm to public health and potential damage to the environment, and may be insufficient to deter future violators and violations.

## THE PROPOSAL

- Modifies the current requirement to give five days advance notice prior to assessing a civil penalty for certain violations. The advance warning requirement would apply to permit violations only and would require the permittee immediately to bring the permitted facility into compliance or face civil penalties.
- The bill increases the civil penalty ceilings for noise and solid waste violations from the current limit of \$500 per day to \$10,000 per day, making it consistent with other programs.
- Includes a \$100,000 maximum civil penalty for negligent or intentional violations which result in or create the likelihood for an extreme hazard to public health, or which cause extensive damage to the environment. The \$100,000 penalty would apply to extreme violations such as illegal disposal of hazardous waste which results in a severe public health hazard or extensive environmental damage.
- Adds "hazardous substances" to the 1989 oil spill legislation which gave DEQ the authority to assess a civil penalty, commensurate with the amount of damage incurred, against any person who negligently or willfully spills oil into the waters of the state. The money recovered is directed to a fund to cover costs of cleanup activities and for the rehabilitation of affected fish and wildlife.

# ASBESTOS INSPECTION

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Department of Environmental Quality

Senate Bill 185

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## THE NEED

Asbestos is a hazardous air pollutant and a known cancer-causing substance in humans. It was widely used as a construction material and is found in various forms in most buildings completed before the mid-1970s. There is risk of exposure to dangerous asbestos fibers when buildings are renovated or demolished without proper handling of asbestos-containing materials.

Renovation and demolition projects in public-access buildings are all too often carried out without prior inspection to determine whether asbestos-containing materials are involved. To prevent asbestos exposure to workers and the general public, building owners and managers need to determine whether buildings to be renovated or demolished contain asbestos before they contract for the work.

## THE CURRENT SITUATION

For the past 2-1/2 years, the Department of Environmental Quality has administered an asbestos control program that includes licensing and certification rules for asbestos workers and contractors, as well as work practice standards for asbestos abatement projects.

DEQ's existing statutory authority does not extend to building owners or managers who may be inadequately informed about asbestos-containing building materials and their legal obligations when those materials may be involved in renovation or demolition work.

## THE PROPOSAL

Senate Bill 185 requires asbestos inspections of public-access buildings prior to construction or other activities which could disturb asbestos-containing materials. The bill also requires an inspection before demolition of any facility. Inspections must be conducted by a DEQ-licensed asbestos building inspector. This will ensure that building owners and operators are aware of any asbestos in their buildings and that the required asbestos work practices are carried out during renovation or demolition.

### Other highlights of SB 185:

- Authorizes DEQ to issue asbestos inspector license and to establish a fee for that license. The licensed asbestos inspector must successfully complete a DEQ-accredited training course.
- Authorizes the Environmental Quality Commission to establish by rule, training and certification requirements for the asbestos inspector license.
- Authorizes DEQ to establish accreditation requirements for asbestos building inspector training courses.

# HAZARDOUS WASTE LEGISLATION

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Department of Environmental Quality

Senate Bill 241

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## THE NEED

The number and complexity of requirements and regulations concerning management, handling, recycling, and disposal of hazardous wastes have increased dramatically in recent years. Waste management options open to Oregon's small businesses, schools, farmers, and local governments have narrowed, and those remaining have grown more costly.

The focus of federal regulatory programs has been on companies that generate or manage large amounts of hazardous waste. Relatively little assistance or advice has been provided to those businesses that generate small amounts of hazardous waste. These small generators have neither the technical expertise nor financial resources to comply, but are subject to many of the same larger generator requirements.

## THE PROPOSAL

Senate Bill 241 would fund a new Waste Management Assistance Program for Oregon's small businesses. The program would be funded by an increase in the per ton hazardous waste disposal fee, from the current \$20 to \$30, effective January 1, 1992. The increased revenue would also allow DEQ to strengthen its oversight of the hazardous waste disposal site near Arlington.

## THE HIGHLIGHTS

The Waste Management Assistance Program would serve a variety of small Oregon businesses through education, training and technical assistance, with the goal of hazardous waste reduction and ensuring that wastes which are generated are properly managed and disposed.

Key program elements would include:

- Workshops and seminars for specific industry groups
- On-site environmental assessments
- Toll-free hot-line
- Newsletter and informational materials
- Sponsorship of model demonstration projects
- Special collection events for small businesses
- Annual awards program



# OIL SPILL PREVENTION AND RESPONSE

Department of Environmental Quality

Senate Bill 242

## THE NEED

Although Oregon faces significant oil spill risks on the Columbia River and the coast because of heavy traffic from oil tankers and oil barges, the state has no oil spill prevention program. Oregon does not have the resources for the daunting task of responding to any large oil spill in our waterways or coastline. Over 80,000 barrels of oil are imported into Oregon every day. Much more is transported between California and Alaska oil terminals. Oil spill prevention is more cost effective than a difficult, perhaps impossible, cleanup task.

## THE CURRENT SITUATION

In the wake of the Exxon Valdez incident, Oregon joined Alaska, Washington, California and British Columbia in an oil spill task force. Over a year and a half, the States/BC Oil Spill Task Force developed an agreement for mutual cooperation along with recommendations for oil spill prevention, response and compensation claims.

This legislative concept combines task force recommendations with existing oil spill legislation from Washington, Alaska and California. Because oil spills don't know boundaries, SB 242 is consistent with Washington and California programs. Industries connected to the shipping and storage of bulk oil can benefit from uniform prevention and response plans.

## THE PROPOSAL

The proposed legislation requires all ships and facilities that handle bulk oil to have oil spill prevention and emergency response plans. The proposal specifies elements that a plan must contain.

The proposal:

- directs the Environmental Quality Commission (EQC) to adopt standards for the plans and rules that test the plans' adequacy.
- permits the EQC to set reasonable fees for plan review and approval and ship and facility inspection.
- complies with the financial responsibility requirements of the Federal Oil Pollution Act of 1990.
- sets additional safety requirements for tankers.
- establishes Harbor Safety Committees for the Ports of Coos Bay, Yaquina Bay, Astoria and Portland. These committees, under the direction of the Economic Development Department's Ports Division, will plan for and oversee safe navigation and operation of vessels within each harbor.
- establishes an Oil Spill Prevention Fund using fees assessed for plan review, inspections and training.

- requires the Department of Environmental Quality to:
  - develop a method for natural resource valuation
  - establish a near miss reporting system
  - work with other states to develop a joint oil spill prevention education program
  - review adequacy of existing response systems
  - develop local programs in oil spill response training
  - adopt an incident command system
  - coordinate and share oil spill research information

# **WATER QUALITY CERTIFICATION & POLLUTION DISCHARGE FEE**

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**Department of Environmental Quality**

**Senate Bill 330**

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## **BACKGROUND**

Senate Bill 330 would provide funding to carry out two important water quality programs. The federal Clean Water Act requires projects such as wetlands fill and removal, docks and pilings, and sediment or gravel dredging and mining be reviewed and certified as meeting the requirements of section 401 of the Act.

The second activity addressed by Senate Bill 330 is also required by the federal Clean Water Act. It requires that when a river does not meet water quality standards it is declared Water Quality Limited. Once this designation is made, the DEQ must set Total Maximum Daily Loads (TMDL) to limit the pollutants entering the Water Quality Limited stream.

## **401 CERTIFICATION**

Under Section 401, DEQ must determine whether specific activities, such as development in jurisdictional wetlands, comply with the state's water quality program. DEQ decides whether the effects of proposed activity are within state water quality standards. DEQ must give considerable attention to wetland disturbance, the loss of key water quality functions and potential additional pollution loads to receiving streams that are currently violating water quality standards. Coordinated through the joint permit process by the Division of State Lands and the Corps of Engineers, this certification is required to begin the project. About 300 state/federal permit requests require a 401 certification each biennium. Currently, no fee is assessed for this review.

Senate Bill 330 would require the applicant to pay as a fee all expenses incurred by the Department in conducting a review of the proposed project. These expenses may include an independent study by a contractor or legal expenses, except for the defense of appeals or legal challenges.

The fee will be set by the Environmental Quality Commission based upon the costs of:

- application filing and investigating;
- issuing or denying the application;
- field work to evaluate potential water quality problems;
- determining compliance with the water quality program;
- allocating, if necessary, pollution loads among all pollution sources identified in the TMDL process.

## **DISCHARGES TO WATER QUALITY LIMITED STREAMS**

DEQ must develop total maximum daily loads (TMDL) for water quality limited receiving streams. This management approach balances growth with water quality protection based on the waterbody's ability to handle pollution. TMDL development requires considerable water quality information to identify pollution sources and their effect on water quality. New pollution limits must be selected on a sound technical basis. The Department does not have the resources to conduct this work, even though it is required by a Federal District Court Order and the Federal Clean Water Act.

DEQ will charge a fee to all sources responsible for pollution discharges into a water quality limited receiving stream. Water quality limited streams receive more pollutants than they can handle and need better treatment to protect water quality.

A fee will be added to water quality permit holders in the affected watershed or drainage area. A fee to address the growing concern for pollution from urban, agricultural and forested areas may be included. Known as "nonpoint source pollution," these activities trigger erosion of sediments and other pollutants, which run off into the nearest stream.

The Commission will set a fee schedule based upon:

- monitoring expenses to determine the extent of the water quality problem;
- developing, calibrating and verifying water quality models used to describe water quality conditions;
- establishing total maximum daily loads which will then be separated into pollution loads for permit holders, nonpoint source pollution and growth;
- modifying affected permits;
- establishing new rules connected to the TMDL program;
- developing, reviewing and approving program plans from pollution sources;
- monitoring compliance.

## Senators' Capitol Addresses, Telephone Numbers and Committee Assignments

<p><b>Bradbury, Bill</b>                                 S-223   378-8700 Redistricting Rules (Vice-chair) Trade &amp; Economic Development (Vice-chair) Ways &amp; Means (Co-Chair)</p>	<p><b>Gold, Shirley</b>   S-216   378-8845 Agriculture &amp; Natural Resources Education (Chair) Human Resources Revenue &amp; School Finance</p>
<p><b>Brenneman, John</b>                                 S-323   378-8176 Agriculture &amp; Natural Resources Redistricting Revenue &amp; School Finance Rules</p>	<p><b>Grensky, Ron</b>   S-314   378-8844 Education Government Operations Revenue &amp; School Finance</p>
<p><b>Brockman, Peter</b>                                 S-316   378-8851 Education Judiciary Labor Transportation</p>	<p><b>Hamby, Jeannette</b>                                 S-312   378-8814 Health Insurance &amp; Bio-Ethics Judiciary Trade &amp; Economic Development</p>
<p><b>Bunn, Jim</b>   S-311   378-8838 Government Operations Judiciary Redistricting Telecommunications &amp; Consumer Affairs</p>	<p><b>Hannon, Lenn</b>   S-303   378-8840 Health Insurance &amp; Bio-Ethics Rules Ways &amp; Means Ways &amp; Means Subcommittee on Education Ways &amp; Means Subcommittee on Public Safety</p>
<p><b>Cease, Jane</b>   S-217   378-8073 Business, Housing &amp; Finance Government Operations (Vice-chair) Revenue &amp; School Finance (Chair) Rules</p>	<p><b>Hill, Jim</b>   S-307   378-8071 Business, Housing &amp; Finance (Chair) Judiciary (Vice-chair) Trade &amp; Economic Development</p>
<p><b>Cohen, Joyce</b>   S-218   378-8028 Agriculture &amp; Natural Resources (Vice-chair) Business, Housing &amp; Finance Health Insurance &amp; Bio-Ethics (Vice-chair) Judiciary (Chair) Rules</p>	<p><b>Hill, Larry</b>   S-205   378-8315 Labor (Vice-chair) Water Policy (Chair) Ways &amp; Means</p>
<p><b>Dukes, Joan</b>   S-210   378-8027 Education Revenue &amp; School Finance (Vice-chair) Transportation (Chair)</p>	<p><b>Jolin, Peg</b>   S-215   378-8812 Business, Housing &amp; Finance (Vice-chair) Telecommunications &amp; Consumer Affairs (Chair) Trade &amp; Economic Development</p>
<p><b>Fawbush, Wayne</b>                                 S-309   378-8062 Agriculture &amp; Natural Resources Trade &amp; Economic Development (Chair) Water Policy Ways &amp; Means Ways &amp; Means Subcommittee on Natural Resources/ Economic Development Ways &amp; Means Subcommittee on General Government</p>	<p><b>Kennemer, Bill</b>   S-318   378-8076 Business, Housing &amp; Finance Human Resources Telecommunications &amp; Consumer Affairs</p>
	<p><b>Kerans, Grattan</b>                                     S-305   378-8072 Labor (Chair) Ways &amp; Means</p>
	<p><b>Kintigh, Bob</b>   S-319   378-8079 Agriculture &amp; Natural Resources Labor Water Policy</p>

## Senators' Capitol Addresses, Telephone Numbers and Committee Assignments

<p><b>Kitzhaber, John</b>                                 <b>S-203 378-8173</b>            Government Operations            Redistricting            Water Policy (Vice-chair)</p>	<p><b>Timms, Eugene D.</b>                                 <b>S-317 378-8849</b>            Agriculture &amp; Natural Resources            Trade &amp; Economic Development            Transportation            Water Policy</p>
<p><b>McCoy, William</b>                                 <b>S-209 378-8804</b>            Education (Vice-chair)            Human Resources (Chair)            Revenue &amp; School Finance            Transportation (Vice-chair)</p>	<p><b>Trow, Clifford</b>                                 <b>S-204 378-8801</b>            Education            Human Resources (Vice-chair)            Ways &amp; Means            Ways &amp; Means Subcommittee on Human Resources            Ways &amp; Means Subcommittee on Natural Resources/            Economic Development (Chair)</p>
<p><b>Otto, Glenn</b>                                     <b>S-211 378-8806</b>            Government Operations &amp; Elections (Chair)            Redistricting (Chair)            Telecommunications (Vice-chair)            Transportation</p>	<p><b>Yih, Mae</b>   <b>S-214 378-8847</b>            Redistricting            Ways &amp; Means            Ways &amp; Means Subcommittee on Education            Ways &amp; Means Subcommittee on General Government</p>
<p><b>Phillips, Paul</b>                                 <b>S-302 378-8839</b>            Education            Human Resources            Transportation</p>	
<p><b>Roberts, Frank</b>                                 <b>S-206 378-8803</b>            Health Insurance &amp; Bio-Ethics            Rules (Chair)            Ways &amp; Means            Ways &amp; Means Subcommittee on Education            Ways &amp; Means Subcommittee on Human Resources (Chair)</p>	
<p><b>Shoemaker, Bob</b>                                 <b>S-212 378-8080</b>            Health Insurance &amp; Bio-Ethics (Chair)            Judiciary            Labor            Telecommunications &amp; Consumer Affairs</p>	
<p><b>Smith, Tricia</b>                                 <b>S-310 378-8098</b>            Government Operations            Revenue &amp; School Finance            Transportation</p>	
<p><b>Springer, Dick</b>                                 <b>S-306 378-8850</b>            Agriculture &amp; Natural Resources (Chair)            Government Operations            Judiciary            Redistricting (Vice-chair)            Water Policy (alternate)</p>	
<p><b>Thorne, Mike</b>                                 <b>S-219 378-8074</b>            Rules</p>	

**Address as:**

**Representative/Senator  
 Room #  
 State Capitol  
 Salem, OR 97310**

**(Rooms without an "H" are not in the  
 House Wing and should not  
 have the "H" in front of their numbers.)**









## Representatives' Capitol Addresses, Telephone Numbers and Committee Assignments

**Walden, Greg**                      **H-295 378-8760**  
Business & Consumer Affairs  
Legislative Rules & Reapportionment (Chair)  
Legislative Rules & Reapportionment Subcommittee  
on Reapportionment (Chair)

**Watt, John**                        **H-471 378-8781**  
Environment & Energy  
Intergovernmental Affairs  
Labor

**Whitty, Jim**                        **H-485 378-8019**  
Environment & Energy (Vice-chair)  
Revenue & School Finance

# COMPREHENSIVE AIR EMISSION FEE

Department of Environmental Quality

House Bill 2175

## THE NEED

Air pollution continues to be a problem in many areas of Oregon—a threat to public health and the environment which will increase with anticipated population and economic growth. Further tightening of the existing traditional regulatory controls will be difficult, especially for significant non-industrial sources of air pollution such as woodstoves and motor vehicles. New and innovative approaches to reducing air pollution are needed to augment current regulatory controls.

## THE PROPOSAL

House Bill 2175 addresses Oregon's present and future air quality problems through a non-regulatory, market-based incentive program. It would establish a comprehensive air pollution emission fee on contaminants from industry, residential wood heating, motor vehicles, forest slash burning and agricultural field burning. Revenue from the fees would be used to develop and lower the cost of less-polluting alternatives.

This comprehensive Emission Fee Program has the potential to reduce air pollution statewide by up to 40 percent within 5-10 years. At the same time, it would conserve energy and encourage orderly growth and development.

## THE HIGHLIGHTS

The Emission Fee Program authorizes application of a \$25 per ton fee for air pollution from industry. The federal Clean Air Act of 1990 requires states to implement such a fee on industrial emissions. HB 2175 extends the fee concept to emissions from all other major sources of air pollution in Oregon.

HB 2175 does not specify the amount of the fee to be applied to each source. It requires the Environmental Quality Commission to develop fee schedules based on the amount of emissions produced and the potential environmental impact involved.

Both emission fees and revenues from those fees provide an incentive to reduce air pollution. Emission fees make the polluting activities more expensive, while fee revenues will be used to make alternative, less-polluting activities more available and affordable. People can decide for themselves whether to pay the fees or switch to less-polluting activities.

The table (see other side) shows the major sources of air pollution in Oregon and the percentage of statewide emissions each source produces. The approximate fees shown and projected revenue are based on average emission rates.

Source Category	% of Statewide Emissions*	Approx. Fee (\$25/ton basis)	Total Annual Revenue
Motor Vehicles	36.1%	\$ 3 per vehicle yearly**	\$7.8 million
Forest Slash Burning	18.0%	\$16 per acre burned	\$3.6 "
Woodstoves	11.6%	\$ 3 per cord sold	\$3.3 "
Industry	5.7%	\$25 per ton emitted	\$2.7 "
Field Burning	2.4%	\$ 4 per acre burned	\$0.9 "

\*The remaining 26.2% of emissions are from a wide variety of smaller sources (for example, windblown dust), for which emission fees cannot be readily collected.

\*\*The fee on motor-vehicle emissions would be statewide. A supplemental fee is proposed for areas which violate ozone pollution standards (Portland only, at the present time). The supplemental fee is needed to change driving habits and fund needed transit programs in major urban areas.

Eighty percent of the fees collected from a source category would be dedicated to funding air quality improvement programs for that category. The remaining fees would be pooled to fund the highest priority projects.

Examples of projects that may be funded include improvements in mass transit, development of alternative fuel supplies and vehicle conversions, subsidies of power-plant construction and operation to burn forest slash and grass-straw residue, subsidies for weatherization and upgrading of traditional residential wood-heating systems, and financial assistance to local governments to operate wood-heating emissions reduction programs.

Air quality improvement projects would be selected for funding by the Environmental Quality Commission based on recommendations from an advisory board composed of inter-agency representatives and the general public.

The Emission Fee Program would be evaluated every two years by DEQ on its effectiveness in reducing emissions and by the Executive Department on its overall effectiveness in meeting program objectives.

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# WASTE TIRES

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Department of Environmental Quality

House Bill 2246

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## THE CURRENT SITUATION

Currently, waste tire laws limit the disposal of waste tires; require permits for persons who want to store or transport waste tires; assist in cleaning up waste tire piles; and provide reimbursement for persons who recycle tires or use them for energy recovery.

A one dollar fee on new replacement tires was established to fund DEQ's waste tire program but is due to expire on June 30, 1991.

By the end of this biennium, every large tire pile in Oregon will either be cleaned up or under a DEQ-approved cleanup schedule. The reimbursement program has doubled the use of waste tires.

## THE NEED

The market for waste tires is not yet firmly established enough to eliminate the reimbursement. In addition, the scheduled cleanup of the remaining large piles needs continuing oversight. There are also approximately 100 smaller tire piles that remain to be cleaned up with an additional 500 sites that need to be inspected to determine whether waste tires have been removed. Waste tire storage, transportation and disposal will need continuing regulation to ensure that progress made in removing used tires from the waste stream is not lost.

## THE PROPOSAL

House Bill 2246 would extend the one dollar fee on new replacement tires to June 30, 1993. The fee extension will allow operation of the reimbursement for an additional five years and cleanup of anticipated sites. DEQ does not anticipate requiring a further extension beyond this date.

Other proposed program modifications include:

- Exempting units of government, franchised garbage haulers, and persons transporting their own waste tires from carrier permitting requirements.
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- Requiring waste tire generators to give their waste tires only to permitted waste tire carriers.

# LABORATORY CERTIFICATION

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Department of Environmental Quality

House Bill 2276

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## THE NEED

Data submitted to DEQ from outside the agency must be of the highest quality. This information is used to evaluate and model environmental impacts and control strategies, set discharge standards for permitted sources, and support enforcement activities. To carry out these programs, DEQ must have accurate data of known and sufficient quality. Currently, DEQ is limited in its ability to document the quality of the data it receives.

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House Bill 2276 establishes a certification program that would provide a means to insure that appropriate and consistent sampling and analytical methods are being used, appropriate and sufficient documentation of quality control and quality assurance activities are available, and that data are legally defensible.

The Bill would require entities engaged in environmental sampling and chemical analyses to meet minimum criteria for performance, training, quality control, quality assurance and documentation of data quality. This would be accomplished by certification based on audits and on-site inspection of facilities, written procedures and documentation.

The program would be funded by a one-time registration fee and an annual certification fee based on analytical category, number of analyses, volume of testing, complexity and sophistication of the analysis method. Out-of-state laboratories would not be exempt.

# RECYCLING LEGISLATION

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Department of Environmental Quality

Senate Bill 183

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## THE NEED

Recycling is an important component of Oregon's solid waste strategy that emphasizes keeping valuable resources out of our landfills. Recycling not only saves natural resources, it results in energy savings and conserves landfill space.

Oregonians currently do a good job recycling newspaper, cardboard and beverage containers. Recovery rates for those materials are much higher than the national average. However, participation in curbside recycling programs has been low. Current curbside programs focus on single family dwellings, while the largest amount of recoverable waste from multifamily dwellings and commercial establishments is untapped.

## THE PROPOSAL

Senate Bill 183 would significantly improve recycling participation by setting requirements for recycling programs and by setting statewide goals for material recovery.

The program would be funded by an increase in the statewide disposal fee from 50 cents a ton to \$1.00 a ton. This is equivalent to adding less than 10 cents to a residence's monthly garbage collection bill.

## THE HIGHLIGHTS

- Requires weekly curbside collection, coupled with provision of recycling containers in cities with a population over 10,000. Weekly collection and containers has proven to be the most effective means to encourage recycling participation in other cities across the nation.
- Requires that recycling service be provided to multi-family dwellings and commercial businesses.
- Establishes a statewide solid waste material recovery goal of 40% for the year 2000. Requires the Environmental Quality Commission to set local goals for 1995 and 2000, and to develop a process requiring communities to upgrade their recycling programs if the 1995 goal is not met.
- Requires DEQ to determine actual recycling levels and the status of recycling markets, processing capabilities and collection programs.
- Requires local governments to report on recycling activities.
- Establishes a state policy to promote, encourage, develop, and assist businesses involved in recycling or using recycled materials.



# ENFORCEMENT ENHANCEMENT

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Department of Environmental Quality

Senate Bill 184

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## THE NEED

The Department of Environmental Quality is the state's primary environmental law enforcement agency. The Department has the authority to take enforcement action, including civil penalty assessments, when it documents violations of environmental statutes and regulations.

The Department enforces laws governing air pollution, water pollution, hazardous and solid waste, in addition to a number of other pollution problems such as asbestos, noise, sewage treatment, and underground storage tanks.

Many of the enforcement statutes were developed in the early 1970s and are not consistent with recently-enacted environmental programs. For example, the current law requires the Department to give the violator an advanced warning of the violation and document an additional violation before the violator can be assessed a civil penalty. The "one free bite" statute is not consistent with the intent of the substantive environmental laws, requires additional investigations, and may be an obstacle to consistently and predictably enforcing all environmental regulations.

For some environmental violations, the civil penalty amount authorized by statute is inadequate based on the risk of harm to public health and potential damage to the environment, and may be insufficient to deter future violators and violations.

## THE PROPOSAL

- Modifies the current requirement to give five days advance notice prior to assessing a civil penalty for certain violations. The advance warning requirement would apply to permit violations only and would require the permittee immediately to bring the permitted facility into compliance or face civil penalties.
- The bill increases the civil penalty ceilings for noise and solid waste violations from the current limit of \$500 per day to \$10,000 per day, making it consistent with other programs.
- Includes a \$100,000 maximum civil penalty for negligent or intentional violations which result in or create the likelihood for an extreme hazard to public health, or which cause extensive damage to the environment. The \$100,000 penalty would apply to extreme violations such as illegal disposal of hazardous waste which results in a severe public health hazard or extensive environmental damage.
- Adds "hazardous substances" to the 1989 oil spill legislation which gave DEQ the authority to assess a civil penalty, commensurate with the amount of damage incurred, against any person who negligently or willfully spills oil into the waters of the state. The money recovered is directed to a fund to cover costs of cleanup activities and for the rehabilitation of affected fish and wildlife.

# ASBESTOS INSPECTION

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Department of Environmental Quality

Senate Bill 185

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## THE NEED

Asbestos is a hazardous air pollutant and a known cancer-causing substance in humans. It was widely used as a construction material and is found in various forms in most buildings completed before the mid-1970s. There is risk of exposure to dangerous asbestos fibers when buildings are renovated or demolished without proper handling of asbestos-containing materials.

Renovation and demolition projects in public-access buildings are all too often carried out without prior inspection to determine whether asbestos-containing materials are involved. To prevent asbestos exposure to workers and the general public, building owners and managers need to determine whether buildings to be renovated or demolished contain asbestos **before** they contract for the work.

## THE CURRENT SITUATION

For the past 2-1/2 years, the Department of Environmental Quality has administered an asbestos control program that includes licensing and certification rules for asbestos workers and contractors, as well as work practice standards for asbestos abatement projects.

DEQ's existing statutory authority does not extend to building owners or managers who may be inadequately informed about asbestos-containing building materials and their legal obligations when those materials may be involved in renovation or demolition work.

## THE PROPOSAL

Senate Bill 185 requires asbestos inspections of public-access buildings prior to construction or other activities which could disturb asbestos-containing materials. The bill also requires an inspection before demolition of **any** facility. Inspections must be conducted by a DEQ-licensed asbestos building inspector. This will ensure that building owners and operators are aware of any asbestos in their buildings and that the required asbestos work practices are carried out during renovation or demolition.

### Other highlights of SB 185:

- Authorizes DEQ to issue asbestos inspector license and to establish a fee for that license. The licensed asbestos inspector must successfully complete a DEQ-accredited training course.
- Authorizes the Environmental Quality Commission to establish by rule, training and certification requirements for the asbestos inspector license.
- Authorizes DEQ to establish accreditation requirements for asbestos building inspector training courses.

# HAZARDOUS WASTE LEGISLATION

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Department of Environmental Quality

Senate Bill 241

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## THE NEED

The number and complexity of requirements and regulations concerning management, handling, recycling, and disposal of hazardous wastes have increased dramatically in recent years. Waste management options open to Oregon's small businesses, schools, farmers, and local governments have narrowed, and those remaining have grown more costly.

The focus of federal regulatory programs has been on companies that generate or manage large amounts of hazardous waste. Relatively little assistance or advice has been provided to those businesses that generate small amounts of hazardous waste. These small generators have neither the technical expertise nor financial resources to comply, but are subject to many of the same larger generator requirements.

## THE PROPOSAL

Senate Bill 241 would fund a new Waste Management Assistance Program for Oregon's small businesses. The program would be funded by an increase in the per ton hazardous waste disposal fee, from the current \$20 to \$30, effective January 1, 1992. The increased revenue would also allow DEQ to strengthen its oversight of the hazardous waste disposal site near Arlington.

## THE HIGHLIGHTS

The Waste Management Assistance Program would serve a variety of small Oregon businesses through education, training and technical assistance, with the goal of hazardous waste reduction and ensuring that wastes which are generated are properly managed and disposed.

Key program elements would include:

- Workshops and seminars for specific industry groups
- On-site environmental assessments
- Toll-free hot-line
- Newsletter and informational materials
- Sponsorship of model demonstration projects
- Special collection events for small businesses
- Annual awards program

# OIL SPILL PREVENTION AND RESPONSE

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Department of Environmental Quality

Senate Bill 242

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## THE NEED

Although Oregon faces significant oil spill risks on the Columbia River and the coast because of heavy traffic from oil tankers and oil barges, the state has no oil spill prevention program. Oregon does not have the resources for the daunting task of responding to any large oil spill in our waterways or coastline. Over 80,000 barrels of oil are imported into Oregon every day. Much more is transported between California and Alaska oil terminals. Oil spill prevention is more cost effective than a difficult, perhaps impossible, cleanup task.

## THE CURRENT SITUATION

In the wake of the Exxon Valdez incident, Oregon joined Alaska, Washington, California and British Columbia in an oil spill task force. Over a year and a half, the States/BC Oil Spill Task Force developed an agreement for mutual cooperation along with recommendations for oil spill prevention, response and compensation claims.

This legislative concept combines task force recommendations with existing oil spill legislation from Washington, Alaska and California. Because oil spills don't know boundaries, SB 242 is consistent with Washington and California programs. Industries connected to the shipping and storage of bulk oil can benefit from uniform prevention and response plans.

## THE PROPOSAL

The proposed legislation requires all ships and facilities that handle bulk oil to have oil spill prevention and emergency response plans. The proposal specifies elements that a plan must contain.

The proposal:

- directs the Environmental Quality Commission (EQC) to adopt standards for the plans and rules that test the plans' adequacy.
- permits the EQC to set reasonable fees for plan review and approval and ship and facility inspection.
- complies with the financial responsibility requirements of the Federal Oil Pollution Act of 1990.
- sets additional safety requirements for tankers.
- establishes Harbor Safety Committees for the Ports of Coos Bay, Yaquina Bay, Astoria and Portland. These committees, under the direction of the Economic Development Department's Ports Division, will plan for and oversee safe navigation and operation of vessels within each harbor.
- establishes an Oil Spill Prevention Fund using fees assessed for plan review, inspections and training.

- requires the Department of Environmental Quality to:
  - develop a method for natural resource valuation
  - establish a near miss reporting system
  - work with other states to develop a joint oil spill prevention education program
  - review adequacy of existing response systems
  - develop local programs in oil spill response training
  - adopt an incident command system
  - coordinate and share oil spill research information

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# **WATER QUALITY CERTIFICATION & POLLUTION DISCHARGE FEE**

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**Department of Environmental Quality**

**Senate Bill 330**

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## **BACKGROUND**

Senate Bill 330 would provide funding to carry out two important water quality programs. The federal Clean Water Act requires projects such as wetlands fill and removal, docks and pilings, and sediment or gravel dredging and mining be reviewed and certified as meeting the requirements of section 401 of the Act.

The second activity addressed by Senate Bill 330 is also required by the federal Clean Water Act. It requires that when a river does not meet water quality standards it is declared Water Quality Limited. Once this designation is made, the DEQ must set Total Maximum Daily Loads (TMDL) to limit the pollutants entering the Water Quality Limited stream.

## **401 CERTIFICATION**

Under Section 401, DEQ must determine whether specific activities, such as development in jurisdictional wetlands, comply with the state's water quality program. DEQ decides whether the effects of proposed activity are within state water quality standards. DEQ must give considerable attention to wetland disturbance, the loss of key water quality functions and potential additional pollution loads to receiving streams that are currently violating water quality standards. Coordinated through the joint permit process by the Division of State Lands and the Corps of Engineers, this certification is required to begin the project. About 300 state/federal permit requests require a 401 certification each biennium. Currently, no fee is assessed for this review.

Senate Bill 330 would require the applicant to pay as a fee all expenses incurred by the Department in conducting a review of the proposed project. These expenses may include an independent study by a contractor or legal expenses, except for the defense of appeals or legal challenges.

The fee will be set by the Environmental Quality Commission based upon the costs of:

- application filing and investigating;
- issuing or denying the application;
- field work to evaluate potential water quality problems;
- determining compliance with the water quality program;
- allocating, if necessary, pollution loads among all pollution sources identified in the TMDL process.

## **DISCHARGES TO WATER QUALITY LIMITED STREAMS**

DEQ must develop total maximum daily loads (TMDL) for water quality limited receiving streams. This management approach balances growth with water quality protection based on the waterbody's ability to handle pollution. TMDL development requires considerable water quality information to identify pollution sources and their effect on water quality. New pollution limits must be selected on a sound technical basis. The Department does not have the resources to conduct this work, even though it is required by a Federal District Court Order and the Federal Clean Water Act.

DEQ will charge a fee to all sources responsible for pollution discharges into a water quality limited receiving stream. Water quality limited streams receive more pollutants than they can handle and need better treatment to protect water quality.

A fee will be added to water quality permit holders in the affected watershed or drainage area. A fee to address the growing concern for pollution from urban, agricultural and forested areas may be included. Known as "nonpoint source pollution," these activities trigger erosion of sediments and other pollutants, which run off into the nearest stream.

The Commission will set a fee schedule based upon:

- monitoring expenses to determine the extent of the water quality problem;
- developing, calibrating and verifying water quality models used to describe water quality conditions;
- establishing total maximum daily loads which will then be separated into pollution loads for permit holders, nonpoint source pollution and growth;
- modifying affected permits;
- establishing new rules connected to the TMDL program;
- developing, reviewing and approving program plans from pollution sources;
- monitoring compliance.



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- developing, reviewing and approving program plans from pollution sources;
- monitoring compliance.

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 15, 1991

TO: Environmental Quality Commission

FROM: Fred Hansen, Director



SUBJECT: Agenda Item #1, January 31, 1991 EQC Meeting

Review of Task Force Report to the 66th Legislative Assembly on Phosphorus and Water Quality, and Department Recommendation on a Statewide Phosphate Detergent Ban

Background

Senate Bill 1079 (1989) (see Attachment A) directed the Department to appoint a Task Force to develop a report on phosphorus and other nutrients in state waters, and on the impacts of a potential statewide phosphate detergent ban. The Department is to present the findings of the Task Force to the 1991 Legislature.

The Task Force met between August, 1990 and January, 1991. A list of members is provided in Attachment B. The Task Force Report is provided in Attachment C. (Please note that only the Executive Summary and Summary of Findings are attached at this time. The full Task Force Report, now being finalized, will be provided to the Commission prior to the January 31st meeting.)

The Task Force decided not to make a recommendation on a phosphate detergent ban because SB 1079 asks for findings, and because there is not unanimity among the members on a recommendation.

Department staff feel there is adequate information to make a recommendation to the Legislature in support of a statewide phosphate detergent ban. The Department's draft recommendation is provided in Attachment D.

Significant Issues

A detergent phosphate ban is expected to reduce phosphorus loads discharged to Oregon streams from municipal wastewater treatment plants by approximately 30 percent. The Department does not have the data necessary to quantitatively predict the instream water quality benefits that would result from these reduced discharges.

- \* It is clear that under adverse atmospheric conditions, or when done improperly, emissions from propaning can significantly affect local and regional air quality.
- \* Overall, burning was concentrated into a very few number of days. There were just 39 days in which some burning occurred compared to 53 days for the seven year average.
- \* Generally unreliable and inconsistent transport winds contributed to more smoke intrusion hours in 1990 than have occurred since 1984.
- \* Historically Lebanon and Sweethome receive more smoke impacts than other valley areas because of their geographic location on the east side of the valley and the effects of local terrain on low level winds. Lebanon experienced 5 days with significant intrusions resulting in a total of 24 impact hours, including two hours of heavy concentration.
- \* A total of 2,959 citizen complaints attributed to all sources were received by the Department in 1990, an increase over 1989 (2,018) and the seven year average of 1,424. The only year registering more complaints than 1990 was in 1988 (3,783).
- \* 1990 marked the fourth year of implementation of the Oregon Visibility Protection Plan. This plan attempts to improve visibility in Oregon's Class I wilderness areas and Crater Lake National Park by restricting slash and field burning between July 4 and Labor Day. During the 1990 season, restrictions on field burning resulted in improved visibility in the Class I areas.
- \* Thirty nine notices of noncompliance were issued during the 1990 season resulting in 11 civil penalty referrals compared to 28 NONs and 16 referrals in 1989.
- \* Registration and burn fees have remained constant since 1975. Due to inflation and other increasing costs, program expenditures could exceed revenue by the end of the 1989-90 biennium.

Memo to: Mr. William P. Hutchison, Jr.  
January 7, 1991  
Page 3

- \* The Research and Development Program has been indefinitely postponed since fiscal year 1988-89 due to insufficient funds. Until revenues are identified and appropriated, progress being made through research of feasible alternatives to open burning is at risk.

Requested Action

The Commission is requested to review the draft report, provide guidance for modification if deemed appropriate, and approve submittal of the final report to the Legislature.

Prepared By: STEPHEN CRANE

Phone: 503-229-5353

Date: 1-15-91

Approved:

Section:

Division:

Stephen Crane  
She Greenwood

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WOOD\AH11818

# 1990 ANNUAL FIELD BURNING REPORT



Oregon  
Department  
of Agriculture

## 1990 ANNUAL REPORT ON FIELD BURNING

State of Oregon  
Department of Agriculture

## 1. INTRODUCTION

This annual report has been prepared by the Department of Agriculture (ODA) and the Department of Environmental Quality (DEQ) for presentation to the Joint Legislative Committee on Trade and Economic Development as required by ORS 468.470.

Oregon field burning law, last revised during the 1979 legislative session, declares it to be the public policy of the State to control, reduce and prevent air pollution caused by the practice of open field burning and, with the advice and assistance of an Advisory Committee, adopt and implement programs for study, research and development of smoke management and of reasonable and economically feasible alternatives to the practice of open field burning. In this report are discussions of 1) the field burning smoke management program, 1990 burning activities and smoke impact problems, and 2) the progress made in discovering and utilizing feasible alternatives to open field burning in the Willamette Valley.

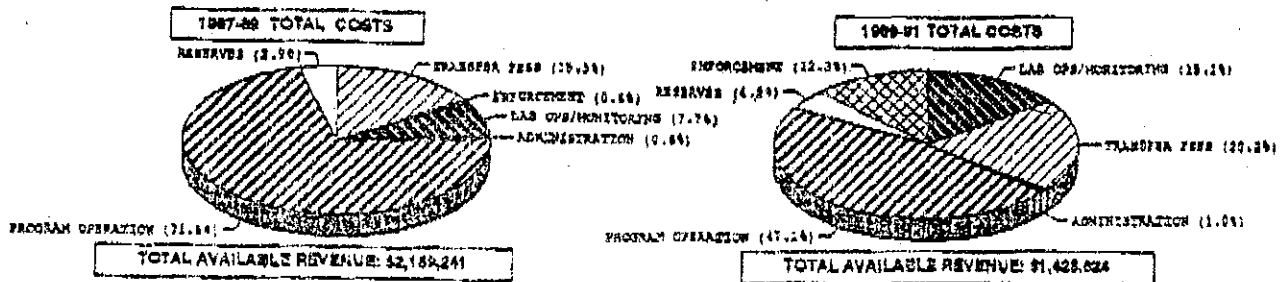
Program revenues are derived solely from fees paid by growers, consisting of a registration (application) fee of \$1 per acre and a burn (permission) fee of \$2.50 for each acre open burned. Program outlays support smoke management services provided by the Department of Agriculture under contract with the Department of Environmental Quality, compensation to local fire districts for their role in issuing permits, costs for air monitoring, expenses of enforcement, and funding of research into alternatives to burning.

Registration and burn fees have remained constant since 1975. Due to inflation and rapidly increasing smoke management support service costs, program expenditures could exceed available revenues by the end of the 1989-91 biennium (Figure 1) unless measures are taken to increase receipts and/or reduce expenses.

The program for research and development has been indefinitely postponed since fiscal year 1988-89 due to insufficient funds. Until revenues are identified and appropriated, progress being made through research of feasible alternatives to open field burning is at risk.

Figure 1.

BUDGET COMPARISON  
(% of Available Revenue)



REVENUES	87-89 Budget	89-91 Budget
BEGINNING BALANCE (Carry-over):	\$576,394	\$85,116
Burn Fees (\$2.50/ac) x201,688 [1987]=	504,220	x165,283 [1989]= 413,208
Registration (\$1.00/ac) x342,559 [1988]=	342,559	x280,000 [1990]= 280,000
Burn Fees (\$2.50/ac) x168,530 [1988]=	421,325	x159,000 [1990]= 397,500 <sup>1</sup>
Registration (\$1.00/ac) x314,743 [1989]=	314,743	x250,000 [1991]= 250,000 <sup>1</sup>
Total Fee Revenue:	\$1,582,847	\$1,340,708
Fire District Payments (\$ .37 x 657,302) <sup>2</sup>	-(243,202)	-(196,100)
Indirect Costs <sup>3</sup>	-( 91,699)	-(92,095)
Total Transfers:	-(334,901)	-(288,195)
Total Available Program Revenue:	\$1,824,340	\$1,137,629
EXPENDITURES <sup>4</sup>		
Program Operation (4.25 FTE)	\$1,547,038 <sup>5</sup>	\$671,768 <sup>6</sup>
Lab Operations - Monitoring (2.00 FTE)	166,130	215,165
Regional Operations - Enforcement	13,086	175,940
Administration	12,970	14,703
Total Expenditures:	\$1,739,224	\$1,077,576
Ending Balance (Reserves):	\$85,116	\$60,053

1 Registration and burn fees are estimated, except 1987 to 1989 burn fees.  
 2 Set by statute, approximately \$.37 per acre.  
 3 Rate based on percentage of Personal Services.  
 4 Includes Personal Services, Services & Supplies, and Capital Outlay.  
 5 Includes \$575,000 for R&D and \$335,000 for smoke management support services.  
 6 Includes \$613,000 for smoke management support services.

## BUDGET COMPARISON 1987-89 1989-91

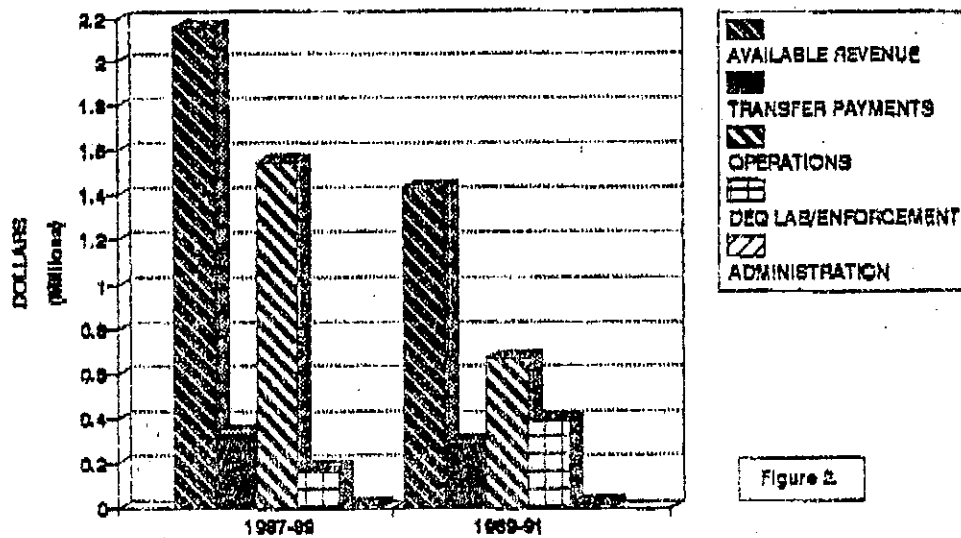


Figure 2

## 2. SMOKE MANAGEMENT PROGRAM

### 2.1 Program Overview

As provided by statute and under the direction of the Environmental Quality Commission (EQC), the DEQ contracts with the ODA to conduct a smoke management program for regulating agricultural open field burning in the Willamette Valley. Smoke Management is the daily (hourly) control of field burning according to prevailing meteorological dispersion conditions. The Department designates the times, places, and amounts of burning allowed on a continuous basis each day to provide for a maximum amount of burning under optimal dispersion conditions with minimal impact on the public. This can be a formidable task given the concentration of the Valley's population in such close proximity to the nearly 6,000 fields and up to 340,000 acres of crop land registered for open burning each year.

#### A. Organization:

To maximize burning while minimizing impacts, a unique and complex system of smoke management has evolved. Key to its effectiveness has been 1) the development of comprehensive real-time monitoring of wind flows and smoke concentrations at selected sites throughout the Valley, 2) constant aerial surveillance by trained airplanes-based observers, and 3) direct radio communications between the three units of organization: decision-makers, permitting agents, and growers. The role of parochial permitting agents is especially important in applying local discretion in the selection of fields for burning. The duties of each of these organizations is described below.

In its role as coordinator and central authority for smoke management decision making, ODA provides technical services and key personnel involved in meteorological forecasting, attends a continuous air monitoring network, issues announcements (radio) authorizing or prohibiting burning, and regulates burning activities through aerial and ground surveillance. In addition, ODA coordinates and assists fire district permit agents in the



annual registration and mapping of fields, collection of fees, and keeping burning records. DEQ contracts with the Oregon Seed Council (OSC) to operate the radio communications system. Air quality monitoring and enforcement are provided by DEQ.

On a daily basis, fire district agents issue burning permits to growers for specific fields in accordance with the times, places, amounts and other limits announced by ODA. Each district establishes its own procedure for assigning field priority when burning is released and in setting other conditions related to fire control and safety. Permit agents assist growers in registering and mapping their acreage. They also submit weekly reports to ODA on burning in their districts and collect and forward the required fees.

Fire districts are reimbursed for their services on the basis of registered acreage within their districts: 50 cents per acre for the first 5,000 acres, 35 cents per acre for the next 5,000 acres, and 20 cents for each acre over 10,000. There are approximately 60 individual fire districts with acreage registered for burning in the eight counties of the Willamette Valley. These are managed by approximately 40 individual permit agents. Growers, having received burn permits from the local fire district agent, then conduct the burn operation in accordance with the permit conditions. Growers are required to expedite their burning using rapid-ignition techniques and to monitor the field burning radio network for any "stop-burning" orders that may be issued by ODA. Approximately 660 growers registered for burning in the Willamette Valley in 1990.

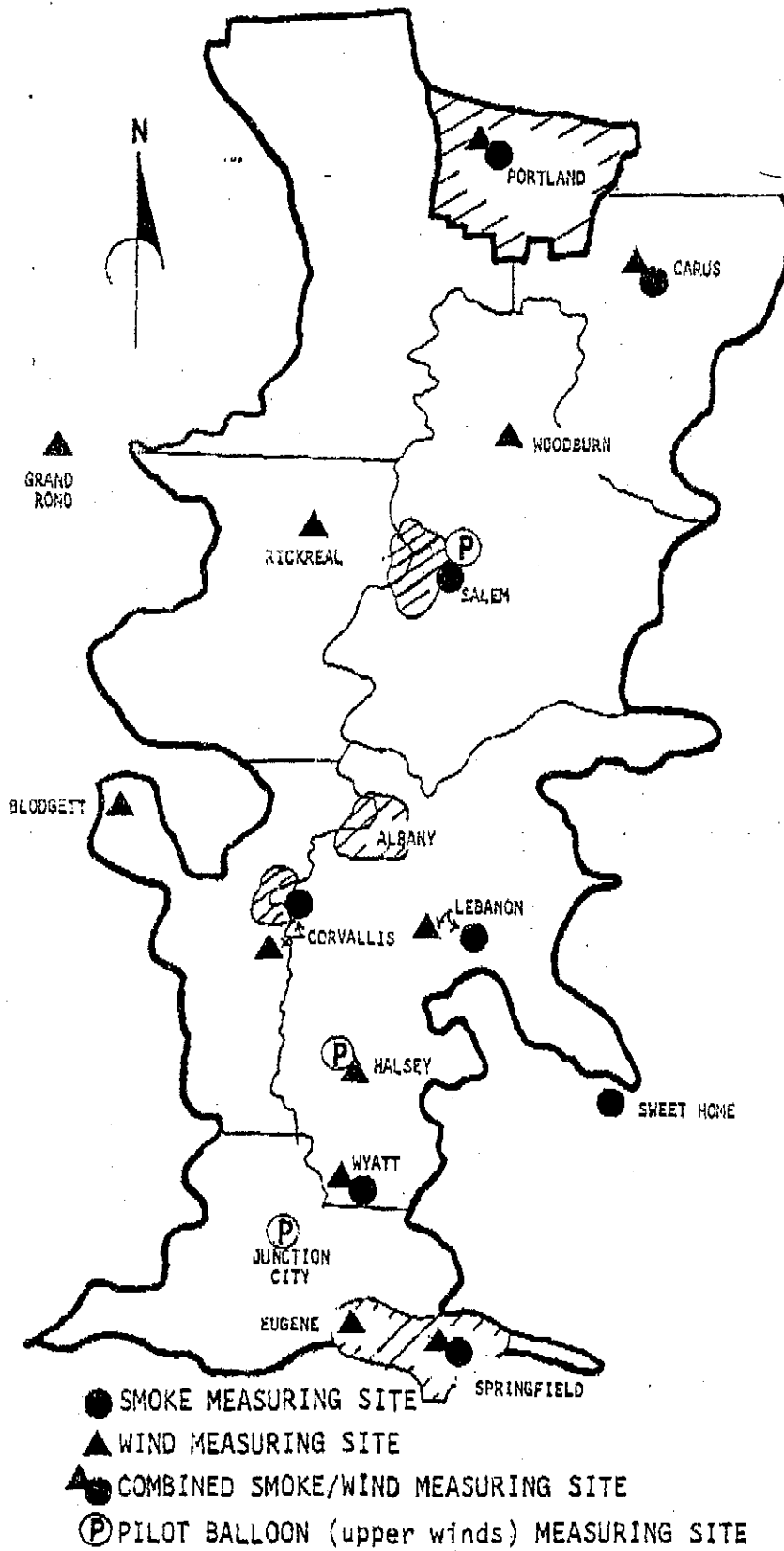
#### B. Meteorology:

DEQ's air monitoring network, established in 1980 and expanded in 1982, consists of a number of telemetered stations which report continuously on surface winds (direction and speed) and smoke concentrations. Monitoring site locations are shown in Figure 2.

#### 1990 DEQ Air Monitoring Network

<u>Station</u>	<u>Wind Monitor</u>	<u>Smoke Monitor</u>
Portland (several)	X	X
Carus	X	X
Woodburn	X	
Salem		X
Grand Ronde	X	
Rickreall	X	
Blodgett	X	
Corvallis	X	X
Lebanon	X	X
Sweet Home		X
Halsey	X	
Wyatt (Harrisburg)	X	X
Eugene		X
Springfield	X	X

Figure 3.  
WILLAMETTE VALLEY FIELD BURNING  
AIR MONITORING NETWORK



The surface wind data is used by smoke managers to plot probable smoke trajectories and to gain advance indication of wind shifts in an effort to avoid direct intrusions into populated areas. Temperature data is used to supplement other information in gauging the onset of nighttime cooling or marine air influence. Smoke concentration data, warns of smoke intrusions as they begin to occur so that immediate corrective action can be taken. A permanent record of the air monitoring data is made to allow comprehensive evaluations of intrusions and methods of improving forecasting.

Additional local and regional meteorological data are acquired by ODA from other sources. The National Weather Service (NWS) issues surface weather observations each hour from Salem, Eugene, Portland and other stations in Oregon and the northwest. This information provides the basis for tracking large scale weather changes and projecting short-term pressure gradients affecting air flow and atmospheric mixing in the Willamette Valley. The NWS also issues periodic regional weather forecasts and prognoses, and twice-daily reports on upper level temperature and wind profiles at Salem. Department of Agriculture meteorologists also receive satellite weather photography in order to predict weather phenomena not readily discernible from other data or visual observations.

Program personnel take frequent measurements of upper level winds at Junction City, Halsey, and Salem by tracking pilot (weather) balloons. This information supplements visual observations by ground and aerial-based staff of upper level smoke plume movements. Additional measurements are made of rainfall, winds, temperatures and humidities at locations throughout the Valley.

#### C. Burn Authorization Procedures:

During the course of a typical day, smoke managers will track the development of meteorological conditions throughout the morning and by midday may schedule a limited number of "test fires". A test fire is a burn set up for the purpose of observing smoke plume rise and verifying upper level air movement and stability characteristics. An increased level of burning activity is then considered based on these test fire results and existing and forecast conditions. Methods of releasing general burning have been developed in order to best match the rate of burning to the atmosphere's dispersion capabilities. To afford a more precise control of burning under various wind regimes, the Valley has been divided into approximately 50 smoke management zones (Appendix A). Under conditions of limited burning potential, burning may be allowed on a field-by-field basis; or only a specified number of fields per district or zone may be allowed to be burning continuously for a period of time. Under such "density-limited" burn releases, a steady rate of burning can be achieved while at the same time allowing a reasonable level of control such that burning can quickly be curtailed before smoke problems become severe. Occasionally, large scale burning is allowed without density restrictions, up to specified "quota" limits. A quota is an acreage amount allotted to each fire district, roughly proportional to the total acreage registered for burning in that district.

#### D. Regulations:

Field burning regulations have been approved by the federal Environmental Protection Agency (EPA) as complying with federal Clean Air Act requirements. The following is a brief summary of the major regulatory provisions set forth by statute and administrative rule for the Willamette Valley:

1. A maximum of 250,000 acres may be open burned annually in accordance with daily smoke management restrictions. No more than 46,934 acres may be open burned in a single day in the south Valley Counties of Linn, Lane, and Benton (under southerly winds).
2. Cereal grain acreage may be open burned only when preparing the field for planting a seed crop the following year.
3. No burning is allowed when the "ventilation index" is less than 10 (e.g., atmospheric mixing height of 2000' and average dispersal winds less than 5 knots). Burning is also prohibited in areas which might aggravate downwind pollutant levels already projected to exceed federal standards.
4. Burning is limited in any area when relative humidity exceeds 65% under southerly winds and 50% under northerly winds, except for test fires.
5. Burning is limited for a prescribed number of "drying" days (up to four consecutive days) following each .1 inch of rainfall.
6. Burning of acreage in and around major cities, highways and airports is carefully managed to avoid direct intrusions.
7. A "performance standard" is in place for the Eugene/Springfield area such that minimum ventilation criteria for burning become more stringent if and when the cumulative hours of smoke impact in the metropolitan area increase above an allowable level of 14 hours.
8. Civil penalties for illegal field burning range from minimum amounts of \$500 for burning without registration or permit, \$300 for burning at unauthorized times, and \$200 for burning without monitoring the field burning radio network. The maximum penalty for each violation is \$10,000.
9. Special provisions allow for experimental burning and emergency burning for reasons of economic hardship.
10. Tax credits are available for the use or installation of alternative field sanitation facilities such as propane flammers or equipment used to collect and process straw into marketable products.

### E. Visibility Protection Plan

In 1980, the EPA promulgated rules requiring states to protect visibility in Federal Class I areas. The rule requires states to "develop programs to assure reasonable progress toward meeting the national goal of preventing any future and remedying any existing impairment of visibility in mandatory Class I areas within which impairment results from manmade air pollution." Oregon has 12 Class I areas which consist of 11 wilderness areas (principally along the crest of the Cascades) and Crater Lake National Park. For several years the DEQ monitored visibility in several Class I areas and worked with an Advisory Committee representing agricultural, timber, and environmental interests, and the public in developing a plan to meet the federal goal.

Monitoring by DEQ since 1982 indicated that significant manmade visibility impairment occurs during the summer in the Northern and Central Cascade Class I areas on about one-fourth of the daylight hours. Much of this impairment was attributed to prescribed forest (slash) burning and field burning.

Control strategies to remedy impairment from field and slash burning were adopted by the EQC on October 24, 1986. With regard to field burning the new regulations took effect in 1987, prohibiting burning on weekends during the July 4 through Labor day period upwind of the Class I areas. There is an exception for weekend days when there is already natural visibility impairment present, such as clouds, fog or rain. There is also an emergency clause which allows the Director of DEQ to modify the restrictions under unusual and severe hardship conditions. A loss of 15,000 - 35,000 acres of burning is estimated to occur each year as a result of these weekend restrictions. The success of the Visibility Protection Plan in 1990 is discussed in Section 2.4 of this report.

To compensate for potential lost burning opportunities, short and long-term strategies were developed (see Appendix B). Short term strategies (1-5 years) include encouraging a shift to more early season burning, when feasible, and making improvements in smoke management and grower burning capabilities. Efforts will also be made to expand the experimental rapid-ignition evening burn program. Long-term control strategies (5-15 years) rely on research and development of alternate crops not requiring burning, straw utilization, and other alternatives.

The plan is expected to reduce substantial field burning smoke impairment by 30 percent. It is currently being re-evaluated.

### F. Field Burning Program Evaluation

The Executive Department reviewed the Field Burning Program in 1988. Its report found the regulation program becoming technically advanced, warranting modification of the organization and operations of the program. Major recommendations were:

Adopt specific performance objectives for the timely burning of acreage and level of expected smoke impacts for each community.

Transfer forecasting and aerial observation responsibilities to Department staff rather than contract for these services from the regulated industry.

Improve the program accuracy in identifying fields for registration and enforcement by using computer mapping systems available for personal computers.

Establish a smoke management advisory committee with broad representation to review the ongoing operations of the program and assist with communications.

Increase the responsiveness of the burning program by using two planes for smoke management under certain conditions, realigning responsibilities of personnel, and relocating and consolidating offices in the central valley.

Improve the analysis and staffing of the Research and Development program by reassigning contract personnel resources to the program between burning seasons.

New initiatives, identified by the review, to benefit smoke management were to consider reducing the average number of days of field burning, more intensively manage the remaining days of burning, and require registration for fields to be treated by propane flaming with a fee of one dollar per acre.

## 2.2 1990 Field Burning Activities and Impacts

Less acreage was registered and open burned in 1990 than in any year since 1979. Acreage burned during 1990 was about 20% below average continuing a trend begun in 1988 as more growers included alternatives other than open burning in their operations. Another major factor contributing to the reduction in acreage open burned during the year was the absence or rarity of adequate field burning weather. The burning season began late because of the occurrence of rain during the harvest period in the first week of July. A protracted hot, dry spell followed causing several burning days to be lost due to State Fire Marshal rules or associated adverse wind conditions. The lack of favorable transport wind conditions also contributed to an increase in smoke impacts and citizen complaints.

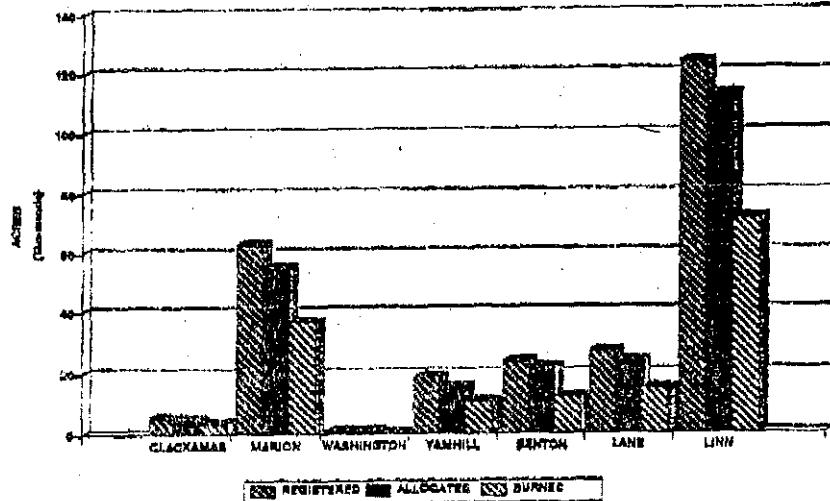
### A. Acreage Registration:

Registered acreage was less than in previous years; 284,897 acres in 1990 compared to 314,758 acres in 1989, and 317,598 acres in the 1983-89 seven year average. This represents a 10% annual reduction from the previous year. Approximately 87% of the acreage registered by April 1 was allocated for burning in 1989, according to the prescribed method of distributing pro-rata shares of the maximum allowable 250,000 acres.

The distribution of 1990 registered acreage by county is presented below.

Perennial grasses constituted 66% of the total registered acreage Valley-wide, with annual ryegrass and cereal grain acreage accounting for 31% and 3%, respectively. In comparison to 1989 figures, there was a 15% decrease in perennial acreage and a 5% decrease in annual acreage. Registered cereal acreage decreased 7% from last year.

Figure 4.  
1990 by COUNTY



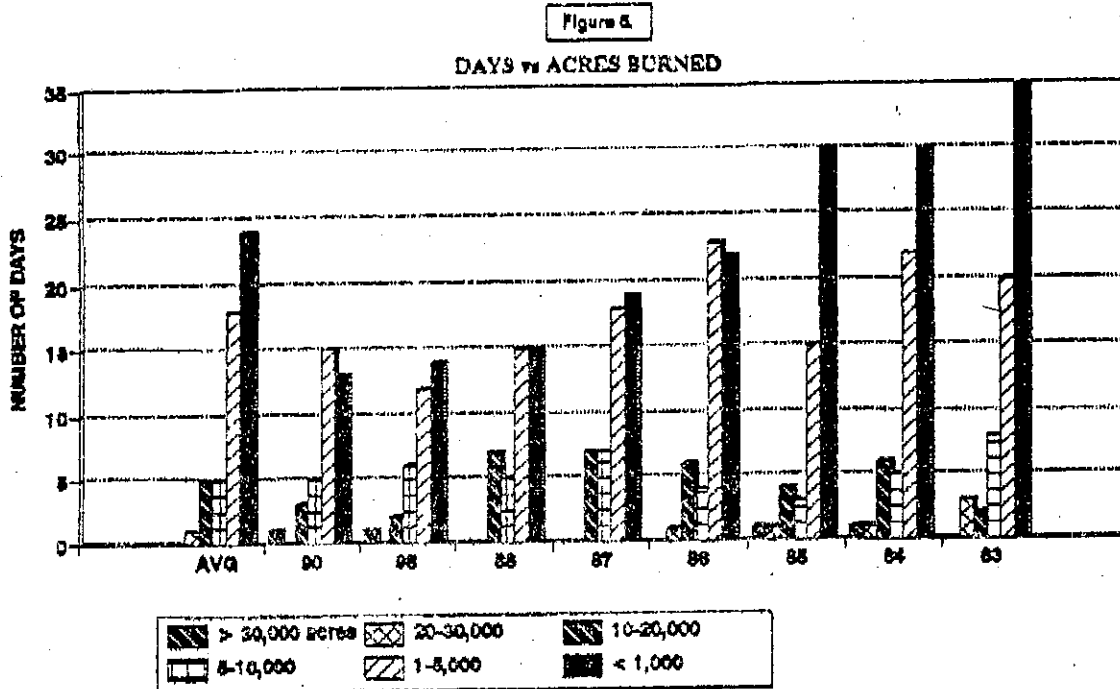
In the north valley counties, perennial grass acreage is more predominant than in the south, due to generally better soils. Fields also tend to be smaller in the north valley (average 37 acres) than in the south Valley (average 68 acres).

**B. Weather and Burning:**

A total of 159,340 acres were open burned in the Willamette Valley in 1990, representing about 64% of the maximum annual limit of 250,000 acres. This compares to 165,283 burned in 1989 and 199,232 acres over the seven-year average, 1983-89.

Overall, burning was concentrated into a very few number of days. There were just 39 days in which some burning occurred, compared to 53 days for the seven-year average (see figure 5). Three-fourths of all the acreage burned in 1990 was accomplished on ten separate days, below the seven-year average of 12 days.

The percentage of acres burned to the amount allocated was distributed between the various areas of the valley, in descending order, were: Clackamas (80%), Polk (77%), Yamhill (68%), Marion (65%), Lane (63%), Linn (62%), Benton (55%), and Washington (6%). Burning rates vary between counties and fire districts as a function of the amounts and time allowed for burning in the area (related to wind patterns and proximity to nearby populations) and of the efficiency and capability of fire districts and growers to respond to burn authorizations.



The Willamette Valley experienced below-average rainfall during the winter and early spring of 1990. However, the last 10 days of May and the first two weeks of June were characterized by abundant rainfall resulting in a generous seed yield for the year. The 1990 field burning weather was not generous. Weather systems offering needed valley ventilation events were notably rare.

The arrival of warm dry weather in later June permitted most growers to begin cutting crops somewhat earlier than normal. Unfortunately, prospects for an early harvest were quickly eliminated by two occurrences of rain during the first week of July that drenched the cut, but unharvested crops. The drying period was delayed for an additional two weeks before harvesting could begin on a productive scale. Few fields were available for burning until later in July following a return to hot weather. In most respects June and July were similar. Both months began with generally cool, cloudy conditions and significant amounts of precipitation. Both months drew to a close with temperatures higher than normal.

The hot weather that developed in July extended into mid-August without relief. A strong high pressure ridge dominated Oregon weather during this period. The State Fire Marshal imposed ban conditions on seventeen days between July 11 and August 12. Several more days were lost to a combination of weekend visibility rules and weak or northerly transport winds. Only 24,900 acres had been accomplished by August 12 when westerly wind flows returned. Records from the previous seven years show an average of 68,300 acres normally accomplished by that date.

An upper air cold low pressure system moving southeastward from the Gulf of Alaska brought more favorable weather conditions facilitating the burning of an additional 76,000 acres between August 12 and 17. This period proved to



\*\*\* TABLE A. COMPARATIVE ANNUAL FIELD BURNING DATA \*\*\*

	1990	(1983-89) 7-YR AVG	1989	1988	1987	1986	1985	1984	1983
ACRES REGISTERED:	284,887	317,858	314,788	342,588	317,930	312,288	305,950	318,524	315,854
ACRES BURNED:	199,340	199,252	185,283	188,920	201,198	199,050	214,787	237,591	208,236
MOST BURNED ONE DAY:	41,746	50,829	55,877	18,260	19,865	25,626	86,387	50,378	28,410
BURN DAYS ACCOUNTING FOR 75% OF TOTAL ACRE	10	12	10	12	13	15	9	13	15
WEEKEND DAYS BURNING ALLOWED/PROHIBITED: (July 4 - Labor Day)	1/17	3/17*	3/15	2/18	4/18	3/17	n/a	n/a	n/a
EVENING RAPID IGNITION BURN DAYS/ACRES:	0/0	3/5,720*	0/0	1/2,371	4/7,500	9/13,012	n/a	n/a	n/a
NUMBER BURN DAYS:									
0 - 1,000 acres	14	24	14	15	19	22	30	30	35
1,000 - 5,000 acres	18	18	12	15	18	23	19	22	20
5,000 - 10,000 acres	5	5	8	5	7	4	3	5	8
10,000 - 20,000 acres	3	5	2	7	7	8	4	6	2
20,000 - 30,000 acres	0	1	0	0	0	1	1	1	3
30,000 or greater	1	0	1	0	0	0	1	1	0
Total Burn Days	39	55	35	41	51	54	54	55	58
SMOKE IMPACT HOURS: #									
Total/Heavy (# Infr):									
Portland	5/0(1)	3/0(1)	0/0(0)	0/0(0)	3/3(1)	2/0(1)	0/0(0)	4/0(1)	10/0(3)
Salem	2/0(1)	2/1(1)	0/0(0)	1/0(1)	3/3(1)	0/0(0)	1/0(1)	4/1(2)	4/0(2)
Corvallis	0/0(0)	3/0(2)	0/0(0)	0/0(0)	3/1(2)	1/0(1)	2/0(2)	7/0(2)	7/2(4)
Lebanon	24/2(5)	18/3(8)	11/3(4)	9/0(6)	15/3(8)	14/2(9)	15/4(8)	33/4(12)	28/3(11)
Sweet Home	23/8(7)	28/8(8)	12/0(8)	24/0(8)	27/8(10)	24/10(7)	18/8(5)	67/24(13)	27/12(9)
Eugene	8/0(1)	2/0(1)	3/0(1)	0/0(0)	7/0(2)	0/0(0)	1/0(1)	2/0(1)	1/0(1)
Springfield	23/5(5)	8/1(3)	4/1(2)	14/1(4)	12/0(2)	3/1(2)	0/0(0)	11/1(5)	5/2(3)
Total	85/11(18)	64/13(24)	30/4(13)	48/1(19)	73/18(24)	45/13(19)	35/10(18)	128/30(37)	86/19(33)
SMOKE COMPLAINTS: @									
Portland/Salem	885	267	366	580	625	87	87	203	42
Albany/Corvallis	206	128	132	348	135	103	41	70	56
Lebanon/Sweet Home	256	198	170	375	194	138	167	296	46
Eugene/Springfield	683	371	746	1215	272	129	43	99	94
Other(north Valley)	592	184	223	514	89	181	59	255	41
Other(south Valley)	367	284	381	744	198	213	136	86	89
Total Complaints	2,959	1424	2016	3783	1411	851	503	1032	366
VIOLATIONS:	11	15	16	8	10	13	13	23	21

\* Four-year average (1986-89)

@ Smoke impact hours are defined as follows: Regular hours are those averaging  $1.8 \times 10^{-4}$  or more nephelometer light scattering units above previous background. Heavy hours are those averaging  $5.0 \times 10^{-4}$  or more above background.

⊙ Includes a substantial number of complaints received on non-burn days and complaints about propane farming.

be the most productive of the season. It was culminated by the burning of 41,746 acres on August 15. The last half of the month was generally wet and cool with Salem and Eugene recording .85 inches and 2.38 inches of rainfall respectively on five days. Consequently, subsequent August burning was very intermittent.

Another low pressure system moved to a stationary position southwest of Oregon approximately 500 miles offshore. It persistently remained in that location from September 1st to the 16th inducing northerly wind-flows that nullified or weakened the daily influx of marine air needed to cleanse the valley of pollutants. Associated daily inversion heights were generally less than 3,000 feet. Although field burning was light and sporadic in September, these adverse conditions contributed to a significant increase in smoke impacts on municipal areas on September 12 and 13. September burning accounted for 32,126 acres whereas the average for the previous seven years is 60,369 acres.

Five frontal systems sped through the Pacific Northwest in the first two weeks of October bringing wet conditions that ended the season at 159,340 acres. The last day of burning was conducted on October 9th.

Overall, weather systems that are relied upon to provide suitable valley ventilation for open field burning were notably infrequent during the 1990 season. There were only three usable marine air intrusions, five relatively weak upper air trough passages and no frontal passages between July 6 and September 30.

Table B Average 1990 Transport Wind Direction/Frequency (Days)

Direction	Jul	Aug	Sep
N	15	14	16
NE	1	0	1
E	0	0	0
SE	0	0	0
S	2	1	0
SW	3	6	4
W	3	6	4
NW	7	4	5
Total	31	31	30

### C. Smoke Impacts:

Generally unreliable and inconsistent transport wind conditions contributed to more smoke intrusion hours in 1990 than have occurred since 1984. In 1990 there were a total of 83 hours of significant<sup>1</sup> smoke impact on valley communities versus 30 hours in 1989 and 64 hours averaged during the period 1983-89. This represents 5.21 hours of smoke impact per 10,000 acres burned in 1990 compared to 3.21 hours over the seven year average.

<sup>1</sup> "Significant" hours of smoke impact are defined as resulting in hourly nephelometer measurements exceeding  $1.8 \times 10^{-4}$  B-Scat above prior 3-hour background, equivalent to visual range of 12 miles or less.

TABLE C  
SUMMARY 1990 BURN TOTALS & SMOKE IMPACTS  
(By Date)

DATE	REPORTED ACRES BURNED			SMOKE COMPLAINTS FB/PF/AD	SMOKE IMPACTS * TOTAL HOURS/HEAVY HOURS							
	TOTAL	NORTH VALLEY	SOUTH VALLEY		PORT-LAND	SALEM	CORVALLIS	LEBANON	SWEET HOME	EUGENE	SPRING-FIELD	
JUN(1)												
29	118	12	106	1/0/0								
JUL(9)												
17	278	266	11	13/0/2								
18	890	373	287									
23	2,898	2,062	798	24/0/0								
24	4,984	2,517	2,467	12/0/0					1	1		
25	8,166	3,352	2,814	25/0/0								
26	140		140	12/0/0								
27	248		248	25/0/0								
30	7,374	4,338	3,036	43/0/1								
31	341	13	326	29/0/0								
AUG(12)												
1	153	17	136	20/0/0								
2	202	7	195	0/0/8								
3	622	167	455	0/0/23								
12	11,020	3,776	7,244	92/0/0					2/2			
13	3,924	2,031	1,893	23/0/4								
14	1,128	173	955	48/0/0								
15	41,746	14,489	27,257	578/0/0	5				9/2	6/2		
16	10,186	5,512	4,674	475/0/0					2	1/1		
23	216	38	181	31/0/14								
24	14,510	4,833	9,677	44/0/8								
27	1,598	1,323	275	24/1/5								
31	2,737	1,628	1,109	0/2/2								
SEP(14)												
3	108	108		0/0/6								
4	1,929	1,102	827	6/0/14								
5	5,582	2,884	2,698	110/0/2								1
11	1,004	260	804	9/0/1								
12	5,847	3,317	2,530	143/2/0		2			3	4/1	4	7/2
13	0			72/0/0					9	5	2	15/1
14	8,620	2,722	4,088	73/0/0						1		
18	1,198		1,198	12/2/0								
19	2,019	2,010	9	24/3/2								
20	3,396	629	2,767	159/6/12								
21	1,670	714	956	33/3/7								
24	293	293		0/0/19								
26	2,742	1,149	1,593	19/0/0								
OCT(5)												
1	2,295	119	2,176	16/0/4								
2	734	126	608									
3	2,570	784	1,804	17/0/3								
4	1,484	951	533	23/0/2								
9	443	398	80									
TOTALS	158,340	64,177	95,163	2221/118/135	5	2	0	24/2	23/4	8/0	23/3	
COMPLAINTS MADE ON NO-BURN DAYS				442/27/115								

\* Total includes hourly nephelometer measurements exceeding  $1.8 \times 10^{-4}$  B-seal above prior 3-hr background equivalent to visual range of 12 miles or less. "heavy" hours are  $5.0 \times 10^{-4}$  B-seal or more above background equivalent to visual range 5 miles or less.

\*\* FB/PF/AD are complaints pertaining to Field Burning/Propane Flaring/General Air Quality.

The impacts in 1990 occurred on eight days compared to seven in 1989 and an average of 13 in the period 1983-89. Three of these intrusions were of sustained duration contributing 74 hours to the 83 hour season total; August 15, September 12 and 13. On the first two dates burning began utilizing westerly winds that suddenly abated and/or turned to a northerly direction. No burning was conducted on September 13, but the intrusion that began on September 12 persisted well into the next day.

#### a. Lebanon-Sweet Home

Historically, these communities have received more smoke impacts than other valley areas; primarily because of their geographic locations on the east side of the valley and the effects of local terrain on low level winds. Lebanon lies in close proximity to the largest concentration of grass seed fields in the central valley. Farther southeast in the foothills of the Cascades, Sweet Home lies near the juncture of two minor valleys leading from the Valley floor.

Lebanon experienced five days with significant intrusions resulting in a total of 24 impact hours, including two hours in the "heavy"<sup>1</sup> concentration range. Two of the intrusions events were relatively minor and the result of general mid-valley burning activity. The remaining three days were of significant impact and occurred in conjunction with intrusions also impacting Sweet Home; August 15, September 12 and 13. Sweet Home experienced seven days with intrusions resulting in a total of 23 impact hours, including six hours in the heavy concentration range. Four intrusions were of short duration, the result of smoke from general valley burning. The remaining three days of intrusion occurred on the dates mentioned above.

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<sup>1</sup> "Heavy" hours of smoke impact are defined as resulting in hourly nephelometer measurements exceeding  $5.0 \times 10^{-4}$  B-Scat above prior 3-hour background, equivalent to visual range of 5 miles or less.

Valley-wide burning began at 11:30 am on August 15 under seemingly ideal conditions; west-southwest transport winds exceeding 10 mph and unstable atmospheric conditions from the surface to 8,600 feet. Burning progressed without incident until mid-afternoon when smoke began accumulating along the east side of the valley, the result of diminishing transport winds. The density and rate of burning were decreased when the deterioration in conditions became apparent. However, the large amount of acreage burned, 41,746 acres, and the abruptness in which the lull in wind speed occurred in the mid-valley area caused nine hours of smoke intrusion in both Lebanon and Sweet Home. Winds returned later in the evening sufficient to clear the valley of smoke following the cessation of all burning at 6:00 pm.

The second significant event impacting the two communities occurred on September 12 when 5,941 acres were burned valley-wide in areas north of Coburg in the east and north of Corvallis in the west. Burning began at noon utilizing light southwest winds that veered to the northwest as the afternoon progressed. By mid-afternoon it became apparent that a weak high pressure ridge was beginning to build over the valley with the likelihood that wind directions would become northerly that evening. As a consequence, all open burning was stopped at 4:00 pm. Eastward movement of the high pressure ridge stabilized the atmosphere causing the smoke that had been distributed in the foothills of the Cascades to settle to the surface and drain back into the east and south areas of the valley. Lebanon received three hours of impact while Sweet Home experienced four hours (including one hour of heavy concentration).

No agricultural burning of any type was permitted the following day, September 13, because of the extreme stable air conditions and poor air quality. Nevertheless, pollution from all sources, including remanent smoke from the previous day, remained trapped in the valley causing an extended period of intrusion in Lebanon (nine hours) and Sweet Home (five hours).

#### b. Eugene-Springfield

The Eugene-Springfield areas only experienced smoke intrusions on two days, September 12 and 13, as a result of the same conditions affecting Lebanon and Sweet Home as described above. Eugene received four hours of smoke intrusion and Springfield five hours (including two heavy) on the 12th. Stagnant conditions persisting into the 13th brought an additional two hours to Eugene and 14 hours to Springfield.

#### c. Portland-Salem

These communities each experienced one day with significant intrusions. Portland counted five hours on August 15 and Salem two hours on September 12.

#### d. Corvallis

Corvallis did not experience any significant smoke impacts.

e. Complaints

The Department receives complaints for all sources of smoke, such as slash burning, propane flaming, forest fires, and general agricultural/industrial burning. Whenever possible, efforts are made to distinguish between sources.

COMPLAINTS

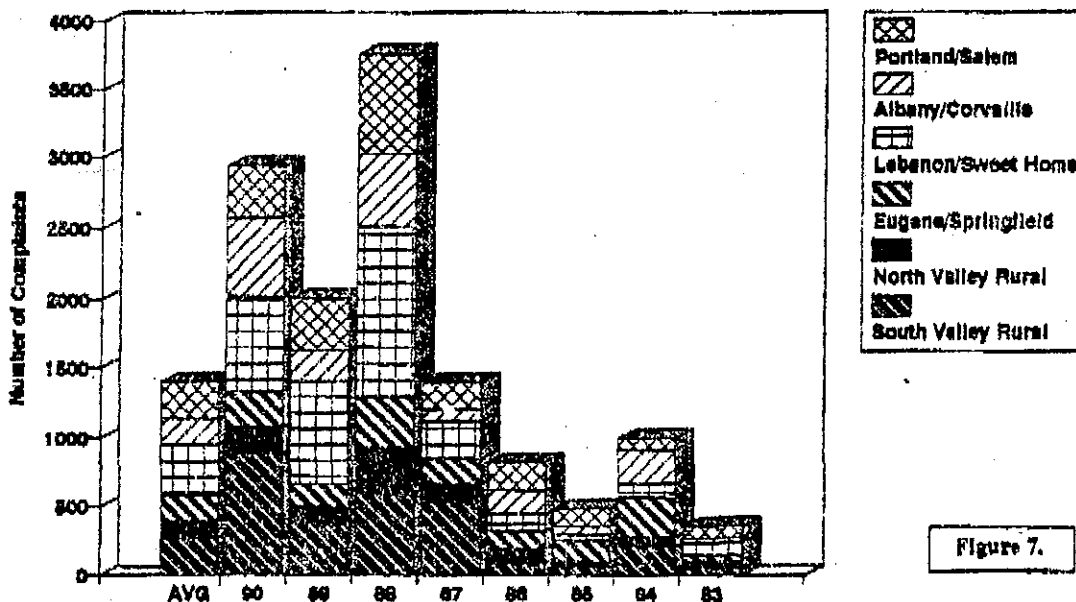


Figure 7.

A total of 2,959 citizen complaints attributed to all sources were received by the Department in 1990, an increase over 1989 (2,018) and the seven year average of 1,424. The only year registering more complaints than 1990 was in 1988 (3,783). Approximately one third of the 1990 complaints were made on August 15 and 16.

D. Rulemaking

On August 3, 1988, while burning was being conducted in the south Willamette Valley, an open field burn near Interstate 5, four miles south of Albany, sparked a wildfire which generated smoke across the freeway, resulting in a 23-vehicle accident that took seven lives and injured 38 others.

On August 4, Governor Neil Goldschmidt directed Fred Hansen, Director of DEQ, to establish and chair a task force to investigate the cause of the accident and develop measures to minimize such an accident occurring again. The Director imposed a moratorium on open field burning and propane flaming pending a review of the public safety aspects of field burning. Participants included officials from the Departments of Transportation and Agriculture, State Fire Marshall's Office, Oregon State Police, Risk Management Division, and the Department of Environmental Quality.

The task force determined that the proximity of the wildfire to the interstate highway was a significant factor in the density of the smoke on the freeway. Therefore, efforts were concentrated on how to reduce the possibility of wildfires, and ensure the spatial separation necessary to minimize smoke-obscured vision on the freeway and other highly traveled roadways.

The State Fire Marshall (SFM) and the Environmental Quality Commission (EQC) adopted emergency field burning rules on August 12, 1988. The new SFM rules (OAR 837-110-080) established a "fire safety buffer zone" 1/2 mile wide along each side of Interstate 5, and 1/4 mile wide along each side of other major highways in the Willamette Valley. This buffer zone requirement prohibits open field burning within the first 1/4 mile of the interstate, but allows burning in the second 1/4 mile if the first 1/4 mile is non-combustible, and includes "wings" extending 1/2 mile to the north and south of the field. The buffer requirement on the other designated highways is a 1/8 mile wide non-combustible area, extending 1/4 mile in each direction from the field.

The SFM's rules also require a 20-foot non-combustible barrier around each field to be open burned, specific fire fighting equipment and water capacities based on field size, effective radio communications between burn crews and a nearby fire station, and a tightening of the provisions prohibiting burning under specific hazardous weather conditions. Similar requirements on field preparation, extinguishment capability, and radio communication were applied to propane flaming as well.

The Department of Environmental Quality's emergency field burning rules, adopted by the EQC, addressed open field burning and propane flaming within the SFM's safety buffer zones. These rules state that no open burning shall be conducted within the buffer zones without prior authorization from the Department. They also take additional steps to minimize smoke emissions from propane operations within the buffer zones, by prohibiting propaning vehicle speeds over 5 mph, or when relative humidity exceeds 65%, or surface winds exceed 15 mph. The new propaning rules require the re-cutting of fields with excessive regrowth, and require that the propane operator not cause visibility impairment on any roadway with a fire safety buffer zone.

The State Fire Marshall and Department of Environmental Quality's emergency rules were placed in effect for a period of 180 days. Public hearings were held in 1989 to allow public comment on permanent rulemaking. Both the SFM's and DEQ's rules were permanently adopted with little change.

### 2.3 Enforcement

Enforcement of the EQC's open field burning rules is an important and integral part of an effective smoke management program. Violations of these rules could result in smoke intrusions into populated areas, aggravation to the health and welfare of Willamette Valley residents, and loss of revenue due to unreported or excess acreage burned.

During the 1990 season, the Department of Environmental Quality issued 39 Notices of Noncompliance (NONs) resulting in eleven civil penalty referrals. The majority of these violations were issued for unauthorized agricultural burning (10), unauthorized open field burning (7), and improper propane flaming (5). Other serious infractions included burning within the fire safety buffer zone, late burning, and burning without adequate firefighting equipment on site. Five informal warnings were also issued for improper registration (i.e., registering multiple fields as one field).

In comparison, 28 NONs were issued in 1989 with sixteen referred for civil penalties. The increase in the total number of NONs for the 1990 season is, for the most part, due to the separation of field burning operations (transferred to ODA) from enforcement which remained with DEQ. This separation of duties facilitated a greater focus on enforcement activities. In addition, new enforcement policies and procedures were adopted by the EQC. The new rules require NONs to be issued for every documented violation while previous policy allowed some discretion for resolving noncompliance informally. Enforcement procedures and policies are discussed in section 2.7.

Throughout the season, DEQ emphasized prevention and education by pre-inspecting fire safety buffer zones, examining fire guards, explaining rule requirements, and working closely with individual growers to insure compliance. This effort was directed at averting additional violations.

#### 2.4 Weekend Burning

1990 marked the fourth year of implementation of the Oregon Visibility Protection Plan, adopted in the fall of 1986. This Plan attempts to improve visibility in Oregon's Class I wilderness areas and Crater Lake National Park, by restricting slash and field burning between July 4 and Labor Day, which are the high visitation periods. To accomplish this, weekend field burning during this period is not permitted upwind of these areas. The only exception is on those days when natural visibility impairment, such as clouds, rain, or fog is present (or forecasted). In 1990, field burning was not prohibited on any weekend day during this two-month period as a result of the visibility protection requirements. Weekend field burning was conducted on one weekend day for a total of 11,100 acres burned.

The Visibility Protection Plan was successful in 1990. The restrictions on field burning resulted in improved visibility in Class I areas, compared to the levels monitored by the Department in 1982-84.

#### 2.5 Experimental "Rapid-Ignition" Evening Burning

A unique experimental burning program was initiated in 1986 in an effort to more efficiently utilize available burning opportunities, particularly in light of the weekend burning restrictions of the Visibility Protection Plan. Tests conducted by program personnel in 1984 and 1985 proved that a meteorological "window" exists on most days in the early evening (at approximately 6 p.m.) when atmospheric turbulence subsides and more readily allows optimum plume rise. At this hour, maximum heating (and maximum mixing height) has already occurred. Surface temperatures begin to fall and



the nighttime surface inversion gradually begins to form, yet humidity, remains low. Under these temporary conditions, a well executed rapid-ignition burn on a field of suitable size, shape and fuel condition can generate enough heat quickly to insure that nearly all the smoke is lofted cleanly to the upper levels. Ground smoke is readily pulled into the main convective column as the plume layers out aloft and moves away under the prevailing transport winds. When atmospheric conditions are appropriate and the burn is conducted correctly, there is little or no ground smoke or down-mixing. This allows consideration of limited burning under a range of wind directions that would not normally be considered usable. In order to fully implement this burning program, the following requirements must be met by participating growers:

1. A minimum of three lighting vehicles.
2. A minimum field size of 40 acres.
3. A maximum field size of 150 acres. This limitation may be lifted if more equipment is available.
4. No major irregularities in the field that would cause a slow down in lighting.
5. Lighting must be rapid with no backfiring.
6. Adequate fire equipment and adequate water.
7. Able to simultaneously light all sides of the field.
8. Willing to comply with all instructions.
9. Field must be able to be completely lit in 10 minutes.
10. Must be ryegrass, orchardgrass, bentgrass or fine fescue in good condition.
11. Fields in priority areas should be burned first if they meet the criteria.

Burn days are selected primarily based on an adequate mixing height (e.g., minimum of 3-4,000 feet). An effort is made to scatter the burns around the Valley. Special caution is taken to avoid areas affected by the afternoon sea breeze which prevents good plume rise. In addition, no burning is allowed immediately upwind of major cities. Growers are selected by the local permit agent. Those who failed to comply with the criteria are excluded from further participation.

The Evening Rapid Ignition Program became established in 1986 when 13,000 acres were burned on nine occasions. The program continued with 7,500 acres burned in 1987 and 2,371 acres burned in 1988. In 1989 and 1990, the reduced acreage burned made evening rapid ignition burning unnecessary.

The Department will continue to utilize evening rapid ignition burning in 1991, particularly in July and early August. The performance criteria will be closely adhered to, so that potential smoke problems can be avoided.

## 2.6 Preparatory Burning

Preparatory burning is the controlled burning of small sections of selected "problem" fields to reduce the fire hazard potential and thereby allow the grower to employ rapid-ignition burn techniques when the field is subsequently authorized for open burning. The Department encourages the use of preparatory burning as part of an overall smoke management improvement

effort. Each morning the Salem sounding is evaluated to determine if any significant surface inversions are present. Based on this information, "prep" burning is normally allowed if no strong surface inversion exists, the forecasted mixing height is better than 2500 feet, and air quality in the Valley is good. Light, morning surface winds are desirable followed by (forecasted) afternoon winds over 5 mph to clear out any remaining smoke. If conditions are suitable, permit agents are notified and one or more prep burns are allowed per district. An effort is made to space the burns, so that no significant surface smoke accumulations occur. Preparatory burns are generally conducted in the morning between 9 am and 11 am, and are typically two to four acres in size. A daily maximum of 100 acres is allowed Valley-wide, with no individual burn exceeding five acres, unless specifically allowed by the Department. Backfiring is also required.

During the 1990 field burning season, the use of prep burns increased over 1989 in relation to total acres burned and fields treated but the burning was accomplished in fewer days. Prep burning was conducted in 207 recorded fields on 26 separate days for a total of 846 acres. The program was again considered successful in allowing more fields to be burned quickly and with less ground smoke than would otherwise have been the case.

## 2.7 Issues and Trends

On March 3, 1989, the EQC adopted revisions to the civil penalty rules, Oregon Administrative Rules, Chapter 340, Division 12. The intent of the rule revision was to establish a uniform and predictable protocol for calculating and assessing civil penalties while maintaining enforcement flexibility.

The new rules define the limits and use of enforcement actions available to the DEQ, classifies violations according to their seriousness, establishes a matrix for determining base penalties, and provides a formula for mitigating or aggravating the penalty. The base penalty and the formula are combined to determine the assessed civil penalty amount.

The most significant element of the new rules requires a Notice of Noncompliance to be issued for every documented violation. This ensures statewide consistency in applying the rules, provides the violator an immediate confirmation of violation, identifies the necessary corrective action, informs the violator if formal enforcement action is being considered and gives management greater ability to direct enforcement action by eliminating the field inspector's discretion for an informal resolution.

It is felt that the new rules will significantly increase the number of formal enforcement actions and the amount of civil penalties imposed.

## 3. RESEARCH & DEVELOPMENT PROGRAM

### 3.1 Program Overview

Legislation in 1977 ceded the Department responsibility for conducting research and development (R&D) of "reasonable and economically feasible alternatives" to the annual practice of open field burning. An Advisory

Committee was established to assist the Department in the R&D program, especially in the review and prioritization of study areas and in recommending apportionment of funds for specific projects.

<u>Advisory Committee</u>	<u>Affiliation</u>	<u>Appointed by</u>
Michael F. Fox	City of Eugene	Dept. of Environmental Quality
Dean Schrock	Grower	Director, Economic Development
Dennis Glaser	Grower	Director of Agriculture
Dr. Sheldon Ladd	Oregon State Univ.	Dean of School of Agriculture
Jim Jensen	Public	Governor

There is also a Technical Subcommittee to provide specialized expertise and assistance in analyzing specific projects or general research topics. Members are appointed by the Advisory Committee.

<u>Technical Subcommittee</u>	<u>Affiliation</u>
Dr. Larry Lev	Oregon State University
Chuck Craig	Department of Agriculture
Gale Gingrich	Oregon Extension Service
John Burt	Oregon Extension Service

State law directs the Department and its Advisory Committee to apply research efforts into six specific areas: 1) ameliorate air quality through improved smoke management; 2) alternate field sanitation methods; 3) surrogate weed, pest, and disease controls; 4) utilization and marketing of crop residues; 5) optional crops; and 6) health effects of open field burning.

Proposals for research funding are evaluated on the basis of need, technical merit, and cost. Preferential consideration is given to projects which address critical information needs, are most likely to payoff in the near term, and which offer additional matching fund support. In general, applied research and demonstration projects are favored over basic research which develops new data or concepts.

A total of \$254,491 was allocated for research projects in 1987, and \$317,530 in 1988. Funding for research and development was not available in 1989 or 1990 due to increased smoke management expenses and reduced revenue from registration and burn fees. A detailed discussion of research and results from individual projects is provided in following sections of this report.

The Department also offers tax credits for the installation of pollution control facilities. The credits provide income tax (or corporate excise) tax relief of up to 5% of the cost of the facility per year for a maximum of 10 years depending on return on investment from the facility and other factors. Facilities approved as eligible include propane flammars, straw storage sheds, and bale compressors. Increasingly, growers are making use of these tax credits.

### 3.2 Current Use of Alternatives

#### A. Straw Utilization

There has been a trend over the past few years toward increased grower use of alternatives to field burning, particularly in the areas of straw utilization and propane flaming. Locally, the market for straw probably has not changed much. Uses include mushroom production (est. 9,000 tons), erosion control products (est. 2,000 tons), and on-the-farm use for animal feed and bedding.

Fluctuations in hay prices are a major factor in the volume of straw sold locally in any given year. The export market for straw has stabilized over the past few years. An estimated 100,000 tons are reportedly exported to Japan annually. It is shipped in containers in standard bale form or as densified bales and used as a source of fiber in animal feed. The potential Japanese market for quality straw is expected to grow at a rate of five percent per year.

#### B. Propane Flaming

The EQC's regulations formally recognize propane flaming as an approved alternative to open field burning. Fields must be properly prepared (i.e., loose straw removed, stubble cut) before propaning, and the remaining material can not sustain an open fire. A grower may conduct propaning on any day, in any location, and on any number of acres, providing the Department does not prohibit it due to adverse atmospheric conditions or air quality. Propane flaming is exempt from all requirements related to registration, permits, and fees which apply to open field burning. The limited controls on propaning have made it an attractive alternative for many growers.

While there is no quantitative information on how many acres were treated by propaning in 1990, estimates indicate that between 40,000 and 60,000 acres are propaned annually. The Department observed significant smoke intrusions into populated areas directly attributable to propaning in 1988. It is clear that under adverse atmospheric conditions, or when done improperly, emissions from propaning can significantly affect local and regional air quality.

Rules for propane flaming were adopted by the Department in order to prevent air quality problems. The Department believes that existing propaning rules represent the minimum regulation necessary to control potential smoke impacts from this practice.

#### C. Bale/Stack Burning

Consequential to the increased use of propane flaming, which requires that the straw be removed from the field, some growers are burning straw bales or stacks as a means of disposing of unmarketable crop residues.

An increase in bale burning has occurred as a result of the new regulations creating fire safety buffer zones. It is expected that this practice will persist. The Department will continue to monitor bale burning to assess potential smoke problems from this activity.

#### D. Tax Credits

Oregon law provides for tax credits for installation of pollution control facilities. The credits offer income or corporate excise tax relief up to 5% of the cost of the facility per year for a maximum of 10 years depending on return on investment from the facility and other factors.

A "pollution control facility" is defined as any building, installation, machinery, equipment, device, etc., which serves to prevent, control or reduce pollution or waste. All such "facilities" must be approved by the Department of Environmental Quality and Environmental Quality Commission. Eligible field burning pollution control facilities would include:

1. 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;
2. Propane flammers or mobile field sanitizers which are alternatives to open field burning and reduce air quality impacts; and
3. Drainage tile installations which will result in a reduction of grass seed acreage under production.

Interest in tax credits has increased dramatically over the last four years. This is attributed to more awareness about the tax credit program and a significant shift to the use of viable alternatives to burning, including straw utilization and propane flaming.

#### 3.3 Improvement of Air Quality/Smoke Management

Research in this area has been directed toward improving air quality in the Willamette Valley through better smoke management techniques and gaining an expanded understanding of the factors affecting optimum plume rise. This approach has taken the form of 1) plume studies conducted in 1978, 1979, and 1980, 2) the application of the Livermore Regional Air Quality (LIRAQ) model to field burning completed in 1983, 3) a meteorological forecasting study completed in 1982, and 4) studies to validate burned acreage (illegal burning) in 1980 and 1981. Past research into the use of growth retardants on grass crops also relates to smoke management as it results in reduced straw loading on fields and lower residue moisture, thereby reducing the amount of material burned and pollutants emitted.

The Experimental Evening Burning Program, as described in Section 2.5, has been conducted by the Department since 1985 in order to test and demonstrate the feasibility of limited burning on certain days when no general burning could normally take place. This program was proven to be a successful smoke management technique, and will continue to be utilized in the future. The Department works continually to test, demonstrate and implement new techniques and program refinements. Examples include expanded air monitoring, weekend burn controls and preparatory burning.

### Project: Emission Sampling from Propane Flaming and Stack Burning

A study related to air quality was funded by the Department in 1987 to sample the emissions from propane flaming and burning of straw stacks. This study was in response to an increase over the years in the number of grass seed fields treated by propane flaming, and a corresponding increase in the burning of loose or baled straw in stacks. The study, conducted by OMNI Environmental Services of Beaverton, sampled emissions from propane flaming and stack burning at the field and under a range of field conditions utilizing the carbon mass balance method, and made an estimation of downwind smoke levels utilizing an integrating nephelometer.

Eight stack burns and 18 propane flaming operations were sampled for emissions of particulates, semi-volatile hydrocarbons, CO<sub>2</sub>, and carbon monoxide. Results from the testing found an emission factor of .051 for propane flaming and .013 for stack burning. This compares to an emission factor of .020 for open field burning, indicating that propane flaming has twice the emission rate of open burning, given an equal fuel load. Since propaning occurs on fields where fuel loads are approximately 10% of open field burning, total particulate emissions are less. Emissions per unit of area burned were 66 Kg/ha for propane flaming, 78 Kg/ha for stack burning, and 180 Kg/ha for open field burning. Since propane flaming emissions tend to stay close to the ground rather than form a convective column, this creates a higher potential for impacting populations downwind. For a field of equal size, propaning can also take up to five times longer than open burning.

Adverse air quality effects have increased as acreage treated by propane flaming has grown. A study conducted by OMNI Environmental Services, Inc. investigated the potential air quality effects of widespread propane flaming based on 1988 activity levels.

Qualitative comparisons with open field burning show that, based on data from key monitoring sites, both the concentrations and exposure resulting from propane flaming and stack burning under the controlled conditions modeled would far exceed those experienced due to open field burning impact during 1988. In general, the field burning contribution to daily fine particulate loadings on days of smoke intrusion are on the order of one-third to one-half of the maximum values predicted for propane flaming.

### 3.4 Alternative Field Sanitation Methods

The effectiveness of any field sanitation method for grass crops is measured by the resultant effect on seed yields and seed quality. An effective field sanitation treatment consists of both the removal of crop residues and the destruction of weed seeds and any disease or pest infestations present. In recent years a number of alternative field sanitation methods have been evaluated by the Department. These have included studies of close-cropping (crew-cutting), alternate-year burning, use of growth retardants, improvement of propane flaming, and most recently, minimum tillage rotation systems. In general, findings from this work have been favorable.

Research into the long-term effects of crew-cutting, flail-chop removal and alternate year burning began in 1978 in order to assess the potential for significantly reducing grass seed acreage that must be burned annually in the

Willamette Valley. Crew-cutting is a method of removing residues from the field following harvest by clipping standing plant material at ground level and sweeping up and collecting the chaff from the surface. The removal of weeds and residue can provide effective sanitation and sustained yields over the life of the stand. While the costs of crew-cutting are high (approximately \$50-60 per acre), half of this cost is attributable to the required pre-removal of loose straw from the field, which can be offset by returns from selling the straw residue. The most significant results from five-years of study (concluded in 1985) investigating crew-cutting, flail-chopping and alternate year burning showed that only small yield reductions occurred when comparing these treatments with annual burning. However, given the most promising scenario based on estimated costs associated with a typical commercial farming operation, the projected net returns would be reduced approximately \$20 to \$40 per acre using non-yearly burning techniques.

Project: Minimum Tillage (no-burn) Rotation System (1984-90)

This project was initiated in 1984 to design a system for rotating from one certified crop to another without the required burning treatment during the transition period. Seed certification standards impose restrictions on the establishment of new seed crops, in most cases requiring burning in each of the first two years. Innovative use of cover crops and herbicides, in combination with minimum tillage when planting the new stand, could reduce the need for burning by as much as one-third during the seed production cycle. This could also secondarily enhance the shifting of grass to alternate crops.

Experimental plots were established in late 1984, however, freeze damage over winter limited information that could be obtained from the first year of study. Two rotational sequences were set-up; perennial ryegrass/tall fescue, and perennial ryegrass/red clover. The greater freeze damage to the tall fescue seedlings terminated this rotational sequence, and was replaced by a perennial ryegrass/meadowfoam sequence established in the fall of 1985. Preliminary results from surviving seedlings of red clover showed increased vegetative growth from nitrogen applications, however, seed yield was low due to weed problems.

In the fall of 1985 a stand of both red clover and meadowfoam was planted directly into the ryegrass stubble. Red clover established in flail-chopped areas initially showed somewhat less-vigorous and less uniform growth than those established in burned areas, although by mid-1986 no visible differences were apparent between the two. The meadowfoam crop matured uniformly across burned and flail-chopped areas. Weed control treatments for both red clover and meadowfoam stands were also fairly successful.

Work in 1987-89 continued to investigate the effectiveness of minimum tillage on both flail-chopped plots and burned plots. Results showed no visible differences between burned and unburned plots. Yield data indicated slightly higher yield in burned plots of perennial ryegrass, while the second year stand of red clover had a slightly higher yield in the unburned plots. Continued investigation in 1988 produced results showing no noticeable yield difference between burned and unburned plots. However, more broadleaf weeds appeared in white clover plots flail-chopped and treated with herbicide. Several more years of study are required to develop meaningful conclusions in this area.

### 3.5 Alternative Disease, Pest, and Weed Controls

The two most significant diseases for grass seed are ergot and blind seed disease. These are fungal diseases which directly infect the grass flower and inhibit the development of mature and healthy seeds. Characteristically, the infectious organisms are harbored by the protective coverings of the flower and thereby avoid direct contact with sprayed chemicals. There has been some success in developing effective systemic-type chemicals which are applied to the soil, taken up by the roots, and then transported to the infected flower parts.

Extremely high dosages are usually required, however, resulting in not only prohibitively high costs of application but increasing the concern for safety, and therefore, the likelihood of meeting registration approval.

The Department funded continued testing of chemicals which suppress ascocarp formation, as well as prevention of seed infection and inhibiting ovary infections in both ergot and blind seed disease. Tests utilizing urea-sulfuric (N-Tac) gave complete control/suppression of ascocarp formation for both ergot and blind seed disease. While these results were obtained mostly in greenhouse experiments, some success in ascocarp suppression was also achieved in field plots as well. Other research was conducted into the prevention of seed infection and the inhibition of ovary infections, however, results were limited. In 1987, test plots showed good control of ergot, but only under situations where the chemicals were ensured direct contact with infected material. This also required the use of high concentrations of urea-sulfuric and complete straw removal to ensure full contact. Overall, results were not particularly encouraging for use on fields with only partial straw removal.

Testing continued in 1988 and best results were obtained with a dosage of 1:1 dilution of urea-sulfuric acid in aqueous solution applied when no crop residue was present and the fungi was well coated. Limited success was noted in that effectiveness occurred only in plots of bare surface soil or plots subject to a good burn producing a clean surface.

During the summer of 1988, a survey of the Willamette valley was initiated to determine the distribution and severity of the grass seed diseases ergot, blind seed, and seed gall nematode. Grasses included in the survey were bentgrass, Kentucky bluegrass, chewing fescue, tall fescue, annual ryegrass, perennial ryegrass, and orchardgrass. The number of fields examined was 492.

Ergot was detected in all grasses except orchardgrass. The percent of fields infested with ergot was 1-3% in the fescues and ryegrasses, 13% in bentgrass, and 52% in bluegrass. A survey of weed grasses indicated that ergot was widespread throughout the valley and that tall fescue and annual ryegrass were the most common weed grasses infested with ergot.

Blind seed was detected in 26-30% of the tall fescue and ryegrass fields, and 3% of the bluegrass fields. Blind seed was not found in chewing fescue, bentgrass, or orchardgrass. Seed gall nematode was found in only 9% of the bentgrass fields. The nematode was not found in any of the other grasses.

Although diseases were found in many of the grass fields, the severity of infection was very low. Ergot was generally below 0.1% infected heads and blind seed in nearly all infested fields was less than 0.2% infected seed.



### 3.6 Straw Utilization

There has been an increasing trend over the past few years to straw utilization. Much of this increase has been in straw marketing, as an estimated 100,000 tons of straw have been exported from Oregon to Japan annually. It is shipped in containers, in standard bale form or as densified bales, and used as a source of fiber in animal feed.

Previous straw utilization studies have shown that commercial use of grass straw requires:

1. Feasible means of removing, storing, and transporting straw from fields to the processing point;
2. Processes which convert straw into salable end products; and
3. Markets for such end products which are profitable enough to make the entire chain of collection, storage, transport, and end processing economically feasible.

Covered storage is necessary to provide a stable year-round supply of the seasonally produced straw; however, storage capacity in the Valley is limited. The availability of field burning tax credits for straw storage facilities, as described on page 23, has contributed to an increase in the construction of these facilities.

The Department funded a study by the Agricultural Fiber Association of Independence, Oregon, to evaluate the use of grass seed straw as mulch for horticultural and hillside erosion control. Mulch is used to control moisture and weeds, mixed with the soil as a soil amendment, and used to control erosion.

Results from this study showed that straw mulch can be as effective as competing products used for mulch. As a mulch for blueberry plants, straw is comparable to other treatments and somewhat cheaper in labor and material costs than sawdust. In a wine grape nursery, straw mulch can provide good moisture and weed control, and has shown some promise as a soil amendment. Using straw mulch for erosion control in Christmas tree farming is particularly good for areas which have steep slopes and have been intensively plowed as it not only retains soil but aids plant establishment. For road banks, straw mulch increases infiltration and impedes surface runoff.

During 1988-89, Meadowood Industries was successful in developing a biodegradable, non-returnable, strawboard pallet for use in the shipping industry. The molded pallet is single sided and can be used for some purposes in this form. A double pallet is made by gluing two single pallets together, increasing the strength of the product. A single pallet weighs approximately 22 pounds and can be produced for \$6-10.

Use of Willamette valley ryegrass in pulp and paper was investigated in 1988-89 by the Department of Forest Products, Oregon State University. While the industry is concerned about future price and availability of wood chips, companies are not sufficiently concerned to make capital expenditures to handle

straw. However, the short cooking time of about 10 minutes, for continuous pulping in horizontal tube digesters with a screw feeder, would mean high production relative to the required investment in new equipment. The most likely use of straw will be corrugating media or linerboard.

### 3.7 Alternative Crops

The growing of crops other than grass seed has been suggested as a partial solution to the problem of open field burning. The climate of the area and poor quality soils on much of the Valley floor effectively limit the kinds of crops which can be profitably grown. Annual ryegrass, for example, accounts for about 90,000 acres in the Valley and is generally restricted to the poorest drained soils affording the smallest profit margin with which to absorb any of the risks attendant to trying new crops. On the better soils where the higher valued perennial grass seed varieties are typically grown, wheat and vegetable crops are sometimes grown on a rotation basis, however, economic considerations discourage large-scale or permanent shifts away from perennial grass seed production.

An oilseed crop known as meadowfoam is the most promising crop identified to date as an alternative to grass seed in the Willamette Valley. Meadowfoam is a winter annual flowering plant native to southern Oregon and northern California, which is adapted to the poorly drained soils and wet conditions typical of much of the Willamette Valley. As a winter annual, meadowfoam's growing season matches that of grass seed and wheat. Domestication has produced an upright plant with good seed retention and the planting, care, harvesting, and equipment requirements of meadowfoam are entirely compatible with those used to produce grass seed. In addition, the amount of leaf and stem material left after harvest is negligible, decays rapidly in the field, and does not require burning or present a residue disposal problem.

#### Project: Meadowfoam Yield Increase Research (1983-89)

Basic agronomic research of meadowfoam has emphasized the factors most directly related to increasing seed yields. Those include: evaluation, crossing, and selecting new lines with preferred characteristics; evaluating the physiological requirements and responses to light, temperature, moisture and soil characteristics; flower pollination and seed set; and fertility experiments determining the effects of applied nitrogen, phosphorus, and potassium on yield.

Tests were conducted during 1987 to determine the highest seed set per flower, most productive methods of pollination, oil yield per seed, and optimum timing for pollination. A breakthrough in high oil yield per acre was recorded (646 lbs/acre); a 75% improvement in oil yield over the "Mermaid" variety from 1986. Work conducted in test plots and spaced-plant nurseries promises to further increase the yields by adding to the amount of genetic diversity available for evaluation and selection.

A continuing effort is being made to determine the causes of variations in seed yield, factors affecting seed set, improving bee pollination and self-pollination. Overall, continued progress is being made in understanding the meadowfoam plant and its production processes and in identifying new higher yielding lines.

New genetic lines showed continued advances in oil yield per acre. The mean oil yield of the three best 1987 selections were 164% higher than the check cultivar, "Mermaid". Selection methods showed excellent results for choosing "winners". Genetic diversity was excellent in spaced-plant nurseries. Selections were made with techniques which promise to continue to give oil yield increases.

#### Project: Meadowfoam Market Development (1984-88)

Since meadowfoam has recently achieved commercial viability, it's evident that an intensive and deliberate market development approach was needed. During 1985, 10,000 lbs. of crude oil were sold to a Japanese cosmetic company and oil samples were sent to several interested companies in Japan, England, and in the United States, mostly for cosmetic research. Basic questions concerning oil processing and refining were studied, including research into dehulling, seed pretreatment, mechanical expelling vs. solvent extraction, bleaching, and hydrogenation. A filter press was obtained and used to clarify the oil to make it more appealing to prospective buyers. Since many companies will not consider the use of a new ingredient unless it is "registered", the information required to register meadowfoam oil as a cosmetic ingredient was submitted to the Cosmetics, Toiletary, and Fragrance Association.

In 1988, the Department funded the Oregon Meadowfoam Growers' Association to continue efforts in commercialization of meadowfoam. This funding for market development has allowed additional contacts to be made within the chemical industry and continued to support those companies already interested in meadowfoam oil. The applications proposed are mainly in cosmetic and personal care products. At least one company is exploring the potential of obtaining FDA approval for edible applications. Several companies have explored various applications, indicating serious interest. At this time, the major obstacle is cost, which should decline with the introduction of improved varieties.

There is currently a substantial inventory of refined oil available, as well as additional seed for planting or pressing, to support those companies already interested in meadowfoam oil.

#### 3.8 Health Effects

The health effects of open field burning in the Willamette Valley have been the subject of considerable attention and debate for many years. Each summer, complaints of eye irritation and aggravation of asthma and illness are registered by the public and attributed to smoke from open field burning. Although field burning complies with federal air quality health standards, the highly visible nature of field burning has led to speculation of its effect on public health, though very little is known about this or other similar sources of particulate air pollution.

Direct evidence of the health effects of field burning is limited. Much of the difficulty in finding a relationship between respiratory health and field burning smoke is due to the transitory and short-term nature of field burning smoke intrusions. Added to this are the problems associated with determining confounding influences, obtaining an adequate sample size, and the concern for bias. Limitations in the general scientific literature on air pollution health effects, combined with a lack of federal guidance concerning fine particulates, has made it even more difficult to scientifically address this issue.

The following is a brief summary of previous DEQ health studies.

1. Field/Slash Burning Air Quality Impact Studies (1978) - Intensive monitoring and analysis of field and slash burning effects on Willamette Valley air quality was conducted in 1978. A number of air sampling methods were used (i.e., high-vol, virtual impactor, stacked filter unit, high-vol Cascade impactor, sequential sampler, nephelometer) to measure pollutant levels, including monitoring of particulate and other pollutants by air-craft. The study found little correlation between burning and TSP levels; field and slash burning combined comprised an estimated 5-10 percent (2-3 g/m) of the total aerosol during the summer-fall season. Emissions are primarily in the fine particulate range (<2.5 m). Results showed that impacts from burning tended to be short-termed and localized, and then diffused rapidly. Open burning was found not to be associated with photochemical oxidants (smog) or ozone.
2. Field Burning Emissions Testing (1978) - A project was conducted during the 1978 burn season to quantify particulate emission factors from field burning under a range of field conditions and lighting techniques. Emission rates were determined by carbon balance techniques based on measurements of fuel consumption, particulate captured, and carbon dioxide generation. Emission rates varied considerably (from 21 to 290 lb/ton) and were generally much higher than previous studies had shown. The results and their departure from other studies have not been definitively explained and subsequent efforts have not resolved the issue. Consequently, the Department recognizes an emission factor of 40 lb/T as an average value, which is consistent with accepted emission rates for slash burning. The study also found that afterburn (or smoulder) emissions were negligible, accounting for about 1% of total emissions. An analysis of particle size distribution indicated that 75% of the particles by weight were smaller than .5 microns.
3. Polynuclear Aromatic Hydrocarbon Analysis (1978) - Samples of field and slash burning smoke were collected on filters for analysis of both emissions and downwind ambient concentrations of a number of polynuclear aromatic hydrocarbon (PAH) species, most notably Benzo (a) pyrene, a strong carcinogenic agent. In general, hydrocarbon content is higher under high straw moisture. Benzo (a) pyrene (BaP) comprises .001-.007 percent of mass particulate emissions (.001 lb/T residue consumed). This is the same order of magnitude as that found in ambient samples. For most of the ambient samples, PAH concentrations were below detectable limits. One ambient sample representing a heavy field smoke impact had a BaP fraction of .0007 percent by weight of the total particulate of 80 g/m. This is approximately one order of magnitude less than the average reported for U.S. cities. The highest concentration of PAH came from an urban sample free of any field or slash burning smoke.
4. Mutagenicity Testing (1978) - Mutagenic assays of high-vol filter samples containing ambient levels of field burning smoke were performed using the "Ames Test". A solvent extract of the particulate matter was introduced to plates of sensitive strains of bacteria. The number of spontaneous revertants was then noted. Results indicated little mutagenic activity at the doses tested.

5. Study of Pulmonary Lung Function (1979) - A retrospective analysis was made of statewide pulmonary lung function data to detect any glaring dissimilarities in respiratory health between residents of different regions. Lung function tests were sponsored by the Oregon Lung Association as part of its five-year Christmas Seal Breathmobile Program. The Breathmobile toured the state from 1972-1977 offering free spirometric tests to the public. For purposes of this study, seven different regions of the State were delineated on a geographical/air shed basis. Included were the southern portion of the Willamette Valley representing a smoke impacted area, the west side of the Valley which is usually free from smoke accumulations, Portland, the coastal area, and the regions of central, eastern and southern Oregon. Tests of pulmonary functions, such as one second forced expiratory volume, were conducted. Results from these tests showed that, for nonsmokers, there were significant differences between regions. Adjusting for age, sex, and height, residents of the south Willamette Valley, the area selected to represent smoke exposure, had generally higher average scores in pulmonary function tests than residents of central Oregon, southern Oregon and the west side of the Willamette Valley. Assuming that the comparability of the test groups (regions) was valid, and that the effects of regional differences in climatology on respiratory performance were not significant, no effect of field burning smoke on public health could be detected.
6. Physician Visit Survey (1980) - During the 1980 field burning season, questionnaires were made available to patients visiting health clinics in Lebanon (an area impacted by smoke) and Corvallis (an area relatively free of smoke). The questionnaires were offered to people seeking medical assistance for any type of respiratory ailment. A total of 164 questionnaires were returned, 137 of these were from the Lebanon clinic. Of the respondents, 59% were women, 21% were smokers, and 45% had been diagnosed as having a chronic respiratory disease or condition. There was a fairly even age distribution with regard to symptoms, and 80% reported some upper respiratory symptom. Symptoms specifically identified were as follows: cough (38%), headache (38%), eye irritation (37%), breathing difficulty (36%), sore throat (34%), congestion (32%), wheezing (23%), sneezing (23%), other (20%), and phlegm (15%). The survey was intended as a "blind" or objective way to gather local health information unprejudiced by the participants' personal opinions about field burning. The returned questionnaires, however, contained numerous comments and complaints specifically directed to field burning, suggesting the potential for subjective bias. Therefore, further analysis for correlation with ambient smoke levels was never performed and no definitive conclusions were attempted.
7. Analysis of Hospital Admissions Data (1980) - A retrospective analysis was made to determine any relationship between smoke "dose" and public health "response" in an area often impacted by field burning smoke. Admissions into Lebanon Community Hospital during the 1978 and 1979 summer burning seasons for both respiratory and non-respiratory type ailments were reviewed and compared to smoke data for that area. Some of the data considered in this study included continuous nephelometer measurements summarized for each day as 1-hour maximum, 3-hour maximum (average of the highest consecutive three hours), and 24-hour mean. Results indicated no

statistical evidence of an effect. No significance was observed between respiratory and non-respiratory admissions. There was also no discernible lag effect or delay between a smoke intrusion and a measured response.

8. Respiratory Health Diary Study (1981) - A survey of the relationship between smoke and the daily health patterns of selected individuals with chronic respiratory disease was conducted during the summer of 1981. Some 24 individuals from smoke affected areas completed health questionnaires and then completed special diaries in which they recorded daily assessments of their own respiratory health. Entries were tabulated as either "better than usual", "same as usual", or "worse than usual". These responses were then compared to daily nephelometer measurements of: 1-hour, 3-hour and, 8-hour maximum values; and 24-hour averages. Results from the study were inconclusive. Initial evaluations indicated no significant associations. Combining data sets and applying additional statistical analyses resulted in some correlation between high nephelometer measurements and the frequency of "worse than usual" diary entries. The meaning and significance of this is unclear because there was generally no corresponding improvement in health reported at lower nephelometer levels. The extremely small sample size was a limitation in this study.
9. Health Effects Workshop (1986) - In March of 1986 the Department sponsored a health effects workshop at Oregon State University which featured two guest speakers, both prominent researchers in air pollution health effects. Bart Ostro, from the EPA Office of Policy & Analysis and California Air Resources Board, gave a presentation on the relationship between general fine particulate (<2.5 microns) and health effects. He explained that particulate matter affects health in three ways 1) narrowing of airways (short-term, irritation), 2) lung inflammation (short-term, illness), and 3) cause cancer from toxic constituents (long-term, mortality). In 1983, Dr. Ostro published a study of work-loss and reduced activity days, by comparing data from a health survey conducted in 140 cities. Results from this study showed that for the general population there was an association between fine particulate and morbidity.

Tom Crocker, from the University of Wyoming, gave a presentation on the Bayesian approach to health effects. He indicated that this approach puts considerable emphasis on the use of prior relevant health studies, mathematical models, and dose-response and health related information in order to provide a more thorough evaluation. After his presentation, Dr. Crocker stated that his approach to studying the problem of field burning health effects would involve collecting clinical data from physicians in smoke impacted areas, review of current literature to find any similar health studies that have been conducted, and to consider lifestyle habits and economic costs to the community. He suggested that a random sampling procedure be employed and cautioned that some qualitative responses such as reduced activity days have limited applicability, as they are often relative to the individual. He added that because of these difficulties, it might be beneficial to consider a clinical study of "sensitive individuals" such as asthmatics.

10. Preliminary Health Effects Assessment (1987) - In 1986, the Department selected OMNI Environmental Services, Inc. to conduct a preliminary review of health effects from field burning, as well as an assessment of health effects from slash burning and residential woodstoves. Included in the study was a literature review, an exposure assessment for the Willamette Valley, and an assessment of public health risks and costs. Nephelometer data was principally relied on in the study to establish exposure assessments. The study identified peak and average smoke concentrations, estimated mortality and morbidity effects compared with acute and chronic exposure, and estimated excess cancer rates. An investigation of the relative toxicity of smoke pollutants was also conducted.

Overall, findings from the study indicated that residential wood stove smoke posed considerably greater health risk and cost than slash or field burning smoke. The findings also showed that slash smoke was much higher than field burning smoke in all categories measured. A summary of the total estimated work loss days and annual health costs for each smoke source indicated wood stove smoke to be approximately four times higher than slash smoke, and 53 times higher than field burning smoke. Another summary of predicted annual mortality effects from acute exposure to particulate showed approximately 46 deaths from wood stove smoke, 14 from slash smoke, and one from field burning smoke.

In 1988, the Department funded a peer review evaluation of the findings of this preliminary health effects study. The peer review focused primarily on exposure estimates identified in the report, the estimated health effects and related costs, and the methodological approaches used. Reviewers concluded that none of the studies relied upon by the OMNI report were valid. Generally, they felt that the sample sizes were too small. Reliance on studies of urban aerosols raised questions on confusing acute and chronic effects with short-term and long-term exposures, compounded by different chemical and physical compositions of the aerosols. Subsequently, there is no evidence to indicate that vegetative smoke is more or less toxic than particulate matter of an urban origin. Information specific to the situation in the Willamette Valley is needed before accurate assessments can be made.

## PHOSPHORUS AND WATER QUALITY TASKFORCE

### Purpose:

- identify nutrients contributing to excess algal growth
- identify sources of nutrients in wastewater treatment plant effluent
- identify impacts of regulating phosphorus in detergents

### Why Phosphorus?

Most feasible management method to control growth of algae in fresh water is to control concentration of the nutrient phosphorus.

- most often at concentrations low enough to limit growth
- low solubility decreases natural sources

### The Oregon Situation

- beneficial uses of water are being impaired by algal growth
- maximum loads of phosphorus are being set for water bodies
- only limited specific information is available relating nutrient concentrations to algal growth
- waste water treatment plants in several communities are required to decrease phosphorous in effluent

### Phosphate Sources

- proportion of point and nonpoint varies with water body
- Tualatin sources are 85% from wastewater plants
- one-third of phosphate in domestic wastewater comes from laundry detergents

### How?

<u>Source</u>	<u>Control Strategies</u>
non-point sources	
- Runoff	best management practices on land
- Septic system effluent	system location, decrease phosphate use
point sources	
- Industrial and Manuf.	change process, chemical removal
- Domestic	chemical or biological removal, land application, decrease phosphorus input
- Detergents	substitute non-phosphate products



## **Phosphate Detergent Ban as Control Measure**

- decreases phosphate from domestic sources by one-third
- will not be a sufficient control strategy where TMDL is low
- easily implemented on statewide basis
- alternative products are available and acceptable to consumers
- over one-third of population lives in ban areas
- is a least-cost first step in phosphorus control
- bans exempt cleaning products for which adequate non-phosphate substitutes are not available

## **Impacts of a Phosphate Detergent Ban**

- decreases cost of P removal where needed at plants (decreased chemicals and sludge handling)
- may delay need for other control strategies
- segmentation of market adds to supplier costs
- no increased cost of product to consumer
- does not interfere with other control strategies
- may lull consumers into believing problem is solved

Summary by  
B. P. Warkentin

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Summary by  
B. P. Warkentin

Julia:OD  
Schmidt

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 23, 1991

TO: Environmental Quality Commission

FROM: Debra Sturdevant, DEQ

SUBJECT: Task Force Report on Phosphorus and Water Quality

Attached is a draft of the Task Force Report on Phosphorus and Water Quality. This is an addendum to the staff report for agenda item #1 of the February 1st Commission meeting, which is an informational item.

DRAFT

PHOSPHORUS AND WATER QUALITY -  
A REPORT TO THE 66TH LEGISLATIVE ASSEMBLY

Prepared by a Task Force for  
the Oregon Department of Environmental Quality

January, 1991  
Portland, Oregon

PHOSPHORUS AND WATER QUALITY -  
A REPORT TO THE 66TH LEGISLATIVE ASSEMBLY

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- G. A Summary of Phosphate Detergent Laws
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## Phosphorus and Water Quality -

A Report to the 66th Legislative Assembly

### EXECUTIVE SUMMARY

The Phosphorus Task Force was appointed by the Director of the Department of Environmental Quality, as requested in Senate Bill 1079 (1989), to identify sources of phosphorus and other nutrients contributing to growth of algae, and to identify the potential impacts of regulating phosphorus in detergents and other sources. The Task Force used the specific knowledge of its members and available information, including knowledge of the general biology of algal growth in water, published reports from other regions on algal growth control strategies, and the limited Oregon data that was available.

Excessive growth of algae interferes with beneficial uses in several Oregon water bodies. Controlling algal growth requires controlling one or more of the factors necessary for growth. The concentration of the nutrient phosphorus is the growth factor that is most practical to control in fresh waters. Other nutrients have relatively larger natural and nonpoint sources, which makes them more difficult to control. The phosphorus concentration in surface water must be decreased to the level where it becomes the nutrient limiting the growth of algae. Concentrations of phosphorus that prevent unacceptable algal growth are estimated from general studies and field investigations conducted nationally and in Oregon, and from EPA criteria.

Sources of phosphorus to Oregon waterways include municipal wastewater treatment plants, septic system drainage, and the runoff of animal waste and fertilizers from agricultural, forestry and urban lands. The Task Force focused on the control of phosphorus in municipal wastewater. Laundry detergents contribute about one third of the phosphorus discharged from municipal wastewater treatment plants that do not remove phosphorus.

There will be economic benefits from decreased phosphorus levels entering those municipal treatment plants that must remove phosphorus from their wastewater by the use of chemicals. These cost savings result from the need to purchase fewer chemicals and handle and dispose of less sludge. The savings are typically proportional to the decrease in the amount of phosphorus that must be removed.

The decrease in phosphorus resulting from a phosphorus laundry detergent ban alone, will not be sufficient to reach the low levels of phosphorus required by the total maximum daily loads (TMDL) established for three Oregon rivers to date. A phosphate detergent ban is one control strategy; others must also be used. Land application, removal through chemical or biological processes



and decreased industrial discharge are other potential strategies to control point sources of phosphorus. The task force did not determine in which waterbodies a ban on phosphorus detergents would eliminate or delay the need for other phosphorus control strategies. This delay could also result in economic benefits.

Phosphate detergent bans are easily implemented and enforced at minimal cost to public agencies. The cost to consumers of an Oregon ban would be negligible. Companies currently manufacture many types of non-phosphate products and make these products available to Oregon residents. Over one-third of the population in the United States now resides in areas where phosphorus laundry detergents are banned. Some European countries also have such bans. METRO has recently adopted a ban for the Portland area. Current bans typically exempt those cleaning products containing phosphorus for which no substitutes are available.

The elimination of phosphorus laundry detergents is an economical way to decrease the amount of phosphorus in Oregon wastewaters. A reduction in phosphorus discharged to lakes and streams will help maintain algae at acceptable levels.

# DRAFT

## Phosphorus and Water Quality -

### A Report to the 66th Legislative Assembly

#### SUMMARY OF FINDINGS

##### Nutrients, Algal Growth and Water Quality

1. Excessive algal growth produces widespread water quality problems in Oregon. All but two of Oregon's 18 river basins have some waterbody segments that do not support beneficial uses due to excessive algal growth.
2. Beneficial uses that may be impaired by excessive algal growth include: domestic drinking water supply, aesthetics, swimming, boating, salmonid fish spawning and rearing, resident fish and aquatic life, wildlife, fishing, and livestock watering.
3. The potential water quality impacts of excessive algal growth include: unpleasant taste and odor, dissolved oxygen depletion, the formation of unsightly algal mats, discoloration of the water, and high pH levels. The impacts on dissolved oxygen and pH in turn affect the health of aquatic ecosystems.
4. Algae need sunlight, nutrients and a favorable physical environment in order to grow. Phosphorus, nitrogen and carbon are the major nutrients that contribute to algal growth.
5. Studies of a large number of lakes in North America and worldwide, show that high levels of phosphorus are more often found in lakes having excessive algae and aquatic plant growth.
6. Phosphorus generally restricts algal growth in fresh waters (streams and lakes), while nitrogen generally restricts algal growth in marine waters. Algal growth in fresh waters can therefore be controlled by restricting the availability of phosphorus.
7. The U.S. Environmental Protection Agency has identified phosphorus concentrations above which excessive algal growth generally occurs. EPA has recommended phosphorus criteria for streams and lakes based on these concentrations. The Oregon Environmental Quality Commission has adopted phosphorus standards for individual waterbodies based on their specific characteristics.

8. To date, the Department of Environmental Quality has established or identified a need for phosphorus TMDLs (total maximum daily loads) for 8 rivers and 2 lakes. Phosphorus TMDLs are established to eliminate excessive algal growth and resulting water quality standards violations.
9. There is limited experimental information for Oregon waterbodies relating phosphorus concentrations to the growth of algae.
10. Water quality managers do not typically attempt to limit nitrogen for controlling algal growth in fresh waters. Nitrogen deficient waterbodies can favor the growth of algal species capable of using atmospheric nitrogen, a source which can not be controlled.

#### Sources of Nutrients in Surface Water and Municipal Wastewater

11. Sources of nutrients to water quality limited waterbodies in Oregon include: a) point sources, such as municipal wastewater treatment plants, direct industrial discharges, and combined sewer overflows; b) nonpoint sources, such as the runoff of animal waste and fertilizers from agricultural, forestry and urban lands, and on-site sewage disposal systems; and c) natural sources.
12. The proportions of the phosphorus load originating from point versus nonpoint sources will vary by basin, depending on the sources, land uses and physical characteristics of a particular basin.
13. In the three river basins for which phosphorus TMDLs have been established (the Tualatin River, the Yamhill River and Bear Creek), the largest phosphorus contributors are the municipal wastewater treatment plants.
14. Residential, commercial and industrial sources contribute phosphorus to wastewater treatment plants (WWTPs). The proportion of the phosphorus load generated from each source varies according to the population size and industrial distribution in the service area. Typically, residential sources contribute more phosphorus to municipal WWTPs than commercial or industrial sources. The phosphorus from residential sources is primarily from human sewage and from detergents containing phosphate.
15. Laundry detergents typically account for one-third of the total phosphorus entering municipal wastewater treatment plants.

16. The primary source of nitrogen to WWTPs is residential wastewater. There are some industrial sources. The nitrogen in residential sources originates primarily from human waste.

#### Control of Phosphorus in Wastewater

17. The two primary methods to remove phosphorus in a wastewater treatment system are: a) chemical/physical removal, such as treatment with aluminum or iron compounds, where the phosphorus is precipitated out of the waste stream and a sludge is created and removed; and b) biological removal, where microorganisms are used to take up the phosphorus. Chemical removal is most commonly used.
18. There are approximately 275 wastewater treatment plants in Oregon that discharge to surface waters. Two of these currently remove phosphorus with chemicals (USA's Rock Creek and Durham plants). Three additional plants (Lafayette, McMinnville and Ashland) are considering various phosphorus removal systems to achieve new permit limits. As more Total Maximum Daily Loads are established, phosphorus limits will be included in the permits of additional plants.
19. The 2 Oregon WWTPs (Rock Creek and Durham) that currently remove phosphorus with chemicals, are subject to the phosphate detergent ban recently adopted by METRO.
20. Other potential methods for treatment plants to prevent the discharge of phosphorus to streams include applying effluent to land, reusing effluent for irrigation, and using constructed wetlands for treatment. While these practices are not yet widely used in Oregon, they may become a preferred method where suitable land is available.
21. A reduction in the phosphorus load entering wastewater treatment plants that chemically remove phosphorus results in cost savings. The cost savings are from reduced chemical use and sludge handling. The estimated savings from a 30 percent reduction in influent phosphorus range from approximately \$100,000 to \$200,000 per year per 10 million gallons daily plant discharge.
22. Source reduction of phosphorus would aid in improving water quality if concentrations are reduced to the levels required to prevent excessive algal growth.

#### Effects of a Phosphate Detergent Ban

23. Phosphate in detergents is a source of phosphorus identified as being easily reduced at the source through statewide regulation. Statewide regulation of industrial discharges

and nonpoint sources were not analyzed in this report due to their complexity and study resource limitations.

24. Phosphate detergent bans significantly reduce effluent phosphorus loads from WWTPs that do not practice phosphorus removal. Data from eight states and one region that have imposed phosphate detergent bans show 24-51% phosphorus reductions in effluent from these types of plants.
25. For the 3 Oregon river basins that currently have TMDLs, eliminating detergent phosphates alone will not reduce instream phosphorus concentrations to the levels required by the TMDLs. A phosphate detergent ban should be one component of a complete strategy for the control of algal growth in these basins.
26. In areas where WWTPs remove phosphorus through chemical treatment, a detergent phosphate ban would produce an economic benefit because of lower amounts of chemicals used and less sludge generated.
27. A detergent phosphate ban is not expected to result in the elimination of detergent products or brands. All major detergent producers manufacture non-phosphate laundry detergents formulations. An estimated 37 percent of the U.S. population lives in areas where phosphate laundry detergents are not sold. Products without substitutes, such as automatic dish-washing detergents, are exempted from current bans.
28. A statewide ban on phosphate detergents is more manageable than local bans, because distributors would not have to stock both phosphate and non-phosphate product formulations. A statewide ban will also minimize the possibility of consumers bringing phosphate detergents into ban areas.
29. Detergent phosphate bans do not appear to increase costs of laundry detergents to the consumer.
30. A detergent phosphate ban is a pollution prevention measure, which reduces phosphorus from the source.
31. Despite the lack of experimental verification in Oregon, the best available information indicates that a statewide phosphate detergent ban could be a valuable component of an overall strategy for water quality management in Oregon lakes and rivers.

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PHOSPHORUS AND WATER QUALITY

- A REPORT TO THE 66TH LEGISLATURE -

Prepared by a Task Force  
for the Department of Environmental Quality

I) INTRODUCTION

Concern over the growth of algae in Oregon waters and the water quality impacts that may result led the 1989 Legislature to direct the Department of Environmental Quality (Department, DEQ) to appoint a task force to study potential sources and control of the problem. This report of the Task Force summarizes the impacts of controlling phosphorus and other nutrients for the purpose of reducing or preventing algal growth in Oregon waters as directed by Senate Bill 1079. In particular, the Task Force evaluated the effects of regulating or eliminating phosphorus in detergents.

A glossary is provided in Appendix A to help the reader with terms used in this report.

SB 1079 asked the Task Force to conduct the following tasks:

1. Identify the sources of phosphorus and other nutrients contributing to the growth of algae in waters where algal growth is adversely affecting water quality.
2. Identify the sources of nutrients to wastewater treatment plant (WWTP) influent and the relative contribution of those sources to WWTP effluent.
3. Identify the potential impacts of regulating or eliminating phosphorus from detergents and other sources.
4. Report the findings to the 66th Legislature.

The Task Force focused its efforts on the nutrient phosphorus and phosphate detergents as a source for possible control. These topics were selected because they are specifically identified in Senate Bill 1079, because of time and resource limitations, and for the reasons explained in sections II & III below.

Task Force

The Phosphorus Task Force was appointed in July, 1990 as a working group. The members researched and summarized information on the control of algal growth in fresh waters. The Task Force met four times between August, 1990 and January, 1991.

Dr. Benno Warkentin, Director of the Water Resources Research Institute at Oregon State University, chaired the Task Force. Representatives of the following agencies and organizations participated (a list of members is included in Appendix B):

The Association of Oregon Sewerage Agencies  
The Oregon Department of Forestry  
The Metropolitan Service District of Oregon (METRO)  
The Conference of Local Health Officials  
Devils Lake Water Improvement District  
Associated Oregon Industries  
The Soap and Detergent Association  
Oregonians for Food and Shelter (agriculture)  
The Oregon Environmental Council  
River Watch

### Methodology

The Task Force relied on literature review, existing data, Task Force expertise, DEQ expertise, and the legislation and experiences of states and regions which have already imposed phosphate detergent bans to develop this report. The Task Force did not conduct new water quality field studies.

Considerable literature is available on phosphate detergent bans and their results. Twelve states and 5 regions across the country have banned phosphate detergents since the early 1970's. The Portland metropolitan area and 2 other regions in the Northwest U.S. are among those which have recently adopted bans.

The major sources of existing Oregon data available at the Department include ambient water quality monitoring data, Biennial Water Quality Assessment reports, the 1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution, and DEQ water quality studies such as those conducted to establish total maximum daily loads (TMDLs).

## II) NUTRIENTS, ALGAL GROWTH AND WATER QUALITY

### The Impacts of Algal Growth on Water Quality and Beneficial Uses

Oregon's water quality program and standards are designed to protect the "beneficial uses" of our waters. Beneficial uses include domestic water supply, industrial water supply, irrigation, livestock watering, salmonid fish rearing and spawning, resident fish and aquatic life, wildlife and hunting, fishing, boating, water contact recreation, aesthetic quality, hydroelectric power, and commercial navigation and transportation (Oregon Administrative Rules, Chapter 340, Division 41).

Algae, like other plants, are a natural component of a healthy ecosystem. Algae are primary producers, the foundation of the food chain, which transform the energy of the sun, through photosynthesis, into matter which can be consumed by higher organisms. In low amounts, they do not interfere with beneficial uses of water.

An over-abundance of algae, however, harms water quality, aquatic ecosystems, and the ability of rivers and lakes to support beneficial uses. One beneficial use directly affected is aesthetics. Algae blooms may occur, causing domestic water supplies to have unpleasant taste and odor problems, decreasing water clarity, causing the water to turn a murky greenish-brown color, and forming unsightly floating mats on the water surface. An attached form of algae, called periphyton, may cover streambeds, and aquatic plants may overgrow lakes, interfering with boating and swimming.

In addition, excessive algal growth affects the dissolved oxygen and pH of streams and lakes, sometimes damaging the health of aquatic ecosystems and causing water quality standards violations. When this occurs, additional beneficial uses are not supported, potentially including: salmonid fish rearing and spawning, resident fish and aquatic life, wildlife, fishing, water supply, and livestock watering.

#### Nutrients and Algal Growth

Algae need nutrients and a favorable physical environment in order to grow. Nitrogen, carbon and phosphorus are the nutrients required in relatively large amounts. Algae also need a variety of other nutrients in small or trace amounts. Given adequate nutrients and physical conditions, excessive or nuisance levels of algae can accumulate in lakes, and in streams if water flow is slow relative to the algal growth rate.

Any one of the required nutrients may be present in such low concentrations that growth is limited, regardless of the availability of light or other nutrients. This nutrient then controls the rate at which algae grow. This is called the "limiting nutrient" concept (Ryding, 1989). As nutrient concentrations in water increase from low values, growth of algae increases up to a certain level, beyond which growth is independent of nutrient content. This is most clearly seen in experiments where one limiting nutrient is added in successive increments. Carbon seldom limits overall algal production. Phosphorus, nitrogen and sometimes nutrients needed in smaller amount, such as silicon or iron, can limit growth.

A considerable body of scientific literature has accumulated over the past 50 years on the growth of algae in surface waters. The overwhelming evidence from the literature allows a general conclusion. In those waterbodies where a nutrient limits growth,



the limiting nutrient in marine environments is generally nitrogen, and the limiting nutrient in fresh water is generally phosphorus. Field studies attempting to quantify the relationship between phosphorus and algal mass have not shown consistent results, probably due to the large number of other variables in the natural environment.

Algae require larger amounts of nitrogen than phosphorus, but nitrogen is also more abundant in the natural environment. Some species of algae can use nitrogen from the atmosphere. These "nitrogen-fixing" algae are blue-green species and are less desirable. Nitrogen is also available from soils, and in the soluble form it moves readily through soils. Because of the multiple sources and the solubility, it is difficult to control nitrogen additions to waterbodies.

Phosphorus is adsorbed readily on soil particles, so soluble phosphorus is found in only low concentrations in nature. It does not move readily through soil. Nonpoint sources, such as runoff, contain both soluble and adsorbed phosphorus. Additions of high concentrations of soluble phosphorus to waterbodies are largely from wastewater. Discharges from wastewater treatment plants (WWTPs) contain predominantly soluble phosphorus, which is readily available to algae for growth.

The phosphorus concentration in waterbodies is therefore more controllable or manageable than nitrogen. Phosphorus has been selected as the focus for control of algae in fresh waters.

The Environmental Protection Agency (EPA, 1986) recommends that for the prevention of nuisance algal growth, phosphorus concentrations should not exceed:

0.025 mg/l for lakes and reservoirs,  
0.05 mg/l for streams entering lakes or reservoirs, and  
0.10 mg/l for other flowing waters.

There are no nitrogen criteria recommended by EPA for this purpose.

In-stream phosphorus standards have been adopted by the Oregon Environmental Quality Commission for some rivers and lakes in Oregon. These standards were established following intensive water quality investigations of the following waterbodies:

Tualatin River	0.07 mg/l	Total Phosphorus
Yamhill River	0.07	"
Bear Creek	0.08	"
Clear Lake	0.009	"

## Algal Growth Problems in Oregon

Excessive algal growth is a widespread water quality problem in Oregon. Sixteen of Oregon's 18 river basins have some waterbodies that do not support beneficial uses due to excessive algae and aquatic plants (DEQ, 1990). According to DEQ's 1990 Water Quality Assessment Report, 745 river miles only partially support or do not support their designated beneficial uses due to excessive nutrients or plant growth. Many lakes across the state also have excessive algae or plant growth problems. Water quality data are shown below and in Appendix D.

The Task Force recognizes that we do not have sufficient data to know precisely how many waterbodies in Oregon have algal growth problems caused by excess nutrients. Nor do we know how many of Oregon's algal growth problems could be corrected through phosphorus reduction and how many could be corrected through nitrogen control.

To date, the Department of Environmental Quality has established phosphorus standards and TMDLs, and Oregon lake restoration projects have identified phosphorus control, as the means to solve algal growth problems. This strategy is consistent with EPA recommendations and with similar efforts and studies conducted around the country and around the world.

### Statewide Data

Tables 1 and 2 list the Oregon waterbodies assessed as "water quality limited" due to dissolved oxygen, pH or aesthetic problems where these problems result at least in part from algal growth (DEQ, 1990). A waterbody is "water quality limited" (as defined by the Federal Clean Water Act) if it does not meet water quality standards even though all the point sources discharging to the waterbody are permitted and meet the current technology-based standards. A waterbody may also be designated water quality limited due to a lack of data or because the minimum technology based standards have not yet been fully implemented.

Table 1 shows the water quality limited waterbodies which DEQ has identified as priorities for receiving total maximum daily loads (TMDLs). Table 2 lists additional "water quality limited" streams which have a potential algal growth problem, and septic system drainage or municipal sewage treatment discharge as a suspected source. Table 3 lists Oregon lakes which do not fully support their designated beneficial uses due to algae or weed growth, with septic drainage as a suspected source of nutrients.

Table 1. Water Quality Limited (303d1) Waterbodies in Oregon with Algal Growth or Related Problems

WATER BODY	BASIN	PARAMETERS OF CONCERN	SUSPECTED OR KNOWN SOURCES	STATUS
Garrison Lake	S. Coast	weeds, nutrients, algae, pH	municipal, septic, natural	TMDL established
N.F. Coquille RM 0-10	S. Coast	DO	municipal, natural	TMDL proposed
Coquille R./ Estuary, RM 0-39	S. Coast	DO, bacteria	municipal, agric, forest, natural	TMDL proposed
South Umpqua RM 0-15	Umpqua	pH, DO, ammonia, bact, nutrients	municipal, agric, indust, low flow	TMDL proposed
Bear Creek RM 0-27	Rogue	DO, nutrients, bact, algae, pH	municipal, agric, septic, low flow	TMDL established
C.F. Willamette RM 0-29	Willamette	DO, pH	municipal, agric, septic	TMDL proposed
Rickreall Creek RM 0-20	Willamette	DO	municipal	TMDL needed
S. Yamhill RM 0-5	Willamette	algae, nutrients	municipal, agric, septic	TMDL established
Yamhill R. RM 0-11	Willamette	algae, nutrients, pH (incr.P)	municipal, agric, septic	TMDL established
Pudding R. RM 0-30	Willamette	DO, bacteria (incr.P & NO3)	mun, agric, septic, nat, indust	TMDL proposed
Tualatin R. RM 0-39	Willamette	bact, nutrients, pH, DO, algae	municipal, agric, urban, natural	TMDL established

(continued next page)

Table 1. Water Quality Limited (303d1) Waterbodies in Oregon with Algal Growth or Related Problems

WATER BODY	BASIN	PARAMETERS OF CONCERN	SUSPECTED OR KNOWN SOURCES	STATUS
Tualatin R. RM 39-63	Willamette	bacteria, nutrients	agric, urban, septic	TMDL established
Lake Oswego	Willamette	DO, pH, algae, nutrients	municipal, agric, urban, natural	TMDL established
Columbia Slough RM 0-15	Willamette	bact, nut, algae, pH, org, metals	municipal, urban, industrial, nat	TMDL proposed
Umatilla RM 0-79	Umatilla	pH, solids, nutrients, bact	municipal, agric, septic, natural	TMDL proposed RM 35-79 (est TMDL needed RM 0-35)
Grande Ronde RM 82-179	Grande Ronde	pH, bacteria, nutrients	municipal, agric, septic, natural	TMDL proposed
Klamath R. & Lk. Ewauna RM 209-250	Klamath	pH, algae, nutrients, metals	municipal, agric, indust, natural	TMDL proposed
Link River RM 250-255	Klamath	pH, algae, nutrients	agric, natural	TMDL proposed
J.C. Boyle Reservoir	Klamath	DO, pH, algae, nutrients	municipal, agric, indust, natural	TMDL proposed

SOURCE: Draft 1990 Water Quality Status Assessment Report (305b), DEQ, Portland, Oregon, Appendix A.

Table 2. WQ Limited Streams (303d3) with Municipal or Septic Sources Contributing

WATER BODY	BASIN	PARAMETERS OF CONCERN	SUSPECTED OR KNOWN SOURCES	STATUS
S.F. Coquille RM 0-62	S. Coast	DO, bacteria	municipal, septic	TMDL proposed (part of segment)
Cow Creek RM 0-27	Umpqua	pH	municipal, indust, natural	
Umpqua River RM 103-112	Umpqua	bacteria	municipal, urban, indust, natural	estimated TMDL needed
Elk Creek RM 0-27	Umpqua	DO, bacteria, pH, nutrients	municipal, agric., septic	estimated TMDL needed
Rogue River RM 95-132	Rogue	bacteria, nutrients	municipal, agric., septic	estimated TMDL needed
Rogue River RM 29-95	Rogue Wilderness	nutrients	municipal, agric., natural	uses threatened
Willamette R. RM 0-26	Willamette	bacteria, organics, metals, pest	municipal, urban, agric, septic	estimated TMDL needed
Willamette R. RM 26-80	Willamette	bacteria, organics (incr. P in parts)	mun, urb, agric, septic, indust.	estimated TMDL needed
Salt Creek RM 0-35	Willamette	bacteria, DO, algae, nutrients	municipal, agric, setpic, natural	estimated TMDL needed
Crooked R. RM 0-70	Deschutes	bacteria, nutrients, solids	municipal, septic, natural	estimated TMDL needed
John Day RM 185-212	John Day	pH, bacteria, solids	agric, septic, municipal, natural	estimated TMDL needed
Umatilla RM 0-35	Umatilla	solids, bacteria nutrients	municipal, agric, septic, natural	TMDL proposed RM 35-57 est TMDL needed RM 0-35

NOTE: Water bodies with bacteria problem only not included.

SOURCE: Draft 1990 Water Quality Status Assessment Report (305b), DEQ, Appendix A.

Waterbodies affected by municipal and septic sources are shown in the Tables 2 and 3 because these are the sources most likely to be affected by a phosphate detergent ban, the focus of this report. It should be recognized that there are also waterbodies experiencing algae-related water quality problems that do not have municipal or septic sources. The nutrient inputs in these cases are from nonpoint, natural or industrial point sources.

Table 3. Oregon Lakes with Algae or Weed Growth Problems and Septic Systems as a Suspected Source of Nutrients

<u>Basin</u>	<u>Lake</u>	
North Coast	Cullaby Lake	Sunset Lake
Mid-Coast	Devils Lake	Eckman Lake
	Sutton Lake	Mercer Lake
	Collard Lake	Siltcoos Lake
	Tahkenitch L.	
South Coast	North Tenmile L.	Tenmile Lake
Umpqua	Diamond Lake	
Rogue	Willow Reservoir	
Willamette	Blue Lake	
Deschutes	Suttle Lake	

SOURCE: "1990 Water Quality Status Assessment Report," Appendix A, Department of Environmental Quality, Portland, Oregon, 1990.

Several water quality parameters may indicate excessive algal growth, including chlorophyll-a, dissolved oxygen, pH and phosphorus. Chlorophyll-a, as sampled in Oregon, measures phytoplankton or "floating" algae, but does not measure periphyton growth. Periphyton algae grow attached to rocks or other substrate, and are more common in moving streams that are relatively shallow. The chlorophyll-a criteria for the purpose of preventing nuisance phytoplankton growth is 0.010 or 0.015 mg/l, depending on the type of waterbody (OAR 340-41-150). If a waterbody exceeds the criteria, it may not support beneficial uses and the Department is to conduct an investigation.

Dissolved oxygen (DO) and pH can also be used to detect algal growth. Excessive algal growth may cause large fluctuations in DO or pH throughout the day, and DO supersaturation (i.e. greater

than approx. 110-130 percent saturation). As photosynthesis occurs during daylight hours, dissolved oxygen increases, carbon dioxide is taken up and pH rises. Then, during the night, respiration and decomposition deplete the dissolved oxygen so that by early morning DO and pH may be quite low.

High nutrient levels, particularly phosphorus, indicate a potential algae or plant growth problem. The phosphorus criteria recommended by EPA and DEQ to prevent nuisance algal growth are discussed above.

The 1990 Water Quality Assessment (DEQ) summarizes the water quality monitoring data collected by the Department from 1979-1989. These data are on streams because the Department does not routinely monitor lakes. Chlorophyll-a and phosphorus samples were collected primarily between April and October. Phosphorus values in the following streams exceeded the 0.10 mg/l criteria in at least 25 percent of the samples taken (only sites with at least 10 samples are included here):

Little Butte Creek	Deschutes River
Elk Creek	Owyhee River
Bear Creek	Malheur River
Rogue River	Powder River
Coast Fork Willamette R.	Grande Ronde River
Willamette River	Umatilla River & tributaries
Pudding River	Crooked River
S. Yamhill & Yamhill R.	Klamath River & tributaries
Tualatin River & tribs.	S. Umpqua & Umpqua Rivers
Columbia Slough	

Cholorphyll-a concentrations in the following streams exceeded the 0.015 mg/l criteria in at least 10 percent of the samples taken (only sites with at least 10 samples are included here):

Yamhill River	Calapooia River
Tualatin River & tribs.	Willamette River
Columbia Slough	Klamath River & tributaries
Malheur River	

If streams with at least 5 samples taken are included, the Owyhee and Miami Rivers would be added to this list.

High chlorophyll-a concentrations are less frequently detected than high phosphorus levels for several reasons. First, water monitoring samples are taken from the water column and, therefore, include only phytoplankton algae and not periphyton algae or macrophytes, which grow attached to stream bottoms. Therefore, if a stream is dominated by periphyton algae, this will not show up in chlorophyll-a measurements. Some water quality limited streams in Oregon dominated by periphytons include the South Umpqua River, Umatilla River, Grande Ronde River and Bear Creek.

Second, the Department does not test for chlorophyll-a as frequently and there is simply not as much data available. Unlike nutrient concentrations, chlorophyll-a has not historically been a standard ambient monitoring test. Finally, some rivers have high phosphorus but do not experience excessive algal growth due to turbidity or shade, which limit the availability of light, or due to the speed of the water movement which prevents the algae from accumulating.

Nitrogen-fixing algae are abundant or dominant in the Klamath, Umatilla, South Umpqua, Tualatin, and Grande Ronde Rivers, and many lakes (Sweet, 1985). When this occurs, phosphorus must be controlled to limit algal growth. The algae are obtaining the nitrogen they need from the atmosphere.

### **Total Maximum Daily Loads**

The Department of Environmental Quality has identified 13 streams and 2 lakes as priority waterbodies to receive total maximum daily loads (TMDLs). These waterbodies, listed in Appendix D, Table D-1, are water quality limited as defined by the Federal Clean Water Act. To date, phosphorus TMDLs have been established, or identified as being needed, for 8 of the 13 streams and both lakes. These phosphorus TMDLs are being established to eliminate violations of dissolved oxygen and pH standards caused by excessive algal growth. After these priority TMDLs are completed, the Department will begin work on the remaining water quality limited waterbodies in the state.

Phosphorus TMDLs have been established for 3 streams, the Yamhill and Tualatin Rivers and Bear Creek. The largest sources of phosphorus in these basins are the wastewater treatment plants. In the Tualatin and Bear Creek, phosphorus allocations were also given to nonpoint sources, including runoff from urban, agricultural and forest lands. The Department has also established phosphorus TMDLs for Clear Lake and Garrison Lake. The sources being regulated in these basins include WWTP effluent, septic systems and urban runoff.

### **Nutrient Limitation in Oregon Waters**

A few studies of nutrient limitation have been conducted on Oregon waterbodies. A study of Devils Lake (KCM, 1983) stated that phosphorus was probably the limiting nutrient. Algal assays (biological tests) in Garrison Lake found that both nitrogen and phosphorus were limiting in August of 1988 (SRI, 1990). Algal assays conducted in Clear Lake (Cooper Consultants, 1985) found that phosphorus was limiting algal growth.

In Bear Creek, phosphorus appears to be the nutrient in limiting proportions in nonpoint loads and background conditions. Below the City of Ashland's wastewater treatment plant (WWTP), neither nutrient is limiting. Nitrogen appears to be the nutrient in



limiting proportions (the nitrogen to phosphorus ratio is low). This situation results from the discharge of relatively large amounts of phosphorus from the WWTP.

Algal assays conducted in the Tualatin indicate that a target concentration of less than 0.10 mg/l total phosphorus is needed to maintain algal growth at acceptable levels in that basin. The instream phosphorus criteria established by the Environmental Quality Commission is 0.07 mg/l. It is slightly lower than the 0.10 value because Tualatin River water is diverted into Lake Oswego and lakes require lower concentrations of phosphorus. The EPA criteria recommended for streams flowing into lakes and reservoirs is 0.05 mg/l.

EPA research in several Oregon bays shows that phosphorus is typically the limiting nutrient in riverine portions of estuaries.

A US Geological Survey study of the Willamette River (Hines et al., 1977) found that phosphorus is the nutrient in limiting proportions in the Willamette River, but that algal growth is not currently being limited by a nutrient.

### III) NUTRIENT SOURCES

#### Sources of Phosphorus and Nitrogen to Oregon Waterways

Nitrogen and phosphorus sources can be placed into three general categories: point sources, nonpoint sources and natural sources. Point sources include wastewater treatment plants (WWTPs), combined sewer overflows (CSOs), and direct industrial discharges. Nonpoint sources are diffuse and are carried to a stream or lake by overland runoff rather than through a pipe or ditch. Nonpoint sources include agricultural, forestry and urban runoff and septic system drainage.

It is difficult to quantify how much of the nutrient load to a particular stream is from point sources and how much is from nonpoint sources. The DEQ has estimated that in the Tualatin basin, less than 15-20 percent of the total phosphorus load to the Tualatin River is from nonpoint sources. The proportions will vary from basin to basin, however, depending on the physical characteristics, land uses and point sources present in a particular basin.

WWTPs are the largest point sources of phosphorus discharges to Oregon waters. There are over 275 WWTPs in Oregon, with a total design capacity of approximately 300 million gallons per day, that discharge effluent to surface waters. WWTP effluent contains an average of 5 - 7 mg/l phosphorus. The sources of nutrients to WWTPs are discussed in more detail below.

The types of industries that typically discharge nutrients include food processors, log ponds, and manufacturers using phosphorus compounds for metals cleaning. These direct industrial discharges are a relatively small portion of the total phosphorus load in Oregon, however. Direct industrial discharges are suspected pollution sources for 4 of the 15 priority rivers and lakes to receive TMDLs. Municipal WWTPs are suspected sources for all 15 waterbodies.

Agricultural nonpoint sources include the runoff of animal waste and fertilizer, and the erosion of soil particles which may have phosphorus adsorbed to them. Another agricultural source, which is a point source by character but a nonpoint source by legal definition, is irrigation return flow ditches or canals. Some forestry practices also release nutrients which may be carried to surface waters.

On-site sewage treatment systems, such as septic system drain fields, can be a nonpoint source of nutrients. It is commonly understood that septic systems can be a source of nitrogen to groundwater and surface waters; in some situations they can also be a source of phosphorus. This may occur when a system is failing (the sewage is seeping to the surface of the ground). It may also occur when septic systems exist close to a waterbody, such as development along the shoreline of a lake, in sandy soils. Phosphorus readily adsorbs to soil particles, but the soils between the drain field and the lake may become saturated and the phosphorus would then pass through.

#### Sources of Phosphorus to WWTP Influent and Effluent

Phosphorus loads entering municipal WWTPs come from residential, industrial and commercial sources. Residential sources of phosphorus include human waste, laundry detergent, automatic dishwashing detergent, garbage disposals and other household cleaners. Industrial and commercial sources usually originate from food or forest product processing wastes, or some type of detergent or cleaner.

The relative proportion of phosphorus coming from various sources is assumed to be the same in the WWTP effluent as in the influent. Once the wastewaters are mixed in the plant, it is not possible to determine the source of the phosphorus. Therefore, estimates of the relative contribution of sources to effluent phosphorus are based on the influent sources.

The Unified Sewerage Agency (USA) estimates that an average of 83% of the phosphorus entering four of their plants in the Tualatin River basin is from residential sources. An average of 17% of the influent phosphorus load is from industrial sources (Technical Consultants, 1990). These figures do not include institutional, commercial and industrial sources that do not monitor their wastewater for phosphorus.

Table 4 presents general estimates of the current phosphorus loads entering municipal wastewater treatment plants in areas without restrictions on phosphate detergent use. The percentage of the influent phosphorus contributed by each source is also shown.

Table 4 shows that household laundry detergents contribute approximately 27 percent of the total phosphorus load to WWTPs. This estimate was calculated based on the typical amount of phosphorus found in detergents today. Manufacturers have reduced the amount of phosphorus in their detergents since the 1970's and, therefore, this source represents a smaller proportion of the total phosphorus load today than it did 15-20 years ago.

Observed reductions in influent phosphorus resulting from the elimination of a particular source may also be used to estimate the contribution of phosphorus from that source. This method is primarily available for laundry detergents. Twelve states and five regions have restricted phosphate detergents from 1972 to present. Since the late 1970's these bans have resulted in 23 to 38 percent reductions in influent phosphorus loads, with an average reduction of 29 percent observed (see Table 5).

The Unified Sewerage Agency estimates that the METRO phosphate detergent ban, effective in February of 1991, will reduce the phosphorus loads to their plants in the Tualatin River basin approximately 30 percent.

The calculated estimates and results of prior bans support the conclusion that household laundry detergents account for approximately one-third of the total phosphorus load entering municipal wastewater treatment plants, and being discharged from plants that do not remove phosphorus.

#### Sources of Nitrogen to WWTPs

The primary source of nitrogen to municipal wastewater is human waste. This source generates an average of approximately 4.4 kilograms of nitrogen per capita per year in organic and ammonium forms (Organization for Economic Cooperation and Development, 1971).

Industries can also be sources of nitrogen to municipal WWTPs. For example, the Unified Sewerage Agency estimates that industrial sources contribute 2, 5, 6 and 19 percent of the ammonia nitrogen loads to four plants in the Tualatin basin (Technical Consultants, 1990).

The largest source of nitrogen to WWTPs is residential, and the primary residential source of nitrogen is human waste. Therefore, there is limited opportunity to regulate or eliminate nitrogen loads to the plants.

Table 4. Estimated Phosphorus Loads to Municipal Wastewater Treatment Plants

<u>Source</u>	<u>Phosphorus Load [a] (kg/capita/yr)</u>	<u>Percent of Total Load</u>
Human waste	0.6	44
Laundry detergents	0.37	27
Automatic dishwashing detergent	0.098	7
Other household cleaners	0.013	1
Industrial & institutional: cleaners	0.16 [b]	12
finishers	0.05 [b]	4
water treatment chem.s	0.05 [b]	4
Denitrifices	<u>0.005</u>	0.4
TOTAL	1.35	

[a] These estimates are based on current detergent formulations.

[b] Industrial loads vary widely. These values are national averages, assuming that all the industrial phosphorus loads enter municipal treatment plants. In many cases, however, these sources will either not exist in a service area, be treated and discharged directly rather than entering a municipal plant, or they will undergo pretreatment before entering the plant.

SOURCE: Personal communication with Richard Sedlak, Soap and Detergent Association, New York, New York, December, 1990.

Table 5. Phosphate Detergent Ban Effects on Municipal Wastewater

<u>State/Region</u>	<u>Influent P Reduction</u>	<u>Effluent P Reduction</u>	<u>Year Ban Effective</u>
Indiana	60%	60%	1972
New York	48	--	1972
Michigan	23	24	1977
Minnesota	38 (loading)	42 (loading)	1978
Vermont	--	40 (loading)	1978
Wisconsin	22	--	1983
Maryland	32	42 (loading)	1985
Washington DC	25	--	1986
North Carolina	23	44	1988
Virginia	30	51	1988
Missoula, MT	--	40 (loading)	1988
Atlanta, GA/ Georgia	35 (loading)	40 (loading)	1989/ 1990
Pennsylvania	- not yet available -		1990
Ohio	- not yet available -		1990
Spokane River Basin, WA	- not yet available -		1990
Portland, OR	- not yet available -		1991

NOTE: Reductions were figured as a percent decrease in either concentration or mass load (which accounts for the discharge flow), as indicated.

SOURCE: Updated information from: Findings of the Region-wide Phosphate Detergent Ban Study. Staff report to the Council of the Metropolitan Service District of Oregon, Jim Morgan, Portland, Oregon, May 22, 1990.

## Sources for Possible Regulation or Elimination

Phosphate in detergents is a significant source of phosphorus which could be eliminated or greatly reduced through statewide regulation. The following portions of this report discuss the potential benefits and impacts of such a regulation.

The Task Force recognizes that for many waterbodies, a phosphate detergent ban would be only one component of a successful program to control algal growth. Other components could include water quality based permitting (TMDLs), the permitting of combined sewer overflows, and the control of nonpoint sources. Each of these activities is in an early stage, but making progress as part of the Department's water quality program.

Industrial sources of nitrogen to WWTPs could potentially be controlled at the source. This control option is not analyzed below because industrial sources of nitrogen to WWTPs are relatively small. The primary residential source of nitrogen, human waste, could not feasibly be reduced at the source. Nonpoint sources of nitrogen could also be controlled at the source. See Appendix E and F for information on nutrient control technologies and programs.

## IV) THE IMPACTS OF ELIMINATING PHOSPHORUS FROM DETERGENTS

### Impacts on Water Quality

Table 5 above shows that the amount of phosphorus in municipal treatment plant discharges to receiving waters (effluent) has decreased an average of 40 percent as the result of phosphate detergent bans implemented since the late 1970's. These figures represent results at plants that do not treat for phosphorus removal. Phosphorus load reductions will aid in improving water quality if in-stream concentrations are reduced to the levels required to prevent excessive algal growth.

While there have been many studies following detergent phosphate bans which document the reduction in phosphorus in the influent and effluent of wastewater treatment plants, fewer studies have been done on the resultant change in instream or in-lake phosphorus concentrations and other related water quality parameters. The literature that is available varies in its conclusions.

The effect of a reduced phosphorus load on water quality is difficult to predict quantitatively because of the variety among waterbodies and the many other environmental variables that influence the outcome. There are models which can be used to estimate the response of a given waterbody to a change in one factor, such as its phosphorus load. This requires that a set of

data on a specific water body be collected and used to assemble the model. Studies and modelling of individual waterbodies to quantify the results of phosphorus control require time and expense.

### Impacts on Other Nutrient Control Strategies

In some waterbodies, a decrease in phosphorus loads from a phosphate detergent ban could be sufficient to allow discharge of WWTP effluent without prior phosphorus removal, or to delay the time when removal becomes necessary. Where nutrient and algal growth problems are severe, however, WWTPs will need to reduce their phosphorus loads by a very large amount. In these situations, detergent bans alone will not produce the required reduction and other measures must also be implemented. Additional information on nutrient control practices is provided in Appendix E.

There are over 420 wastewater treatment facilities in Oregon. More than 275 of these discharge effluent to surface waters and these facilities have a combined treatment capacity of over 300 million gallons per day (MGD). Currently, two plants (USA's Rock Creek and Durham), with a combined capacity of approximately 30 MGD, chemically remove phosphorus. Three additional plants (Lafayette, McMinnville and Ashland) are considering various phosphorus removal alternatives to achieve new discharge limits. As TMDLs continue to be established, phosphorus limits will be included in the permits of additional plants.

### **Phosphorus Removal at Treatment Plants**

Phosphorus removal at the treatment plant is one method to reduce effluent phosphorus. This removal is typically accomplished by a chemical addition process using iron or alum which precipitates the phosphorus. The chemical treatment process generates additional sludge, which must then be removed and disposed.

Reduced influent phosphorus resulting from phosphate detergent bans typically affects the chemical removal process in the following ways:

1. The quantity of chemicals required for phosphorus removal is reduced in proportion to the decrease in influent phosphorus.
2. The quantity of sludge generated from the phosphorus removal process is reduced.
3. The need to add chemicals to correct for pH depression caused by alum treatment is reduced.
4. Biological rather than chemical removal may become more feasible.

5. Reduced chemical use would reduce the concentration of total dissolved solids (TDS) in the effluent. The Oregon Administrative rules for some basins state that instream TDS shall not exceed 100 mg/l. Potential exceedence of this standard is a concern in the Tualatin basin, for example, where it is anticipated that chemical removal will cause effluent TDS levels to increase by 100-300 mg/l (HDR Engineering, 1990).

WWTPs practicing phosphorus removal in other states reduced their chemical use, and therefore chemical costs, by an average of about 29-43 percent following the implementation of phosphate detergent bans. Based on the USA estimates below and additional information reported in Appendix H, the estimated savings from a 30 percent reduction in influent phosphorus range from approximately \$100,000 to over \$200,000 per year per 10 MGD.

The Unified Sewerage Agency of the Tualatin River basin estimates that it will save \$389,000 per year in operating costs from a phosphate detergent ban (HDR Engineering, 1990). These savings, based on 1995 flow conditions, will be incurred at 2 plants having a planned 1995 capacity of 35 MGD. The estimate is based on a predicted 25% reduction in chemical use (\$308,000), and reduced sludge handling (\$81,000).

Biological nutrient removal (BNR) is being developed as an alternative to chemical removal. There are BNR systems operating in the eastern U.S. Typically, chemical treatment capabilities are constructed as backup at plants using biological removal.

#### Wetlands Polishing

The capacity of a wetland to assimilate inputs is finite (see Appendix E for information). As the sediment adsorption of phosphorus approaches saturation, the ability of the wetland to retain additional phosphorus will be reduced. If the load of phosphorus introduced to a wetland is decreased, the ability of the wetland to retain the nutrient will be prolonged.

#### Wastewater Reuse - Irrigation

The value of wastewater for irrigation is not affected by decreasing the phosphorus concentration by approximately one-third, the expected reduction from a phosphate detergent ban. This would not influence a farmer's decision to use or not to use the water because the water itself is the primary value to the farmer (personal communication, John Jackson, USA, November, 1990). (See Appendix E for additional information).



## Economic Impacts

A phosphate detergent ban will yield an economic benefit through cost savings to WWTPs required to comply with a phosphorus discharge limit. These cost savings, associated with reduced chemical use and sludge handling, are discussed above and in Appendix H.

In addition, if the need for a treatment plant to add phosphorus removal facilities can be avoided or delayed, there would also be savings from avoided capital construction and operating costs. The potential for this as the result of a detergent phosphate ban has not been reliably predicted or quantified for Oregon.

A phosphate detergent ban could potentially increase the cost of distributing products to Oregon. No cost estimates on the effects of a phosphate detergent ban on the detergent industry are available. Such estimates are difficult to develop and include proprietary market information.

Based on reports from areas currently with phosphate detergent bans, these bans do not appear to increase the costs of laundry detergents to consumers. Consumer Reports (1987) rated the performance of laundry detergents across the country based on laboratory tests in hard water. Of the top 10 performers:

- 3 were liquids (non-phosphate), with an average cost of \$0.20 per dose,
- 4 were phosphate containing powders, with an average cost of \$0.20 per dose, and
- 3 were non-phosphate powders, with an average cost of \$0.17 per dose.

Of all the laundry detergents rated, the average cost per dose for non-phosphate powders was 15.8 cents, for phosphate powders was 17.7, and for liquids (non-phosphate) was 17.6 cents.

The cost to public agencies to implement and enforce a phosphate detergent ban is minimal. The implementation is primarily carried out by the product suppliers and enforcement has not been a problem in areas of existing bans.

See Appendix H for additional information on the economic impacts of a detergent ban.

## Impacts on the Function and Effectiveness of Detergents

Approximately 37 percent of the United States population now lives in areas where laundry detergent phosphates have been banned. The Task Force has found no reports or survey results that indicate that these citizens are dissatisfied with the effectiveness of the non-phosphate detergents they are now using.

## Other Environmental Impacts

Reducing concentrations of toxic metals in wastewaters is becoming a priority for WWTP operators. Metals in wastewater can settle into sludge or be discharged to surface waters with the plant effluent (EPA, 1982). A study of Seattle's municipal wastewater indicates that a significant proportion of many heavy metals originate from residential sources (Galvin, 1988).

A second study conducted for Seattle METRO considered whether laundry detergents were potential sources of heavy metals (Dickey, 1990). This study determined that increasing levels of phosphates in detergents correlated with increasing levels of heavy metals, although the relationship was statistically significant for only one metal, arsenic. The study concluded that laundry detergents were a significant source of arsenic to municipal wastewater.

Another study concluded that heavy metals contributed by a range of cleaning products contributed less than 1% of the current effluent limit for selected heavy metals other than arsenic (REED Corporation, 1990). The cleaners contributed in total, 0.5 parts per billion of arsenic to sewage effluent at an assumed sewage production rate of 100 gallons per capita per day. The presence of this amount of arsenic in sewage does not impair the ability of municipal discharges to meet water quality standards for arsenic.

## Social Impacts

Oregonians are proud of the quality of their environment and publicly declare their commitment to preserving the state's natural resources. If a phosphate detergent ban is perceived to have an environmental benefit, it is likely to have strong public support.

A phosphate detergent ban may promote public awareness of the need for pollution control. It is a pollution prevention measure at the consumer or household level, an approach that should be encouraged. To the extent that consumers are aware of such measures, they will be able to recognize that they are part of a society which made this decision, and that they are contributing to the solution of an environmental problem.

## Pollution Prevention

A phosphate detergent ban is a pollution prevention measure. Environmental foresight has proved prudent in the past, and has taught us to appreciate the value of pollution prevention over the treatment or cleanup of problems after they occur. While a phosphate detergent ban is only one component of a strategy to eliminate algal growth, it reduces man-made contributions to the wastestream.

In June, 1990, the Environmental Quality Commission adopted a Strategic Plan. One of the plan's 9 goals is to:

Aggressively identify threats to public health or the environment and take steps to prevent problems which may be created.

Similarly, one of the three high priorities identified for the DEQ's Water quality Program is to:

Implement aggressive source control and problem prevention programs based on the priorities established that explore and encourage use of environmentally sound alternatives for disposal of treated wastewater which do not adversely affect air, land, stream and groundwater quality.

A ban on phosphates in detergents is consistent with these goals.

#### V) PHOSPHORUS CONTROL POLICY AND LEGISLATION

##### Oregon Phosphate Detergent Laws

In June of 1990, the Metropolitan Service District of Oregon passed a regional ban on detergent phosphates which will become effective on February 1, 1991 and will sunset on December 31, 1994. The METRO ban is similar to existing bans in other locations. It prohibits the sale of any cleaning agent with more than 0.5 percent phosphorus by weight, with listed exceptions. Automatic dishwashing detergents shall not exceed 8.7 percent phosphorus by weight.

The City of Ashland is considering a similar ordinance. Current Oregon law (ORS 468.760) requires the phosphorus content of synthetic cleansers to be labeled.

A statewide ban on the sale of phosphate detergents will be more effective than local or regional bans for 2 reasons. First, the statewide distribution of detergents will be easier, avoiding double-shelving of phosphate and non-phosphate product formulations, according to distributors (Fred Meyers, United Grocers, 1990). Second, statewide implementation of a ban would minimize the possibility of consumers bringing phosphate detergents into ban areas.

##### An Overview of Phosphate Detergent Laws

A chart summarizing phosphate detergent ban legislation in other states and regions is provided in Appendix G. Many of the bans include similar provisions. Most prohibit the sale or distribution of household laundry detergents containing

phosphates, although 7 areas also prohibit the use of these products. Many of the regulations prohibit phosphates in cleaning products and list exceptions. Most allow up to 0.5 percent incidental phosphorus in laundry detergents. All the laws allow dishwashing detergents to contain phosphorus, typically limiting them to 8.7 percent. Some bans include fines for violations.

Typical products exempted from the phosphate bans include detergents used to clean dairy and food processing equipment, detergents used in hospitals and health care facilities, and industrial cleaning products. Some of the bans exempt all detergents used for cleaning hard surfaces.

#### Other Phosphorus Control Policies and Regulation

There are a multitude of federal, state and local regulations aimed at controlling nutrient inputs to surface waters for the purpose of limiting algae and weed growth. These policies, some of which are described in Appendix F, range from point source discharge limits to technologies and management practices designed to reduce nonpoint sources of nutrients.

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Scientific Resources, Inc., 1990. Garrison Lake and watershed Assessment 1988-1989, Volume I: Diagnostic and Restoration Analysis. Lake Oswego, Oregon.

Sweet, J.W., 1985. An Analysis of Phytoplankton of Oregon Lakes. Report to U.S. EPA. Seattle, Washington.

Tualatin Basin Consultants, 1990. Draft Wastewater Facilities Plan, Volume 1, Technical Report. Prepared for Unified Sewerage Agency of Washington County. Hillsboro, Oregon.

United Grocers, 1990. Public Testimony to the Council of the Metropolitan Service District of Oregon, Roger Martin, May, 1990. Portland, Oregon.

## APPENDIX A

### GLOSSARY OF TERMS

- activated sludge: biologically active solids produced in wastewater treatment systems, which grow through the consumption of organic wastes and nutrients present in the wastewater.
- algal assay: studies in which algae are exposed to a substance and the response of the algae is monitored over time; the studies are used to identify substances that affect algal growth.
- alum: a common name for commercial-grade aluminum sulfate, a material used to remove impurities from drinking water and wastewater.
- biological phosphorus removal: use of selected bacteria to incorporate high concentrations of phosphorus during wastewater treatment, often such processes can be operated to remove other nutrients besides phosphorus, in which case they are generically referred to as "biological nutrient removal."
- chemical phosphorus removal: use of chemicals to precipitate phosphate out of wastewater during treatment.
- chlorophyll-a: a pigment present in all green plants and algae; measurements of this pigment are used as an indicator of plant and algal biomass.
- combined sewer overflow: in municipal wastewater systems that collect both sewage and storm runoff, these are discharges of combined wastewater and storm runoff that occur prior to treatment as a result of storm events which cause flows to exceed the capacity of the treatment plant.
- dissolved oxygen: oxygen dissolved in water.
- effluent: treated wastewater discharged out of a wastewater treatment plant.
- eutrophication: the process occurring in bodies of water particularly lakes, characterized by nutrient richness, luxurious aquatic plant growth, and low oxygen levels.
- heavy metals: metals with high atomic weight, such as lead,

cadmium, or arsenic; these are often toxic at higher concentrations.

influent: wastewater flowing into a wastewater treatment plant.

irrigation return flow: irrigation water that runs off irrigated fields and is collected in channels for discharge.

loading: the quantity of material carried into a body of water or treatment plant. Expressed as mass per unit time (e.g. pounds per day), rather than concentration (e.g. milligrams per liter).

nitrogen-fixing algae: algae that can take nitrogen gas from the atmosphere and change it into nitrogen-containing compounds necessary for growth.

nutrient: any substance assimilated by an organism which promotes growth and replacement of cellular constituents.

nonpoint source: diffuse sources of pollution carried to surface waters via overland or subsurface flow, or a large number of small dispersed sources.

orthophosphate: a common form of phosphate that is considered more biologically-available.

periphyton: algae attached to substrate in fresh waters.

pH: a term used to describe the hydrogen-ion activity of a system; pH 0 to 7 is acid, pH of 7 is neutral, pH 7 to 14 is alkaline.

phosphate: a generic term for any compound containing the phosphorus and oxygen group ( $\text{PO}_4^{-3}$ ); in nature, phosphorus always exists as a form of phosphate.

phosphorus: a naturally occurring element essential to all plant and animal life that can, when in excess in surface waters, lead to excessive plant growth; phosphorus usually infers 'total phosphorus' which includes all of its forms.

phytoplankton: floating or weakly swimming algae.

point source: a source of pollution where a single discharge point can be identified, such as municipal or industrial wastewater discharge pipe.

precipitate: the solid material formed in a water or wastewater treatment process which can then be separated from the water.

sludge: the accumulated solids separated from wastewater during treatment.

standard: see "water quality standard"

TMDL: a Total Maximum Daily Load is the maximum load of a particular substance allowed to be discharged into a receiving body of water; these are set by environmental management agencies for a water body designated as "water quality limited".

total dissolved solids (TDS): the total amount of solids in water or wastewater that is in solution or is non-filterable.

water quality standard: provisions of State law which consist of designated uses for the waters of the State and water quality criteria necessary to protect the uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the Federal Clean Water Act (40 CFR 130.2-3).



APPENDIX B

TASK FORCE MEMBERS LIST

Mr. Jim Buckley  
Clackamas County Public Health, Oregon City  
representing the Conference of Local Health Officials

Mr. Dave Degenhardt  
Oregon Dept. of Forestry, Salem

Mr. Tom Donaca  
Associated Oregon Industries, Portland/Salem

Mr. Dell Isham  
Devil's Lake Water Improvement District, Lincoln City

Mr. Francis Kessler  
Willow Lake Treatment Plant, Salem  
representing the Association of Oregon Sewerage Agencies

Ms. Sue Knight  
representing the Oregon Environmental Council, Portland

Mr. Jim Morgan  
Metropolitan Service District, Portland

Ms. Eleanor Phinney  
River Watch, West Linn

Mr. Chris Reive  
Bogle & Gates  
representing Oregonians for Food & Shelter, Portland

Dr. Richard Sedlak  
Soap & Detergent Association, New York, New York

Dr. Benno Warkentin, Chair  
Water Resources Research Institute, Oregon State University,  
Corvallis

ALTERNATES:

Paul Cosgrove  
Lindsay, Hart, Neil & Weigler  
representing the Soap & Detergent Association, Portland

Mr. Jim Whitty  
Associated Oregon Industries, Portland/Salem

# A-Engrossed Senate Bill 1079

Ordered by the Senate May 9  
Including Senate Amendments dated May 9

Sponsored by Senators COHEN, ROBERTS, SHOEMAKER, Representatives BAUMAN, CARTER, STEIN

## 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.

*[Prohibits sale of laundry detergent containing phosphate. Prescribes exemptions. Defines "cleaning agent".]*

*[Prescribes effective date.]*

**Requires Department of Environmental Quality to establish task force on phosphorus and other nutrients in state waters. Prescribes membership and duties. Requires department to report findings to Sixty-sixth Legislative Assembly. Requires Legislative Assembly to determine whether to ban phosphates in detergents.**

## A BILL FOR AN ACT

1  
2 Relating to phosphate.

3 Be It Enacted by the People of the State of Oregon:

4       **SECTION 1.** (1) The Department of Environmental Quality shall establish a task force on  
5 phosphorus and other nutrients in the waters of the state. The task force shall include represen-  
6 tatives of municipal waste water treatment agencies, nonmunicipal point source dischargers, agri-  
7 culture, forestry, manufacturers of consumer cleansing products and citizens. The task force shall  
8 assist the Department of Environmental Quality in identifying the sources of phosphorus and other  
9 nutrients contributing to the growth of algae in the waters of the state that the Department of En-  
10 vironmental Quality identifies in which algae growth is adversely affecting water quality. When  
11 appropriate, the task force shall assist the Department of Environmental Quality in identifying:

12       (a) Nutrient sources in waste ater treatment plant influent;

13       (b) The relative contribution of these nutrient sources on waste water treatment plant effluent;

14 and

15       (c) The potential impact of regulating or eliminating phosphorus from detergents and other  
16 sources on potential nutrient control strategies and water quality.

17       (2) The Department of Environmental Quality shall report to the Sixty-sixth Legislative Assem-  
18 bly regarding the findings of the task force established under subsection (1) of this section. Based  
19 on the findings of the report, the Legislative Assembly shall determine whether it is appropriate to  
20 eliminate specific sources of phosphorus, including but not limited to, imposing a ban on phosphates  
21 in detergents.

22

NOTE: Matter in bold face in an amended section is new; matter *(italic and bracketed)* is existing law to be omitted.

## APPENDIX C

### STUDIES OF THE RELATION OF ALGAL GROWTH TO NUTRIENTS

Laboratory studies have shown the relationship between phosphorus concentration and algal growth when other factors are not limiting. These controlled experiments generally show that when phosphorus concentrations are below 0.07 mg/l, algal growth is very low. Between 0.07 and 0.15 mg/l, there is a linear relationship between the two factors; as the phosphorus concentration increases, so does algal mass. Above 0.15 mg/l, further increases in phosphorus produce no further increase in algal mass. Growth is then limited by other factors.

Field studies attempting to quantify the relationship between phosphorus and algal growth have not been consistent in their results, probably due to the large number of variables present in the natural environment.

Algae use nutrients in approximate atomic ratios of 106 C (carbon) to 16 N (nitrogen) to 1 P (phosphorus). This reduces to 7.2 N:P on a concentration basis. Ratios and absolute concentrations both need to be evaluated to determine potential limiting nutrients. The ratio of N:P measured in water should indicate whether N or P would limit growth. The concentrations indicate whether both or neither one are actually limiting growth. If the N:P ratio is less than 7:1, N is potentially limiting, if it is greater than 7:1, P is potentially limiting. Blue-green algae (cyanobacter), that fix their own nitrogen from the atmosphere, are rare where N:P ratios exceed 30:1. They grow competitively at low nitrogen concentrations.

The N and P fractions that should be measured are those that are biologically available, generally considered to be the soluble fractions. These are dissolved phosphate, and the ammonia, nitrate and nitrite forms of nitrogen. Phosphate is generally measured as "soluble" and "particulate" fractions, separated by passing through 0.05 um filter. It is assumed that soluble phosphate is biologically available, and that the particulate fraction replenishes the soluble fraction when the later is used. Phosphate concentrations are usually much larger in sediments than in water because of the strong adsorption of phosphate to clays.

The proportion of total phosphorus that is in a biologically available form is: 70 to 90 percent in wastewater effluent, 3-10 percent in eroded sediments, 10-90 percent in runoff as a whole, and 25-90 percent in atmospheric phosphorus. Sewage effluents have N:P ratios of about 5:1, while nonpoint sources range from 15:1 to 30:1.

## References:

Lewis, W.M. et al (eds), 1984. Eutrophication and Land Use. Springer-Verlag, New York.

This Dillon Lake symposium contains some more recent measurements.

Likens, G.E. (ed), 1972. Nutrients and Eutrophication: The Limiting Nutrient Controversy. Allen Press, Lawrence, Kansas.

There is a paper by Duthrie on detergents and several papers relating algal growth and eutrophication to phosphorus concentrations.

Middlebrooks, E.J. et al (eds), 1984. Modeling the Eutrophication Process. Ann Arbor Science Publ., Ann Arbor, Michigan.

This contains some background material on phosphorus as well as information on modeling.

Ryding, S.O. and W. Rast (eds), 1989. The Control of Eutrophication of Lakes and Reservoirs. Man and the Biosphere Series, Volume 1, Parthenon Publishing Group, UNESCO, 314 pages.

This book takes a management approach and interprets the available information in terms of management alternatives.

Sandgren, C.D. (ed), 1984. Growth and Reproductive Strategies of Freshwater Photoplankton. Cambridge Univ. Press, New York.

This has more detail on bluegreen algae growth and a set of good references.

Schindler, D.W., 1977. Evolution of Phosphorus Limitation in Lakes. Science 195, 260-267.

This is a paper on which a lot of the thinking about phosphorus and algal growth is based. It shows the relationship of phosphate concentration to chlorophyll<sup>a</sup> for a number of lakes and establishes the limit of approximately 8 milligrams per cubic meter.

## APPENDIX D

### WATER QUALITY DATA FOR OREGON - NUTRIENTS AND ALGAL GROWTH

This Appendix provides water quality data for Oregon supplemental to that provided in section 2 of this report.

#### Statewide Data

Table D-1 lists the priority waterbodies to receive TMDLs in Oregon, the identified or potential TMDL parameters, and additional information. Phosphorus is a parameter identified for 8 of the 10 rivers and both lakes included on this list. Five phosphorus TMDLs (3 rivers and 2 lakes) have been established to date.

Figures D-1 & D-2 are maps from the 1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution (DEQ). Figure D-1 shows the stream segments and lakes in the State identified as having moderate or severe nutrient problems. Phosphorus was the parameter used for the nutrient assessment. Figure D-2 shows the stream segments and lakes identified as having moderate or severe plant growth problems. Plant growth problems were identified based on either chlorophyll-a measurements or observations completed by DEQ staff or others.

Of the total stream miles in the State, 45 percent either had no water quality problem or had no information available. The remaining 55 percent were found to have some type of water quality problem, 24 percent based on data and 31 percent based on observation. Due to the fact that not all the stream miles were evaluated, and due to the limitations of chlorophyll-a as a measure of algal growth (discussed in the section 2 of the report), Figure D-2 does not necessarily show all waterbodies experiencing excessive algal growth.

#### Water Quality Trends

As part of the 1990 statewide water quality assessment, the Department performed trend analyses on 62 stream sites (DEQ, 1990, Appendix I). To be selected for analysis, a stream site had to have a minimum of 5 years of data with continuity.

Statistically significant phosphorus and chlorophyll-a trends were found at some sites, but no statewide conclusion can be made due to the limited number of sites and the varied results. Figure D-3 is an example, the Deschutes River, where chlorophyll-a levels have increased significantly over the last ten years.

## Longitudinal Data

DEQ has longitudinal data available for the Willamette River and some of the water quality limited rivers for which the Department has conducted water quality studies. Longitudinal data is data for a number of sites along the river by river mile.

Figure D-4 shows the total phosphorus concentration by river mile for the Willamette River as a "box plot." Each box represents the data collected at a particular site and the width of the box represents the number of samples collected at that site. The dotted line is the median data point, half of the data points fell above and half below this value. The height of the box represents the range of the middle 50 percent of the samples, and the lines extending from the boxes represent the range of all the data points.

As can be seen in Figure D-4, the total phosphorus concentration in the Willamette River increases downstream and exceeds the 0.10 mg/l criteria frequently below approximately river mile 50. Additional plots are shown in Figures D-5 to D-7.

## Lake Data

Table 2-3, shown in section 2 of the report, lists the Oregon lakes identified in DEQ's 1990 Water Quality Assessment as having algae, weed or related problems and septic drainage as a suspected source.

Diagnostic studies have been completed on 5 Oregon lakes as part of EPA's clean lakes program: Garrison Lake (SRI, 1990), Blue Lake (Beak Consultants, 1983), Devils Lake (KCM, 1983), Klamath Lake (Klamath Consulting Service, 1983) and Lake Oswego (SRI, 1986). The studies show that all the lakes have algal growth problems and phosphorus concentrations exceeding the criteria level for lakes (0.025 mg/l). Nitrogen-fixing blue-green algae species were abundant or dominant in the lakes at least part of the year. Lake restoration plans for all these lakes recommended phosphorus reduction as the means by which to control the algal growth and eutrophic conditions.

Clear Lake, near the Oregon Coast, is not a eutrophic lake, but was studied in order to assess the potential impacts of future development on the lake. As a result, a TMDL was recently established for the amount of phosphorus entering Clear Lake.

The Department has also established a phosphorus TMDL for Garrison Lake, located on the Oregon coast. Garrison Lake is a heavily enriched lake with excessive phytoplankton populations (SRI, 1990). Municipal wastewater effluent and septic system drainage will be controlled in order to reduce the phosphorus loading to the lake.

Figure D-8 is a graph from the study by SRI (1990) showing how phosphorus, depth and residence time are related to trophic status for a number of Pacific Northwest lakes. Lakes above the permissible and excessive lines on the graph tend to be highly enriched and have algal and plant growth problems (eutrophic).

In 1974-75, the U.S. Environmental Protection Agency surveyed 8 Oregon lakes and reservoirs: Brownlee Reservoir, Diamond Lake, Hells Canyon Reservoir, Hills Creek Reservoir, Lake Owyhee, Oxbow Reservoir, Suttle Lake and Waldo Lake. (EPA, 1978). Nitrogen was found most often to be the limiting nutrient based on lake data collected during the spring, summer and fall. Four of the lakes were phosphorus limited during one season. Algal assays were performed for three lakes. The assays indicated that nitrogen was the limiting nutrient in two lakes and phosphorus in the third.

References:

Beak Consultants Inc., 1983. Blue Lake Clean Lakes Program Phase I Diagnostic/Feasibility Study. Portland, Oregon.

Department of Environmental Quality (DEQ), 1988. 1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution. Portland, Oregon.

DEQ, 1990. Draft Water Quality Status Assessment Report (305b Report). Portland, Oregon.

Klamath Consulting Service, Inc., 1983. The Upper Klamath Lake EPA 314 Clean Lakes Program 1981-1983.

Kramer, Chin and Mayo, Inc. (KCM), 1983. Devils Lake Diagnostic and Feasibility Study. Portland, Oregon.

Scientific Resources, Inc. (SRI), 1986. Oswego Lake Improvement Project: Preliminary Analysis. Portland, Oregon.

SRI, 1990. Garrison Lake and Watershed Assessment 1988-1989, Volume I: Diagnostic and Restoration Analysis. Lake Oswego, Oregon.

U.S. Environmental Protection Agency (EPA), 1978. National Eutrophication Survey, Working Papers 287-834. Washington D.C.

Table D-1. Oregon TMDL Parameters and Status, 1990

RIVER/LAKE	INTENSIVE WQ STUDY	TMDL STATUS	PARAMETERS OF CONCERN	TMDL PARAMETERS	SOURCES
Tualatin	Yes	Final	DO, pH, algae	Phosphate Ammonia Nitrogen	STPs nonpoint
Yamhill	Yes	Final	pH, algae fecal bacteria turbidity	Phosphate	STPs nonpoint
Bear Creek	Yes	Final	DO, pH, algae fecal bacteria ammonia toxicity	Ammonia Nitrogen BOD Phosphate	STP log ponds nonpoint
Umatilla	Yes	Preliminary	pH, algae fecal bacteria	Phosphate	STPs nonpoint
Pudding	In Progress	Preliminary	DO fecal bacteria	BOD	STP, Agripac, nonpoint
S. Umpqua	No	Preliminary	DO, algae fecal bacteria	Phosphate Ammonia Nitrogen	STP nonpoint
Grande Ronde	No	Preliminary	algae fecal bacteria	Phosphate	STPs, nonpoint, log ponds
Klamath	In Progress	Preliminary	DO pH, algae	BOD Ammonia Nitrogen	STP, Weyerhauser, Klamath Lake, nonpoint
Columbia Slough	In Progress	Preliminary	pH, algae, bacteria, toxins	Bacteria Ortho-Phosphorus Toxins [a]	nonpoint, landfill, CSOs, point sources
Coquille	In Progress	Preliminary	DO fecal bacteria algae	BOD	STPs log ponds nonpoint
Coast Fork Willamette	Yes	Preliminary	DO, pH, algae, bacteria	BOD Phosphorus	STPs, nonpoint misc. point sources

(continued next page)



Table D-1. Oregon TMDL Parameters and Status, 1990

RIVER/LAKE	INTENSIVE WQ STUDY	TMDL STATUS	PARAMETERS OF CONCERN	TMDL PARAMETERS	SOURCES
Rickreall Cr.	In Progress	Preliminary	DO	BOD	STPs
Columbia River	No	Preliminary	TCDD	TCDD	pulp & paper mills, STPs, nonpoint
Clear Lake	Yes	Final	algae	Phosphorus	septic systems
Garrison Lake	Yes	Final	pH, algae macrophytes	Phosphate	STP nonpoint

[a] Preliminary TMDLs are proposed for toxins: PCBs, lead, zinc, mercury, arsenic, dioxin, copper, cadmium and chromium.

# NPS Assessment - Excessive Nutrients

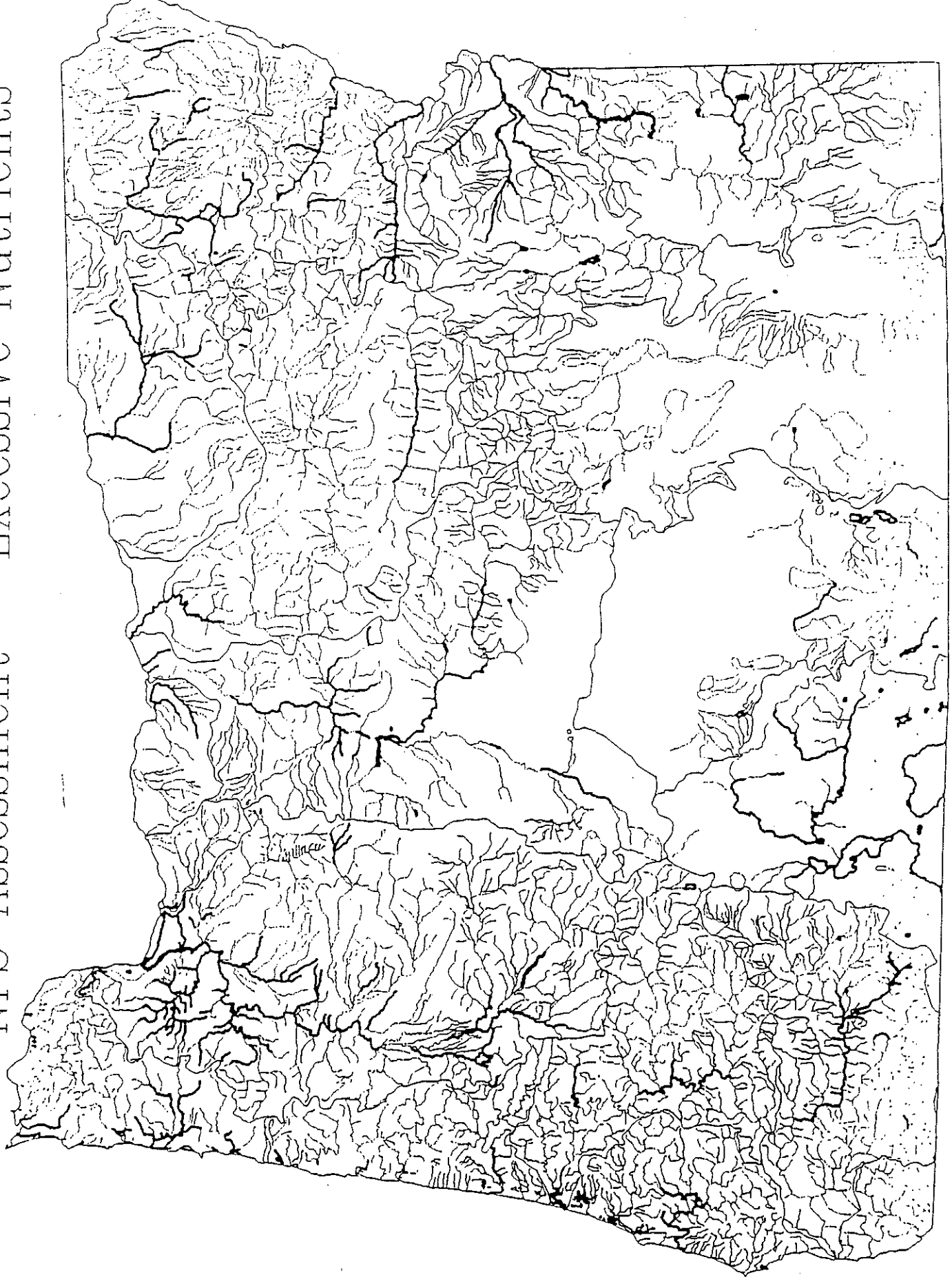
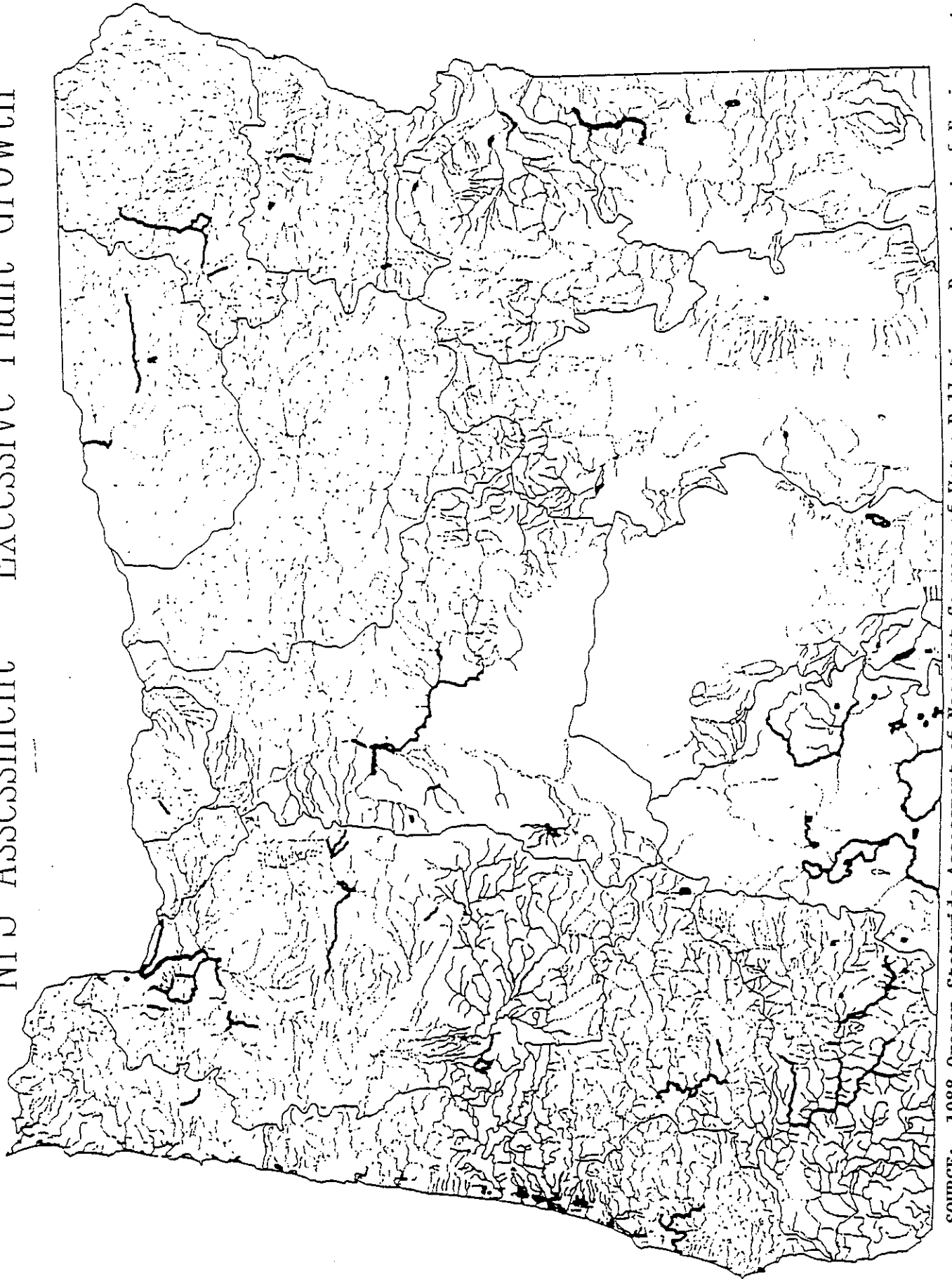


FIGURE D-1

SOURCE: 1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution - Department of Environmental Quality - August 1988

FIGURE D-2

# NPS Assessment - Excessive Plant Growth



SOURCE: 1988 Oregon Statewide Assessment of Nonpoint Sources of Water Pollution - Department of Environmental Quality - August 1988

FIGURE D-3

DESCHUTES RIVER AT MOUTH (R.M. 0.3)

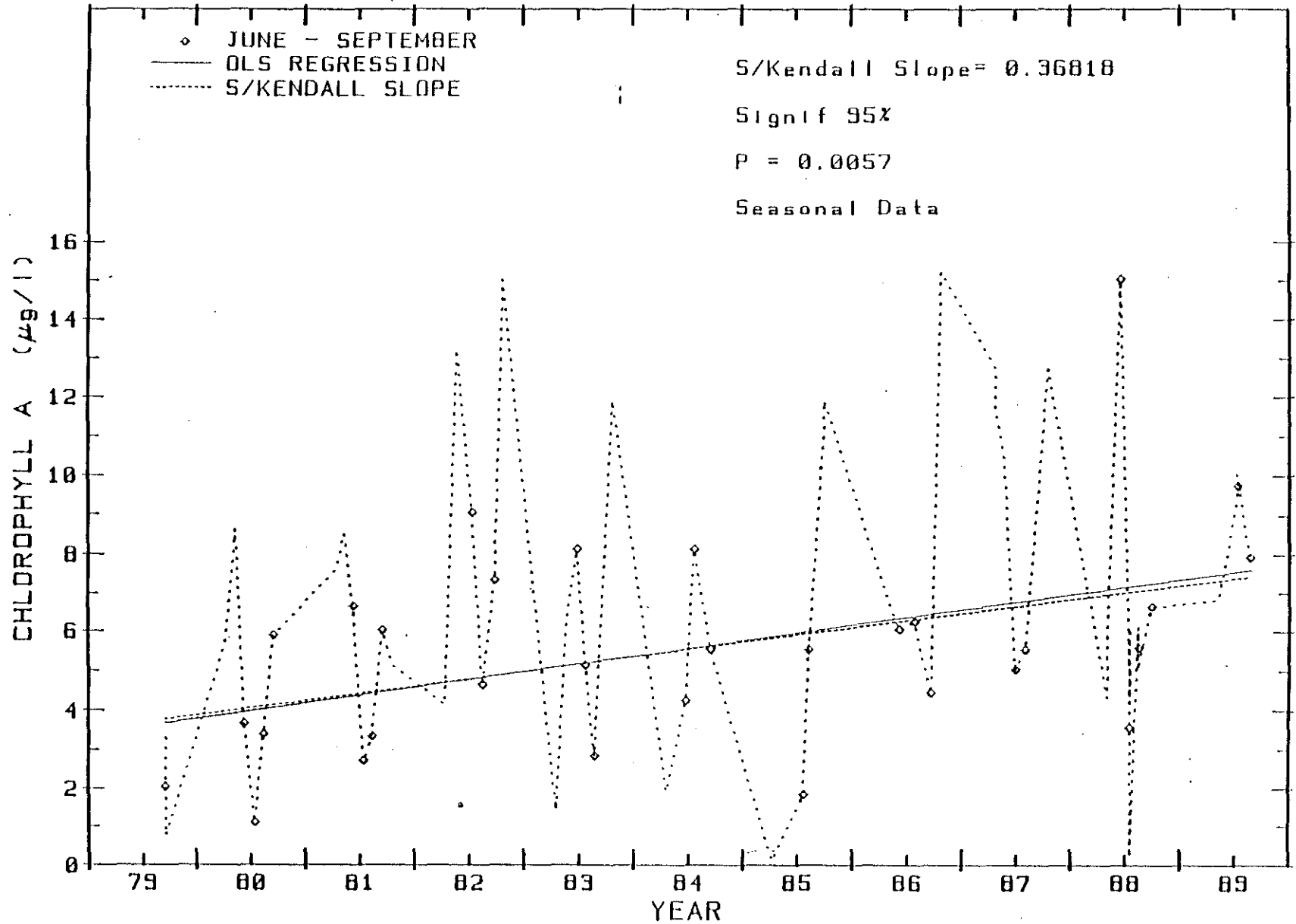
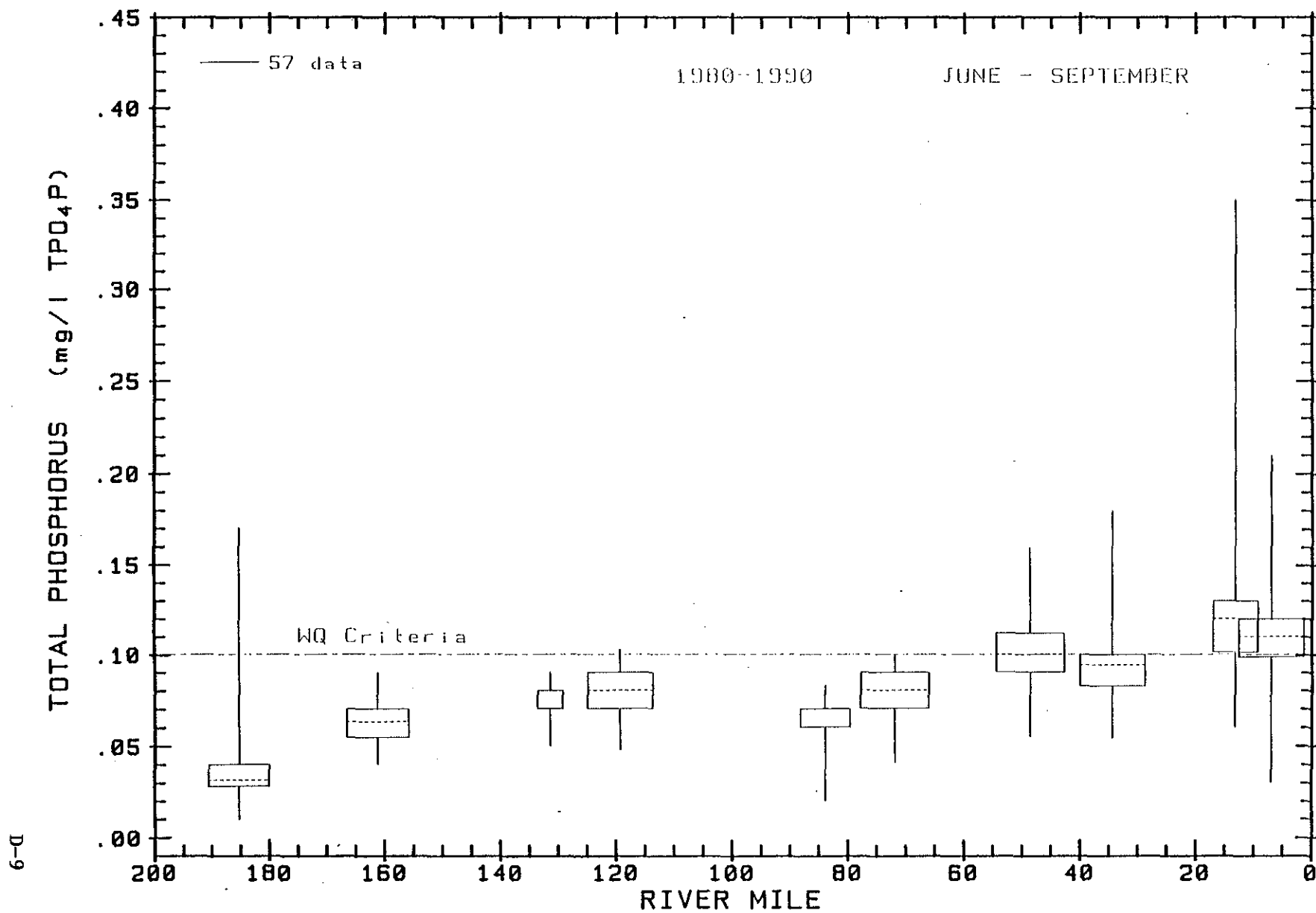


FIGURE D-4

# WILLAMETTE RIVER LONGITUDINAL TOTAL PHOSPHORUS



6-D

FIGURE D-5

# SOUTH UMPQUA LONGITUDINAL TOTAL PHOSPHORUS

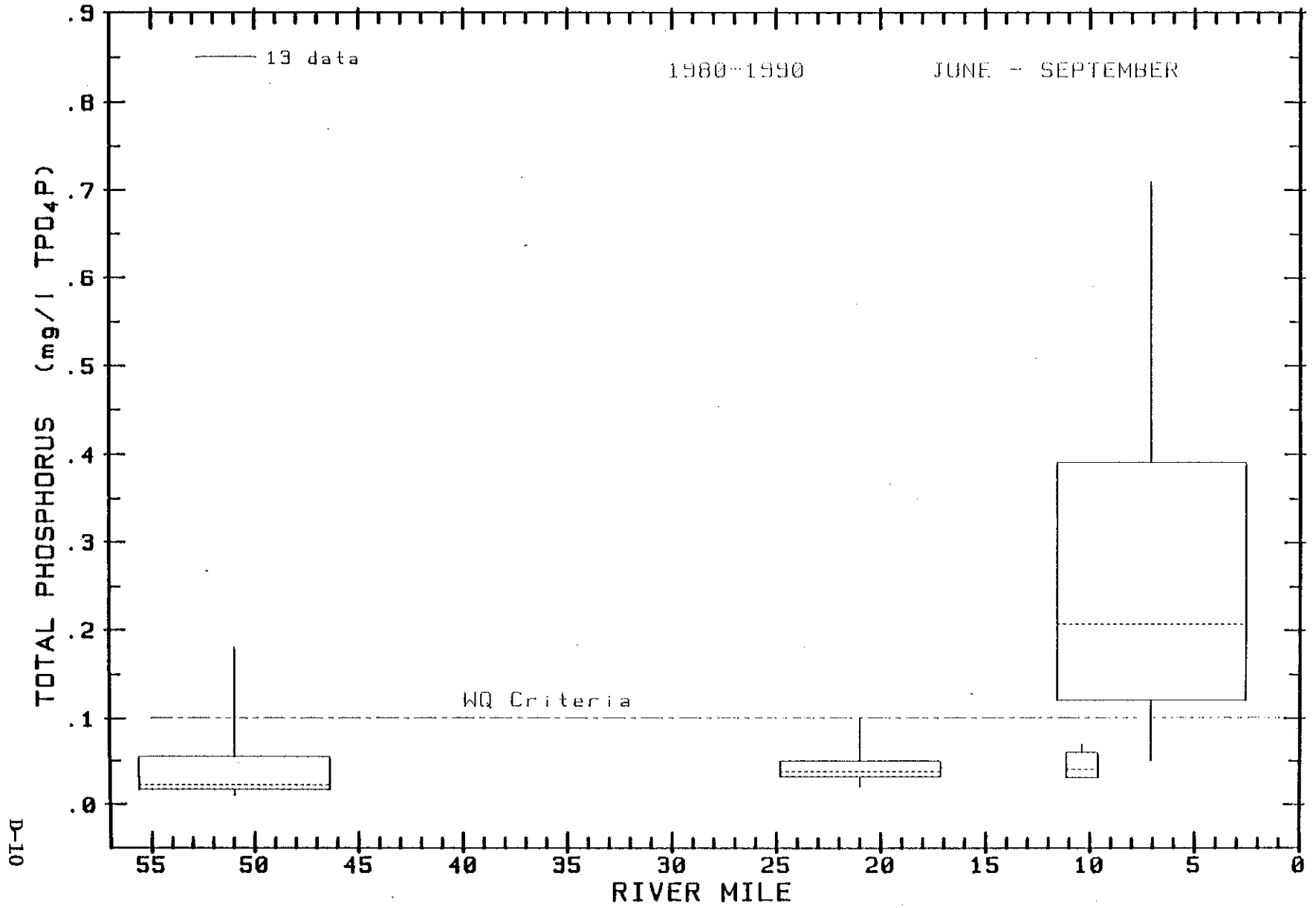


FIGURE D-6

# BEAR CREEK LONGITUDINAL TOTAL PHOSPHORUS

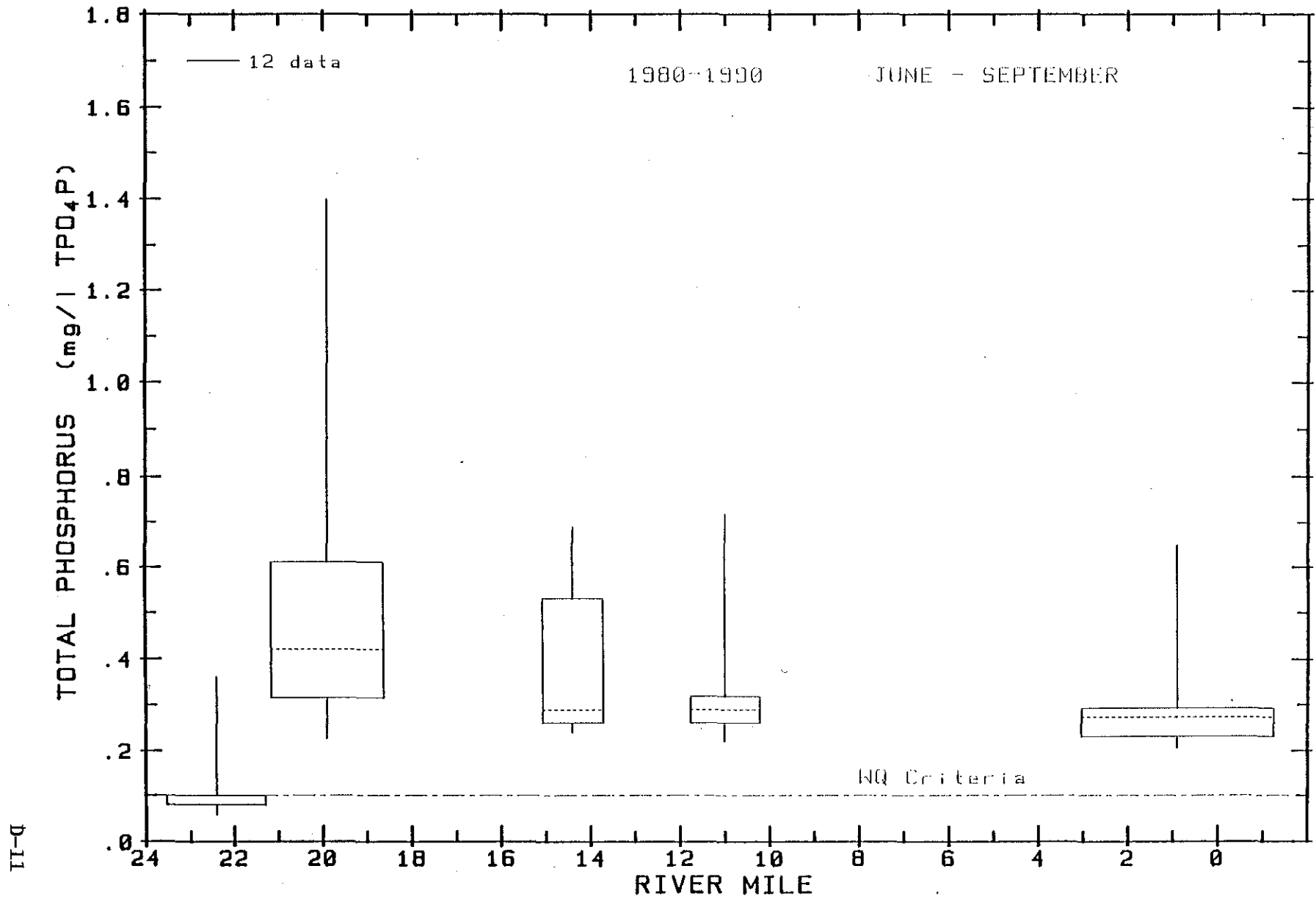
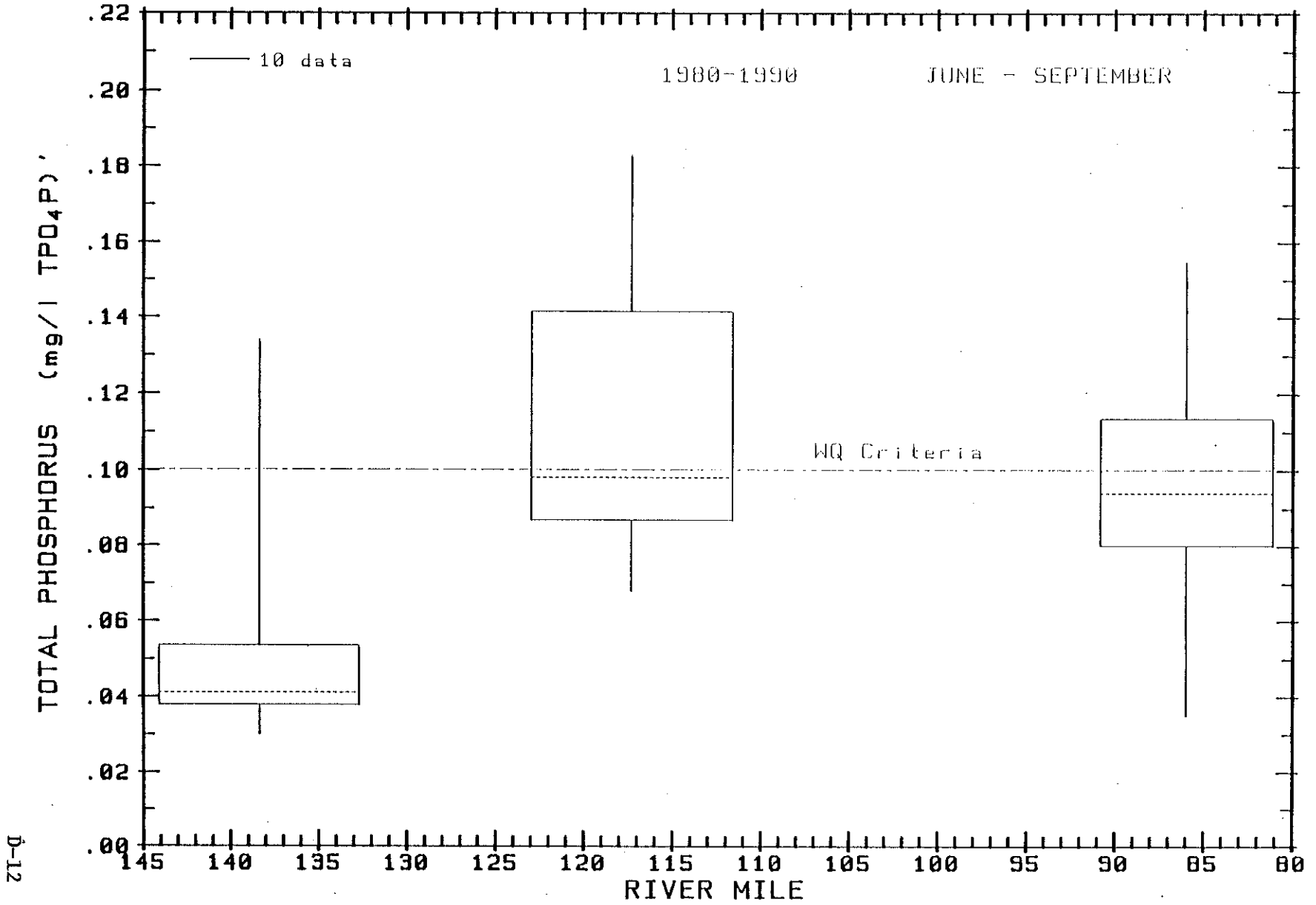


FIGURE D-7

# ROGUE RIVER LONGITUDINAL TOTAL PHOSPHORUS

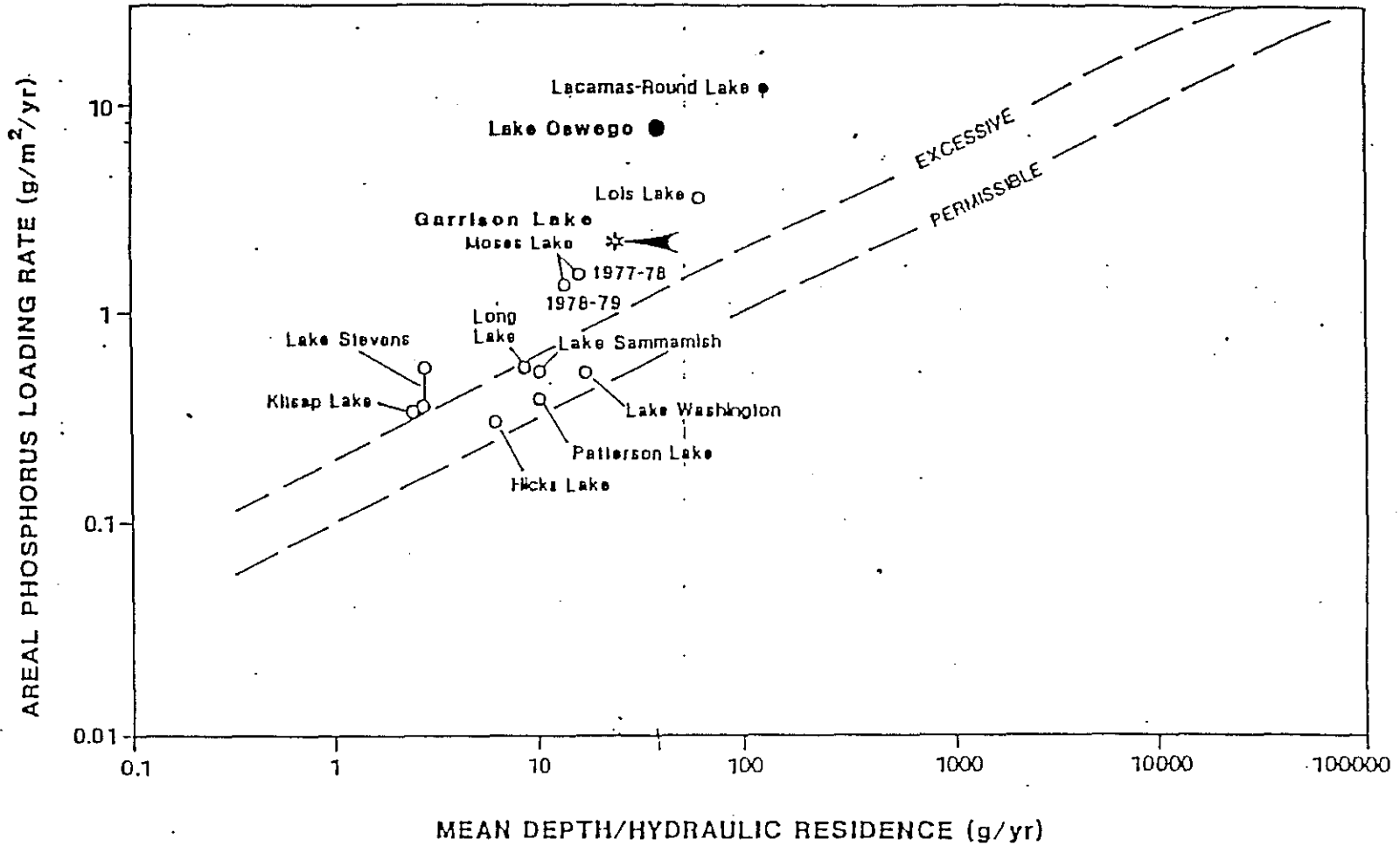


D-12



FIGURE D-8

Vollenweider graph (1976) showing the relative position of Garrison Lake in relation to other Northwestern lakes with respect to annual total phosphorus loading.



SOURCE: Garrison Lake and Watershed Assessment 1988-89.

Scientific Resources, Inc., Portland, Oregon, 1990.

## APPENDIX E

### NUTRIENT TREATMENT AND CONTROL PRACTICES

#### Phosphorus Control Alternatives for Wastewater Treatment Plants

There are currently two general methods of process control employed for the removal of phosphorus at wastewater treatment plants. These are chemical/physical and biological nutrient removal. The following are the common chemical removal systems:

- a. Precipitation with aluminum salts - precipitation of phosphorus compounds can be accomplished through the addition of aluminum salts such as aluminum sulfate. The resulting aluminum phosphate compound is allowed to thicken and settle in tanks for later processing. Aluminum salts are the most commonly used and are the most effective at removing phosphorus to very low levels.
- b. Precipitation with iron salts - phosphorus can be removed through precipitation with iron salts such as ferric chloride. The reaction results in a sludge which is thickened in tanks for later processing.
- c. Precipitation with lime - calcium carbonate (lime) can be used to remove phosphorus through a two stage addition to the waste stream. This addition raises the pH of the wastewater and forms a precipitate which will settle in tanks. The waste stream will then typically need to have the pH adjusted to a more neutral level. The sludge that is generated is typically different than the sludges generated through alum or ferric chloride addition and may require a different type of processing.

Biological nutrient removal systems are also used to remove phosphorus from the waste stream. These are typically not as efficient as chemical removal systems in removing phosphorus to very low levels. This process involves the selection of microorganisms capable of accumulating excess quantities of phosphorus during cellular metabolism. This selection process requires special tanks where varying environmental conditions can be maintained. These environmental conditions are required to stimulate the phosphorus uptake and microorganism selection.

In addition to removal during the wastewater treatment plant processes, phosphorus can be removed through post treatment use. The following methods may be employed:

- a. Wetlands polishing - Wastewater treatment plant effluent may be polished, and phosphorus removed, through circulation across constructed or natural wetlands. The capacity to remove phosphorus is dependent on the size of the wetland,

various plant species in the wetland, and the detention time of the wastewater in the wetland. Wetlands have a finite capacity to remove inputs and can reach a saturation level at which the wetland will have a reduced ability to assimilate pollutants. The large amount of land required for wetlands and the difficulty in insuring high levels of phosphorus removal will prevent the use of wetlands in many instances.

- b. Wastewater effluent reuse for irrigation - The use of treated municipal wastewater for irrigation is both practical and safe. Wastewater effluent phosphorus levels should not present a problem in overloading the soil when the effluent is used for irrigation. Phosphates added to the soil may be taken up by the crop, accumulated by the solid phase of the soil in sorption or precipitation reactions, or lost from the system in percolation and runoff waters or by erosion. Reactions with the soil, and crop removal, account for the largest fraction of the phosphorus removed.

#### Management Practices to Control Nonpoint Sources of Phosphorus

In addition to point source contributions, such as wastewater treatment plants, of phosphorus to waterbodies, there are less easily quantifiable and controllable nonpoint sources. Phosphorus contribution percentages from point to nonpoint sources vary depending on land use but both can have detrimental water quality effects. Nonpoint sources include runoff from agricultural and forest lands, stormwater runoff, and erosion. The following are management practices used to control nonpoint sources of phosphorus.

- a. Agriculture - Control of pollution from fertilizers and concentrated animal feeding operations reduces nonpoint sources. Management of discharges from feedlots, liquid wastes, runoff, and land application of wastes reduces contributions of phosphorus to water bodies. Also helpful in managing agricultural nonpoint sources are farm specific nutrient management plans and the establishment of forested buffer strips along stream channels adjoining croplands.
- b. Forestry - Best management practices on forest lands include erosion control involving road construction, unstable slopes, and streamside areas. Good management during fertilization programs on forest lands must also be practiced.
- c. Stormwater - Best management practices for stormwater runoff, and sediment deposition, include capturing the runoff in retention basins or detention facilities. Discharge from these detention facilities must then meet specific criteria.
- d. Rangeland - Best management practices for rangeland have the dual objectives of maintaining and improving desirable vegetation for grazing and providing adequate cover to

prevent soil erosion. Practices include timing of animal grazing, streambank protection and grass seeding.

References:

Hetling, L.J. and I.G. Carcich, 1973. Phosphorus in waste water. Water and Sewage Works, Vol. 120, No. 2, pp. 59-62.

Porcella, D.B., P.A. Cowan and E.J. Middlebrooks, 1973. Detergent and nondetergent phosphorous in sewage. Public Works, Vol. 104, No. 9, pp. 126-128.

## APPENDIX F

### NUTRIENT CONTROL PROGRAMS AND POLICIES

This appendix provides examples of nutrient control programs and policies outside of Oregon. This is not an exhaustive summary of all programs. Programs and policies being implemented in Oregon are not included.

#### Comprehensive Programs

##### Regional Programs

The United States and Canada agreed in 1978 to establish phosphorus target loads for each of the Great Lakes. First, the emphasis was placed on a 1 mg/L total phosphorus discharge limit for point sources and phosphorus reductions in laundry detergents, but it later became apparent non-point source control measures were also needed. Non-point management techniques emphasized include accelerated adoption of conservation tillage, better management of livestock waste, and better management of nutrients used for crop production (Great Lakes Water Quality Board Report to the Intentional Commission - 1981).

The Chesapeake Bay states and the District of Columbia agreed in 1987 to achieve by 2000 at least a 40 percent reduction in both nitrogen and phosphorus entering the Bay. (Chesapeake Bay Agreement - December 14, 1987). Each jurisdiction is responsible for reducing its own nitrogen and phosphorus inputs by 40% each. Each state has determined its own "mix" of point and non-point controls to achieve the required reductions.

##### State Programs

North Carolina - The Nutrient Sensitive Waterway (NSW) designation has been established for waterways subject to excessive growths of vegetation which substantially impair the use of the water (NCAC 2B.0214). The NSW designation requires the development and implementation of a nutrient management strategy. The process involves identification of nutrient sources, establishment of nutrient reduction goals, and development and implementation of a nutrient reduction strategy.

Innovative approaches are being utilized in these strategies. For example, the Tar-Pamlico River Basin NSW experimental implementation strategy will provide the option of allowing operators of expanding wastewater treatment plants to meet nutrient load reduction goals by funding the implementation of Best Management Practices (BMPs) for agricultural non-point source (NPS) runoff (EPA Non-point Source News - Notes, 1990).

Idaho - Legislation adopted in 1989 requires the Department of Health and Welfare to develop a comprehensive nutrient management plan on a hydrologic basin unit basis (Nutrient Management Act - Chapter 308). Each plan will identify nutrient sources, the dynamics of nutrient removal, nutrient use and dispersal, and preventative or remedial actions to protect surface water. The plan will guide the state agencies in developing programs for nutrient management. Local management plans must be consistent with the state plan.

Florida - Under the Surface Water Improvement and Management Act, enacted in 1987, each water management district prioritizes water bodies based on criteria that consider violations of water quality standards, amounts of nutrients entering the water body, trophic state, etc. Surface water improvement and management plans are then developed. The plans include a list of all point and non-point source owners, recommendations and schedules for bringing all sources into compliance with state standards, a description of strategies for restoring and then maintaining the quality of the water body and funding estimates. All plans are reviewed by the Departments of Game and Fresh Water Fish, Agriculture, Consumer Services, Community Affairs and Natural Resources.

### Nonpoint Source Programs

#### Federal

The Water Quality Act of 1987 authorized the expenditure of up to \$400 million in federal funds to assist the states in designing and implementing programs to reduce non-point source pollution.

The Conservation Title of the 1985 Food Security Act established the Conservation Reserve Program, which retires highly erodible land from production for ten years in return for rental payments to farmers to compensate for lost income. The Act also requires farmers producing on highly erodible land to develop and implement conservation programs to reduce soil erosion or else lose farm program benefits.

#### State Programs

Kansas - Legislation adopted in 1989 authorized a dedicated source of funding for the State Water Plan. Implementation Guidelines and Procedures for the NPS Pollution Control Fund were issued in January, 1990 and set forth local non-point source pollution management plan requirements. Plans are to be prepared on a watershed or drainage area basis. All sources of non-point source pollution must be considered, and anyone affected should participate in the development of the plans. Work plans are to be prepared for waters needing protection or restoration. Work plans can include planning, designing, monitoring, evaluation, assessment, demonstration projects, and

educational programs as well as implementation activities involving construction of NPS pollution control practices. Technical and financial assistance is available.

## State Programs Directed at Specific Nonpoint Sources

### Agricultural Sources

Arizona - Best management practices are required to reduce pollution from nitrogen fertilizers and concentrated animal feeding operations (Regulated Agricultural Activities Program - 1986). BMPs have been established for managing discharges from feed lots, liquid wastes, the management of runoff, and land disposal of wastes. Failure to comply could subject individuals to enforcement actions and extensive permitting procedures. Technical assistance and training is available.

Maryland - the Maryland Agricultural Water Quality Management Program, published in 1987 as the state's revised 208 plan, included outreach and technical assistance to farmers, information and education, cost-share funding for BMPs, research, and enforcement. Farm-specific management plans are developed to address all nutrient input to farmland, including fertilizers, animal wastes, sewage sludge, etc. Programs will encourage the widespread use of farm specific nutrient management plans and the establishment of forested buffer strips along stream channels adjoining cropland.

Pennsylvania - The non-point source control program consists of financial, technical, educational and planning assistance (Chesapeake Bay Non-point Source Programs - January, 1988). Program eligibility is established by conducting a watershed assessment to identify non-point nutrient sources and prioritize areas for financial assistance. Fifteen BMPs had been approved by January 1988 to reduce nutrient loadings, including BMPs for animal waste management, soil and manure analysis, fertilizer management, soil erosion, etc. Manure management practices are regulated and enforced. (Clean Streams Law - 25 PA Code, Chapters 101 and 102).

Virginia - The Chesapeake Bay Preservation Act (Sec. 10-313 et seq, Code of Virginia) requires farmers within designated preservation areas to develop soil and water quality conservation plans on their farms by 1995. The plans will address proper nutrient management and integrated pest management as well as traditional soil erosion concerns. Buffer strips are required along permanent watercourses. Soil and Water Conservation personnel will assist land owners in meeting the requirements.

### Forestry

Washington - The Forest Practices Act (1974) provides both voluntary and regulatory tools to protect water quality. BMPs

address road construction, maintenance and abandonment, unstable slopes, streamside areas, etc.

#### Urban Growth

District of Columbia - In January 1988, the District adopted regulations requiring BMPs for all new development and redevelopment (Chesapeake Bay Program - District of Columbia Nutrient Reduction Strategy - July 1988.)

Virginia - The Chesapeake Bay Preservation Act ( Sec.,10-313 et seq. Code of Virginia) called for a determination of the ecological and geographic extent of Chesapeake Bay Preservation Areas and called for criteria to be established for use by local governments in granting, denying or modifying requests to rezone, subdivide or to use and develop land in these areas. Funding was provided to encourage landowners to convert lands having high pollution potential.

#### Stormwater

Florida - Under the Florida Stormwater Rule, stormwater runoff is now being captured in retention basins or detention facilities in urban areas across the state. To release stormwater to a surface water body, developers must apply for a state discharge permit, assuring the state that the discharge will not cause a violation of water quality standards.

Maryland - State Stormwater Management regulations were implemented in 1983, and counties and municipalities were required to enact ordinances to require that post-development runoff rates and volumes meet specific criteria. The program has been expanded to cover existing development and maintenance of stormwater management BMPs.

Virginia - Legislation was enacted that established permit requirements for stormwater discharges from certain systems, based on population served (Public Law. 100-1, Section 405).

#### Stormwater/Sediment

Delaware - The Stormwater and Sediment Control law enacted in June 1990 provides for stormwater and sediment control. The stormwater component provides for the management of water quantity and water quality. The program will be integrated with sediment control and will include regulatory and fee structure elements. Designated watersheds or subwatersheds may be established to promote a watershed plan and provide for implementation of practices to reduce existing flooding problems or improve existing water quality. The development or stormwater utilities by local governments, Conservation Districts or the state is authorized. Utility charges are to be reasonable and equitable so that each contributor of runoff to the system,



including state agencies, shall pay to the extent to which runoff is contributed.

#### Rangeland

Washington - BMPs for rangeland focus on the dual objectives of maintaining and improving desirable vegetation for grazing and providing adequate cover to prevent soil erosion (Washington Nonpoint Source Assessment and Management Program - October 1989). Practices include timing of animal grazing to allow vegetation to become well established, streambank protection, seeding, etc.

#### Point Source Programs

Pennsylvania - A 2.0 mg/L total phosphorus effluent limit was established in 1970 for all new and modified point sources discharging to the Susquehanna River and its tributaries (Chesapeake Bay Program - Pennsylvania Nutrient Reduction Strategy - July 1988).

Maryland - The state's projected approach to achieve a 40% reduction in point source nutrients is to require biological nutrient removal at all sewage treatment plants larger than 0.5 million gallons per day, which should achieve 2 mg/L phosphorus and 8 mg/L nitrogen effluent levels (Chesapeake Bay Program - Maryland Nutrient Reduction Strategy - July 1988).

Virginia - In 1987, funding was provided for three nutrient removal demonstration projects at wastewater treatment plants. A Point Source Policy for Nutrient Enriched Waters was approved, which established a 2 mg/L phosphorus effluent limit for existing dischargers authorized to discharge 1 million gallons per day or more and new dischargers greater than 0.05 million gallons per day. Nitrogen removal will be required at all of Virginia's major municipal treatment plants below the fall line. Both phosphorus and nitrogen removal projects will be given priority for funds available from the State Revolving Loan Fund (Chesapeake Bay Program - Virginia Nutrient Management Strategy - July 1988).

## APPENDIX G

### A SUMMARY OF PHOSPHATE DETERGENT LAWS

Table G-1 provides a summary of phosphate detergent laws in the United States. To date, 12 states and 5 regions have banned or restricted the use of phosphates in detergents. Most of the bans include similar provisions as discussed in section 5 of this report.

Table G-1: Phosphate Detergent Laws in the United States

Jurisdiction: State/Locality	Date Effective	Definition	Exemptions	Fine
Metropolitan Service District, Portland, OR	1991 Sunset 1994	No person may sell or distribute for sale within the MSD any cleaning agents containing more than 0.5 percent phosphorus, by weight, except agents used in automatic dishwashing machines.  Dishwashing products are limited to 8.7 percent phosphorus.	<ul style="list-style-type: none"> <li>• Dairy, beverage, food processing products.</li> <li>• Detergents used in hospitals, vet hospitals, health care facilities, or used in commercial laundries serving hospitals and health care facilities.</li> <li>• Agricultural and electronic production.</li> <li>• Detergents for metal cleaning and conditioning.</li> <li>• Cleaning hard surfaces — windows, sinks, counters, and food preparation areas.</li> <li>• Water softeners used in heating and cooling boilers.</li> </ul>	May levy fine of up to \$500 a day for violation of this ordinance.
Connecticut	1972	No person, firm, or corporation shall sell, offer, or expose for sale, give or furnish and synthetic detergent or detergent in any form that contains more than 7 grams of phosphorus per recommended dose.	<ul style="list-style-type: none"> <li>• Detergent used for medical, scientific, or special engineering purposes and for use in machine dishwashers.</li> <li>• Detergents for dairy equipment, beverage equipment, food processing equipment.</li> <li>• Industrial cleaning equipment.</li> </ul>	Information not available.
Georgia	1989	Mandate the use of low phosphate detergents. Allows 0.5 percent phosphorus (incidental to manufacturing) or more.	Same as Maryland, except industrial and institutional detergent provisions.	Any violations of ordinance shall result in fine not to exceed \$500. Each sale shall be a separate offense.
Indiana	1972	It is unlawful to use, sell, or otherwise dispose of any hard or non-degradable detergent containing alkyl benzene sulfonate in any manner or any location in this state or into the boundary waters of this state from a source within the state.	<ul style="list-style-type: none"> <li>• Detergents for cleaning in places of food processing, and dairy equipment.</li> <li>• Sanitizers, brighteners, acid cleaners, and metal conditioners.</li> <li>• Detergents for use in dishwashing equipment — household or commercial.</li> </ul>	Not Available.
Maryland	1985	Prohibit the sale, use distribution, manufacturing of cleaning products that contain phosphates of 0.5 percent (incidental to manufacturing) or more.  Dishwashing products may contain 8.7 percent phosphorus or less.	<ul style="list-style-type: none"> <li>• Detergents used in dairy, food, beverage processing equipment.</li> <li>• Metal sanitizers, brighteners, acid cleaners, or metal conditioners.</li> <li>• Detergents used in hospitals, vet hospitals, health care facilities, clinics, agricultural products.</li> <li>• Industrial detergents for metal conditioning or cleaning.</li> <li>• Detergent stored, manufactured, or distributed for use outside the state.</li> </ul>	<ul style="list-style-type: none"> <li>• User-fine not to exceed \$100.</li> <li>• Seller/Manufacturer not to exceed \$1,000.</li> </ul>

Table G-1: Phosphate Detergent Laws in the United States (Continued)

Jurisdiction: State/Locality	Date Effective	Definition	Exemptions	Fine
Maryland (Continued)			<ul style="list-style-type: none"> <li>• Detergent used in biological, chemical, engineering labs.</li> <li>• Commercial laundries serving hospitals, health care facilities.</li> </ul>	
Michigan	1977	A person shall not sell or distribute a household laundry detergent which contains phosphorus in any form in excess of 0.5 percent by weight.	Same as Pennsylvania, except industrial and institutional provisions.	None.
Minnesota	1977	<p>No person shall sell, offer expose for sale, or use in Minnesota a cleaning agent or chemical water conditioner that contains 0.5 percent or more phosphate (incidental to manufacturing).</p> <p>Machine dishwashing detergents not to exceed 11.0 percent. Chemical water conditioners not to exceed 20.0 percent phosphorus.</p>		None.
Missoula, Montana	1989	<p>Prohibits sale of certain products containing phosphorus within city limits (or 3 miles of city) of 0.5 percent (incidental to manufacturing or more).</p> <p>Dishwashing products — 8.7 percent or less. Metal conditioning — 20.0 percent or less.</p>	<ul style="list-style-type: none"> <li>• Detergents used in food or beverage processing.</li> <li>• Detergents used in medical or surgical cleaning or dairy equipment.</li> <li>• Existing stocks may be sold for 6 months after ordinance is passed.</li> </ul>	Upon discovery of sale or district, offender shall be notified of noncompliance. If situation still persists after 10 days, a fine will be levied of \$50 to \$500.
North Carolina	1988	Prohibit the sale, use, distribution, or manufacturing of cleaning products that contain phosphate of 0.5 percent (incidental to manufacturing or more).	Same as Georgia and Pennsylvania. Detergents used for cleaning hard surfaces, sinks, windows, counters, and food preparation surfaces.	<ul style="list-style-type: none"> <li>• User-Fine not to exceed \$10.</li> <li>• Seller/Manufacture not to exceed \$50.</li> </ul>
New York	1973	<p>Prohibition and restriction of the distribution, sale, offering or exposing for sale cleaning products containing phosphate of 0.5 percent (incidental to manufacturing) or more.</p> <p>All products may contain 0.1 percent or less. Dishwashing products — 8.7 percent or less.</p>	<ul style="list-style-type: none"> <li>• Detergents used in food and beverage.</li> <li>• Detergents used in dairy equipment.</li> </ul>	None.
Ohio Counties (applies to approximately 50 percent of the counties in the State)	1990	No person shall sell, offer for sale, or distribution for sale in listed counties any household laundry detergent containing phosphorus in any form in excess of 0.5 percent.	<ul style="list-style-type: none"> <li>• A cleanser, rinsing aid, or sanitizer agent intended primarily for use in automatic machine dishwashers.</li> <li>• A metal brightener, rust inhibitor, etchant, surface conditioner.</li> </ul>	Not Available.

Table G-1: Phosphate Detergent Laws in the United States (Continued)

Jurisdiction: State/Locality	Date Effective	Definition	Exemptions	Fine
Ohio Counties (Continued)			<ul style="list-style-type: none"> <li>• A disinfectant or detergent used in hospitals or clinics or commercial laundries that serve them.</li> <li>• Detergents used in food processing.</li> </ul>	
Pennsylvania	Partial 1990 Statewide 1991 Sunset 1992	Prohibit the sale, use, or distribution of cleaning products that contain phosphates of 0.5 percent (incidental to manufacturing) or more.	Same as Maryland. Water softeners, antiscaling agents, and corrosion inhibitors.	<ul style="list-style-type: none"> <li>• User-Fine not to exceed \$100.</li> <li>• Seller/Manufacturer not</li> </ul>
Vermont	1978	Applies to commercial establishments, household cleansing products that contain phosphates of 0.5 percent (incidental manufacturing).  8.7 percent phosphorus limit in automatic dishwashing detergent.	<ul style="list-style-type: none"> <li>• Food, drug, and cosmetics, including personal care items, such as toothpaste, shampoo and handsoap.</li> <li>• Products labeled, advertised, marketed, and distributed for use primarily as economic poisons as defined in Section 911(5) of Title 6.</li> </ul>	None.
Virginia	1988	Prohibits the use, sale, manufacture, or distribution of any cleaning agent that contains phosphorus; allows up to 0.5 percent incidental to manufacturing.	<ul style="list-style-type: none"> <li>• Dishwashing detergent.</li> <li>• Cleansers used in dairy beverage or food processing.</li> </ul>	Not Available.
Washington, DC	1986	Ban the use, sale or furnishing of detergents that contain more than a trace amount of phosphorus.  8.7 percent phosphorus limit for machine dishwashing detergent.	<ul style="list-style-type: none"> <li>• Surface cleaning — counters, sinks, and windows.</li> <li>• Detergents for use in hospitals, vet hospitals, and health care facilities.</li> <li>• Detergents for metal cleaning and conditioning.</li> <li>• Lab use — biological, chemical, engineering.</li> </ul>	Fines for sale or furnishing: \$500, 1st offense; \$1,000, 2nd offense.
Spokane, WA	1990	No person may sell, offer, or expose for sale or distribute any laundry cleaning product that exceeds 0.5 percent (incidental to manufacturing) or more.	Allow for depletion of existing stocks.	None.
Wisconsin	1983	Restrict sale of cleaning agents containing phosphorus of 0.5 percent (incidental to manufacturing) or more.  Agents for machine dishwashing or cleansing of medical equipment restricted to 8.7 percent phosphorus. Water conditioners restricted to 20 percent phosphorus.	Detergents used in industrial processes and dairy equipment.	Any violation of this ordinance shall result in a fine not to exceed \$100.

## APPENDIX H

### ECONOMIC AND SOCIAL IMPACTS OF A PHOSPHATE DETERGENT BAN

This appendix provides additional information on the potential economic and social impacts of implementing a ban on detergent phosphates.

#### Economic Impacts on Wastewater Treatment Plants

The economic benefit to a wastewater treatment plant (WWTP) resulting from a phosphorus detergent ban will vary with the method of phosphorus removal used at the plant. Plants that use iron or aluminum salts to remove phosphorus will experience the greatest reduction in operating costs when influent phosphorus is reduced. These are the most common methods of removal used today.

Wastewater treatment plants that remove phosphorus through only biological means, with the addition of lime, or through land disposal of the effluent, do not have costs proportional to the amount of phosphorus in their influent. Therefore, there will be essentially no economic benefit from reduced influent phosphorus at these plants.

Permit requirements also affect the amount of economic benefit resulting from a phosphate detergent ban. For example, there is uncertainty about the degree to which chemical dose is dependent on the amount of phosphorus to be removed when plants must meet very low effluent levels (i.e. <0.5 mg/l).

#### **Operational Expenses**

Operational expenses are driven by the cost of chemicals, how the chemicals are added to the wastestream, and how the chemicals and precipitated phosphorus are removed from the wastestream prior to discharge. Cost savings result from reductions in the quantity of chemicals purchased, the quantity of chemical/phosphorus solids to be removed, and quantity of sludge requiring treatment and disposal. Chemical addition during treatment increases the amount of sludge and can change its chemical character, making it more difficult to dispose. Phosphorus removal generates an estimated additional 25 to 40 percent more sludge than typically produced through secondary wastewater treatment.

Some examples of operational cost savings following the implementation of bans include the following. Four WWTPs in Maryland reported 30 to 57 percent reductions in average monthly chemical dose requirements. Calculated estimates of Maryland's chemical cost savings statewide are \$4.5 million annually. Similarly, Michigan reported chemical use reductions at 9 WWTPs ranging from 12 to 49 percent with an average reduction of 29 percent. Washington D.C. reported an actual chemical use

reduction of 40 percent and an estimated annual cost savings of \$6.5 million from chemical use and sludge processing reductions. The Washington D.C. plant processes 306 million gallons of wastewater per day. Observed cost savings at Wisconsin plants were equivalent to \$0.05 to 0.26 per capita per year. North Carolina also projected operations cost savings.

Cost savings from reduced influent phosphorus can also be realized at biological treatment systems, although they may be less direct. Biological systems usually have chemical systems as backup. By reducing phosphorus loads, it is possible that reliance on the chemical backup systems could be reduced or eliminated. There are no biological treatment systems operating in Oregon.

### **Construction Expenses**

The phosphorus removal system at a wastewater treatment plants is designed based on a number of factors, including: the volume of water to be treated, the quantity of phosphorus to be removed, and the discharge limits. To date, designs have been based primarily on the volume of water to be treated. A phosphate detergent ban will reduce the quantity of phosphorus that must be treated, but will not affect the other factors.

It is possible that a phosphate detergent ban may reduce the concentration of phosphorus in the wastewater enough to delay or prevent the need for phosphorus removal. Because of the expense of capital improvements, such a delay could result in cost savings.

### Other Potential Impacts

Potential additional economic impacts from reduced influent phosphorus include:

- Reducing the volume of sludge to be landfilled, thus increasing existing landfill life and allocating that volume of landfill space for other beneficial purposes.
- Increasing sludge disposal options due to the removal or reduction of potential contaminants (i.e. the metals used in chemical removal) from the sludge.
- Decreasing the long-term environmental costs associated with chemical production and sludge disposal, such as fuel for sludge transport, and air contaminants from sludge generation, treatment and disposal.

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#2

Oregon

DEPARTMENT OF  
ENVIRONMENTAL  
QUALITY

ENVIRONMENTAL QUALITY COMMISSION

WATER QUALITY PROGRAM  
DISCUSSION OUTLINE  
JANUARY 31, 1991

1. Develop standards and policies to protect the beneficial uses of water.
2. Assess the condition of the water to determine if it meets standards.
3. Develop and implement strategies to protect the water from point and nonpoint sources of pollution.
4. Provide compliance and enforcement of implementation programs.
5. Program areas where efforts need improvement:
  - A. Timely Completion of TMDL's
  - B. Municipal and Industrial Permit Backlogs
  - C. On-Site Septic System Approval Turn Around Time.
  - D. Coordination on Municipal Finance and Permit Activities
  - E. Unfunded Activities



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**DEPARTMENT OF ENVIRONMENTAL QUALITY**

**WATER QUALITY PROGRAM**

**1/91**

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Oregon's Water Quality Program goal is to achieve and maintain water quality to meet beneficial uses of water. Those beneficial uses include propagation of fisheries, aquatic life, and wildlife; public and private domestic water supplies; agricultural, municipal and industrial uses; hydro power; commercial navigation; recreation in and on the water; and aesthetic quality.

The Water Quality Program can be divided into four basic functions. These functions are carried out by the Water Quality Division, the Laboratory Division and the Regional operations Division.

1. Assessing the quality of the water.
2. Developing standards and programs to enhance or protect the water.
3. Implementing programs and processes.
4. Providing compliance and enforcement of implementation programs.

#### Assessing the quality of the water:

The Standards and Assessment section of the Water Quality Division and the Water Quality Monitoring Section of the Laboratory are responsible for assessing the status of water quality on lakes, rivers, estuaries and aquifers; identifying water quality problems and control needs; studying problems to determine causes, contributing factors, alternatives for control; developing control strategies; updating water quality standards and the Statewide Water Quality management Plan; and providing guidance, review and approval of water quality related planning and plan implementation efforts of other agencies completing special assessments on water quality limited (WQL) waterbodies, developing total maximum daily loads (TMDLS), waste load allocations (WLA's) and load allocations (LA') on specific water quality limited waterbodies. Accomplishing these tasks is dependent on a sound, readily accessible database, an effective public involvement program and information distribution provided from reports prepared by the Sections.

The data to support these activities is gathered through routine sampling of a network of fixed stations, conducting selected special and/or biological surveys, and conducting bioassays and mixing zone studies. These activities have been ongoing for some time and provide long term water quality trends; ability to determine the status of compliance with state water quality standards and beneficial uses and the identification of baseline water quality and general problem areas. The data is also used to allow us to evaluate source impact on receiving streams and toxicity.

#### Program Development

The Surface Water Section is responsible for implementing new non-point source memorandums of understanding with other state and federal agencies; providing federal grants for on the ground

nonpoint source projects; provides review of nonpoint source plans submitted as part of the implementation efforts relating to TMDL's and load allocations on water quality limited streams; provides planning for prevention of oil spills on the Columbia and Willamette and the Oregon coast, provides staffing and coordination to the Bi-State Lower Columbia Water Quality Advisory Group, ocean resources, near coastal estuary and clean lakes programs as resources allow.

The Groundwater Section is responsible for developing groundwater protection program functions within the Department. Groundwater protection presently consists of developing guidance and providing training to staff for implementation and enforcement of groundwater protection rules, coordination with various state and federal agencies; review of wastewater discharge permits which contain discharges which could affect groundwater; developing a wellhead protection program; working with the public to address nonpoint source contamination in groundwater management areas; data collection and computer mapping of vulnerable groundwater aquifers or potential contaminated sources.

#### Program Implementation

Program implementation occurs in the Industrial Waste and On-Site Section, the Municipal Wastewater Section, the Municipal Finance Section, Municipal Project Teams Section, the Groundwater Section and in the Regional Operations Division. Each of these sections also has corresponding effort provided in the Laboratory Division.

The Industrial Waste and On-site Section is responsible for implementing a combination of tools to accomplish program goals.

The Industrial Waste component includes technical assistance in treatment design review and tax credits for industrial pollution control facilities. Point source regulation is provided through permit issuance, permit compliance inspections and monitoring; complaint investigation, spill investigation, and enforcement activities. Implementation of new standards or monitoring requirements is provided through incorporation into permits of such new requirements.

The On-site program requires installers of on site septic tanks and similar systems who install, repair or modify systems to be licensed. The Department provides program oversight and audit of Counties which perform on site installation site approval and inspections. The Department provides direct service on-site installation applications in 13 counties in Oregon.

The Municipal Wastewater Section is responsible for controlling installation of conventional sewage disposal systems, and regulating the collection, treatment and disposal of municipal wastewater. Municipal wastewater is regulated by either the NPDES permit programs which provide discharge to surface waters and the WPCF provide discharge through land disposal. Compliance

monitoring and inspection and enforcement actions are carried out by the Regional component. Plans and specifications for STP construction are reviewed and surveys of sewage sources are conducted. Operators of sewage treatment plants are required to pass an examination and are certified by this section. This section is responsible for oversight of municipal pretreatment programs (where the municipality accepts wastewater from industry) and for sludge management programs. TMDL limits determined by the Standards and Assessment Section are incorporated into permits in this section.

Wastewater Finance provides financial assistance through grants or low interest loans to local governments to aid in the planning, development and construction of sewage treatment facilities. Priorities for funding follow the Department's Water Quality Management Plan which identifies areas of most environmental concern where waterbodies are not in compliance with standards or where the particular entity is out of compliance with permit conditions. The section reviews facility plans, design documents and grant and loan applications; performs field inspections and provides administrative closeout of grant projects.

The Municipal Projects Team Section is being formed to provide a project team approach to financing, plan review and permitting for communities which receive construction grants or state revolving fund financing from the Department. This organizational unit will prevent time lags and delays between permitting and construction of facilities which has been a result of coordination problems in the past. The emphasis will be on small communities or communities with major problems in getting their projects up and moving.

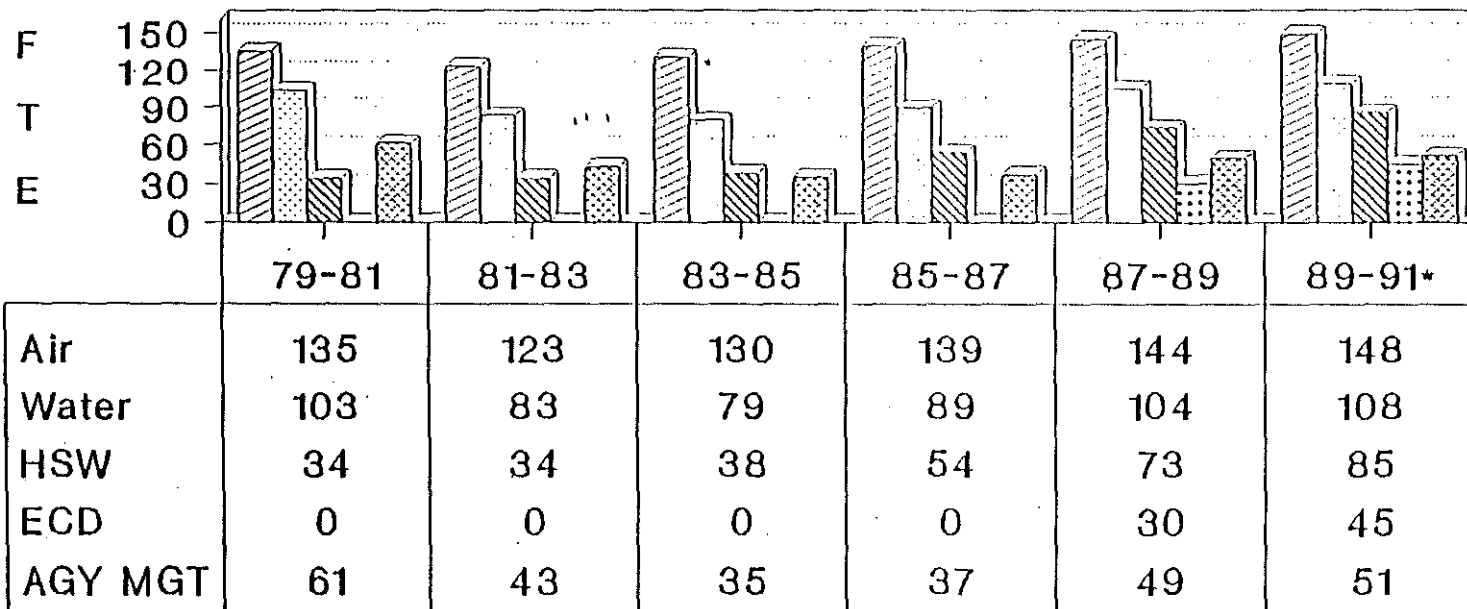
The Groundwater Section provides direction for groundwater quality investigation, protection and remediation. The section is responsible for review of municipal and industrial wastewater permits which contain wastewater storage or land application processes which could affect groundwater.

#### Compliance/Enforcement Function

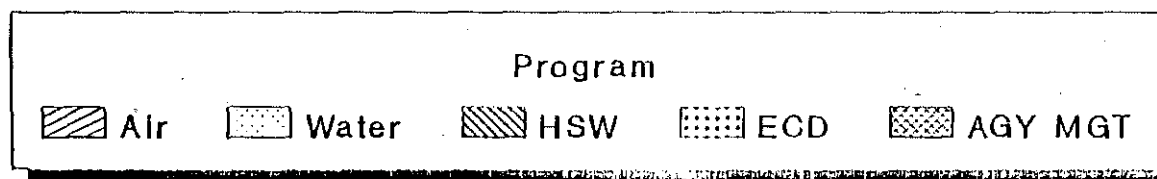
The Water Quality permitting activity constitutes the major implementing element in the Water Quality Program. There are 1,300 NPDES and WPCF water quality permits enforced. Enforcement consists of field inspection of the facility, quality assurance and sample analysis of effluent compliance points by the laboratory, and enforcement actions where appropriate. Discharge monitoring reports, sewer system evaluation surveys, sludge management and pretreatment programs and other indications of source performance and compliance are evaluated.

# DEQ OPERATING BUDGET

## FTE by Program



Biennium



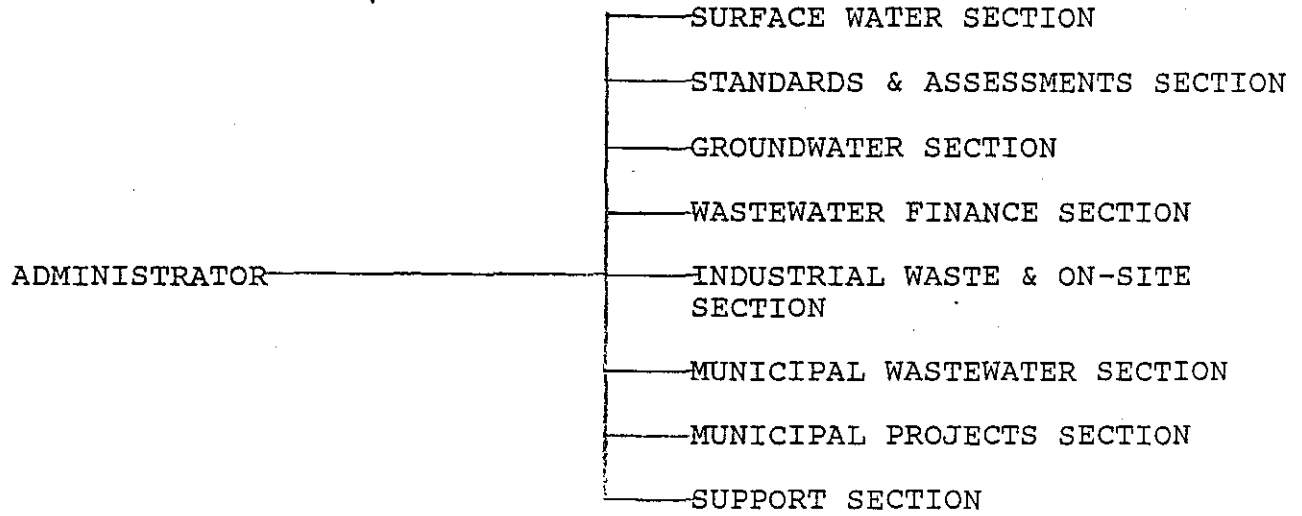
•LEGISLATIVELY APPROVED BUDGET

1989-1991

	<u>Hdq.</u>	<u>Reg.</u>	<u>Lab</u>	<u>Total</u>
Administration	7.1	3.0	2.2	12.3
Standards and Assessments	8.1	-	9.1	17.2
Surface Water	8.5	-	1.5	10.2
Groundwater	8.0	-	4.0	12.0
Industrial/On-Site	9.2	17.8	3.5	30.5
Municipal WW	14.6	6.8	2.0	23.4
Municipal Finance	<u>13.0</u>	<u>-</u>	<u>-</u>	<u>13.0</u>
	68.5	27.6	22.3	118.4
Limited Duration	<u>6.7</u>	<u>-</u>	<u>1.6</u>	
Permanent Positions	59.7	27.6	20.7	108.1



WATER QUALITY- DIVISION



## DIVISION OVERVIEW

### WATER QUALITY DIVISION

Division Administrator: Lydia Taylor (5324)  
Administrator

#### Mission of the Division:

Protects the recognized beneficial uses of Oregon's water resources by maintaining and enhancing the quality of its surface and ground waters. In accomplishing this mission, staff will use available resources efficiently and effectively; deal with the public and colleagues in a sensitive, honest, considerate, professional, and responsive manner; approach problems with practicality and creativity; and develop and maintain technical expertise and skills as necessary to do the best job possible.

#### Major Program Elements and Responsibilities:

##### I. WASTEWATER FINANCE SECTION: Martin Loring (5415)

Manages wastewater works finance program, helping cities finance new sewage treatment plants; develops and implements the state revolving loan fund program; assists communities to qualify for grants; assists potential grantees with planning and application; establishes statewide sewerage facilities funding priorities.

##### II. GROUNDWATER SECTION: Amy Patton (5878)

Assesses quality and trends in quality of groundwater; prevents and corrects groundwater pollution problems; develops control strategies to deal with pollution problems from farming, construction and forestry activities; develops control strategies to deal with urban runoff.

##### III. INDUSTRIAL & ON-SITE WASTE PROGRAM: C. Kent Ashbaker (5325)

Controls the discharge and disposal of wastewater from industrial, commercial and agricultural sources; issues permits for surface and groundwater discharge so as to eliminate or minimize contamination problems; reviews applications for tax credits; reviews plans for wastewater treatment plants and disposal systems; regulates the underground injection of non-hazardous pollutants; issues permits to regulate the construction of individual, on-site sewage disposal systems.

IV. MUNICIPAL WASTE SECTION: Barbara Burton (6099)

Controls sewage wastes generated by municipal sewage treatment plants by; issues permits regulating the discharge and disposal of treated sewage; reviews plans for new and modified sewage treatment plants; certifies sewage treatment plant operators; approves sludge management plans.

V. STANDARDS AND ASSESSMENTS SECTION: Neil Mullane (5284)

Manages the water quality program plan; establishes total maximum daily loads (TMDLs) and waste load allocations to be achieved for those streams and water bodies that do not currently meet water quality standards; develops control strategies to deal with pollutants affecting oceans, lakes, estuaries and streams.

VI. SURFACE WATER PROGRAM DEVELOPMENT SECTION: Andrew Schaedel  
(6121)

Develops and coordinates an integrated, interagency oil spill response plan for the Oregon coast, Columbia and Lower Willamette Rivers; develops an overall nonpoint program and coordinates interagency efforts (including administering a grant program) to determine water quality and to minimize affects of landuse practices and runoff from urban, agricultural and forested lands on surface waters and their beneficial uses; coordinates activities and designs/implements studies on the Columbia River, lakes, and coastal areas (estuaries/ocean) and their watersheds to determine water quality, sources of pollution and to develop and implement control strategies.

VII. MUNICIPAL PROJECTS SECTION: Dick Nichols (5323)

This section is made up of two teams. Each team processes all aspects of construction grants/state revolving fund loans financing and waste discharge permit issuance programs as they relate to specific municipal sewerage facility projects.

## DIVISION OVERVIEW

### REGIONAL OPERATIONS DIVISION

Division Administrator: Thomas Bispham (5287)

#### Mission of the Division:

Assists the Agency by conducting a comprehensive statewide field-oriented effort:

- a) Ensures compliance with the State's environmental regulations through a program of permits, technical assistance, periodic compliance inspections, development and oversight of compliance strategies, and progressive enforcement against violators;
- b) Receives and investigates complaints from the public;
- c) Responds to and follows up on environmental emergencies resulting from spills and accidents;

within the framework of citizen involvement, interagency coordination, and the Department's Strategic Plan.

#### Major Program Elements and Responsibilities:

- ♦ Maintains regional offices in Portland, Salem, Bend, Pendleton, and Medford, and branch offices in Coos Bay, Roseburg, and Astoria.
- ♦ Inspects industrial, municipal and commercial pollutant discharge sources.
- ♦ Drafts air, water, and solid waste permits.
- ♦ Provides complaint response.
- ♦ Provides spill response.
- ♦ Enforces documented violations.
- ♦ Provides plan review.
- ♦ Collects fees for on-site sewage disposal systems.

REGIONAL OFFICES

CENTRAL REGION OFFICE - John Hector 2146 NE 4th, Bend OR 97701	388-6146
EASTERN REGION OFFICE - Bruce Hammon 700 SE Emigrant, #330, Pendleton OR 97801	276-4063
NORTHWEST REGION OFFICE - Ed Woods 811 SW 6th Av, 10th Floor, Portland OR 97204	229-5263
ASTORIA BRANCH OFFICE Clatsop Co Courthouse, Box 869, Astoria OR 97103	325-8660
SOUTHWEST REGION OFFICE - Gary Grimes 201 W. Main St, #2-D, Medford, OR 97501	776-6010
COOS BAY BRANCH OFFICE 490 N. 2nd, Coos Bay, OR 97420	269-2721
ROSEBURG BRANCH OFFICE 1937 W. Harvard Blvd, Roseburg, OR 97470	440-3338
WILLAMETTE VALLEY REGION OFFICE - David St. Louis 750 Front St NE, #120, Salem, OR 97310	378-8240

## DIVISION OVERVIEW

### LABORATORY DIVISION

Division Administrator: Alan Hose (5983)

#### Mission of the Division:

Provides technical support, including chemical and biological expertise, to the Department's Air, Water, Hazardous and Solid Waste and Environmental Cleanup Programs:

- a) Monitors, samples, and analyzes air, surface water, groundwater, soil, sediment, tissue, hazardous waste, solid waste pollutant discharges;
- b) Reviews, audits, evaluates, and develops monitoring, sampling, and analytical procedures and plans; and
- c) Assures that useful, high quality, and legally defensible data is produced in a timely manner.

#### Major Program Elements, Section Heads and Responsibilities:

##### I. AIR QUALITY MONITORING - Dennis Duncan (5983)

Collects ambient and source oriented samples of particulates and air contaminants for laboratory analysis; continuously monitors ambient air quality for gaseous air pollutants; collects meteorological data (wind direction, wind speed, temperature); evaluates ambient air monitoring plans submitted to the Department; audits self-monitoring programs required of sources by discharge permits.

##### II. WATER QUALITY MONITORING - Greg Pettit (5983)

Collects samples of ambient water (rivers, streams, lakes, bays, and groundwater) for laboratory; performs analysis of field parameters; performs biological identifications of organisms found and biological assessments of water bodies; performs bioassays on effluents and other wastes to determine toxicity and hazard; maintains water monitoring data base (STORET); collects groundwater and leachate samples from solid waste and hazardous waste sites; performs comprehensive monitoring evaluations on hazardous waste sites; audits contractor's performance; audits and evaluates sampling and analysis plans submitted to the Department; performs microbiological analysis.

III. INORGANIC LABORATORY - Ron McCartney (5983)

Identifies and quantifies heavy metals such as lead, zinc, copper, cadmium, and chromium; determines oxygen and oxygen demand in water and wastewater; determines nutrients, common ions, physical parameters (such as mass, turbidity, color, and particle size, and other inorganic parameters); performs microscopic identification of various materials such as asbestos; audits self-monitoring analytical data.

IV. ORGANIC LABORATORY - Rick Gates (5983)

Quantifies various organic parameters such as petroleum, dioxins and other volatile organics, and priority pollutants such as cyanides, phenols, and formaldehyde; identifies unknown organics; audits self-monitoring analytical data required of sources by permits.

V. QUALITY ASSURANCE - Claude Shinn (5983)

Audits continuous emission monitors (CEMs) at various air emission sources; certifies Drinking Water Laboratories for inorganic parameters; audits in-house continuous air monitors; reviews quality assurance plans submitted to the Department; reviews in-house quality assurance efforts and results, maintain Quality Assurance supplies and follows up on problems with data quality; provides safety oversight, training and hazard communication services to the laboratory.

State surface area (square miles)	97,073
Number of water basins	18
Total number of river miles	90,000
Number of border miles (subset)	649
Number of lakes/reservoirs/ponds	6,095
Acres of lakes/reservoirs/ponds	610,808
Square miles of estuaries/harbors/bays	206
Number of ocean coastal miles	362
Acres of freshwater wetlands	30,000
Acres of tidal wetlands	131,844
Names of border rivers	Columbia and Snake



WH3965

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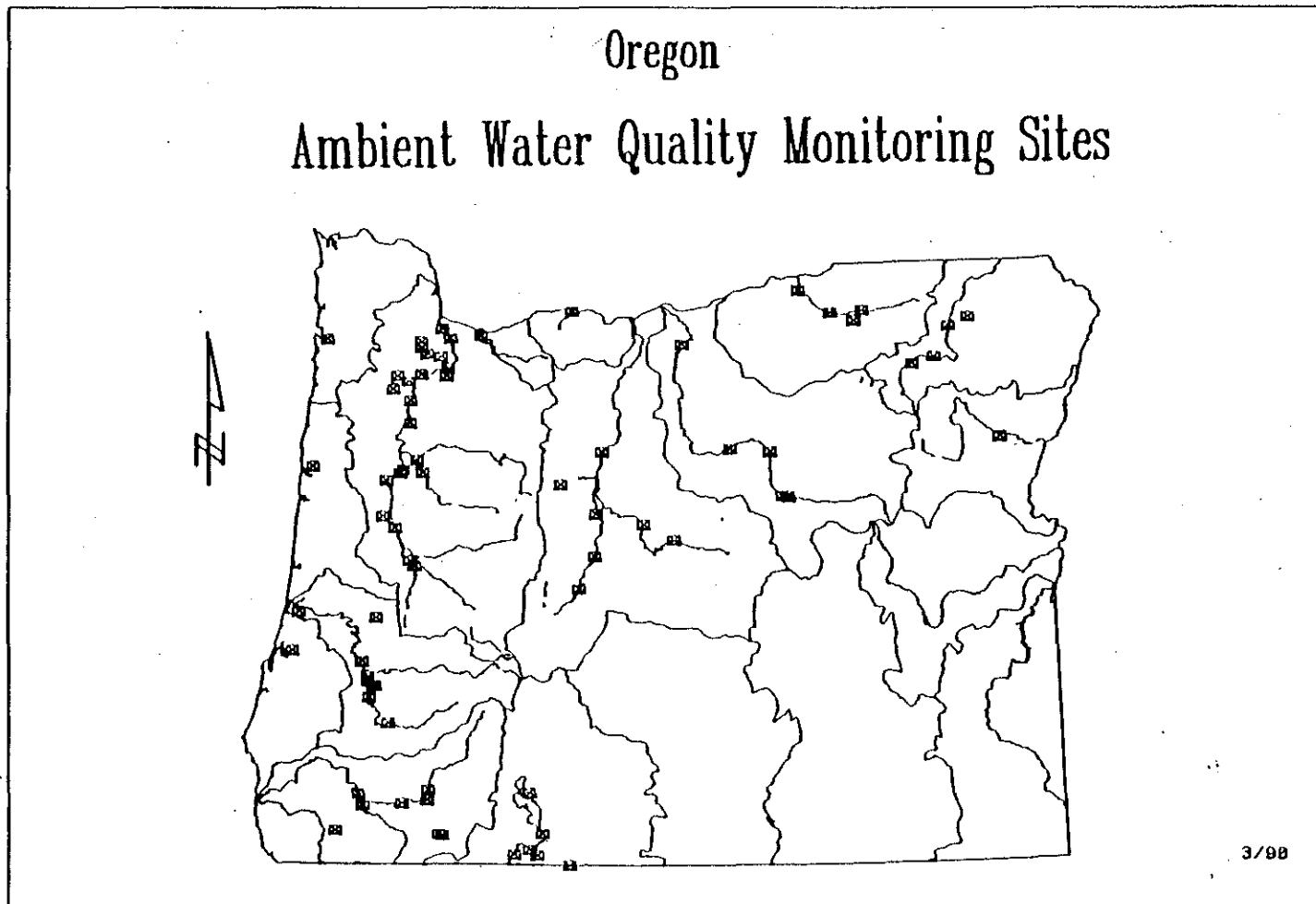


Figure 5-3: Ambient Monitoring Stations

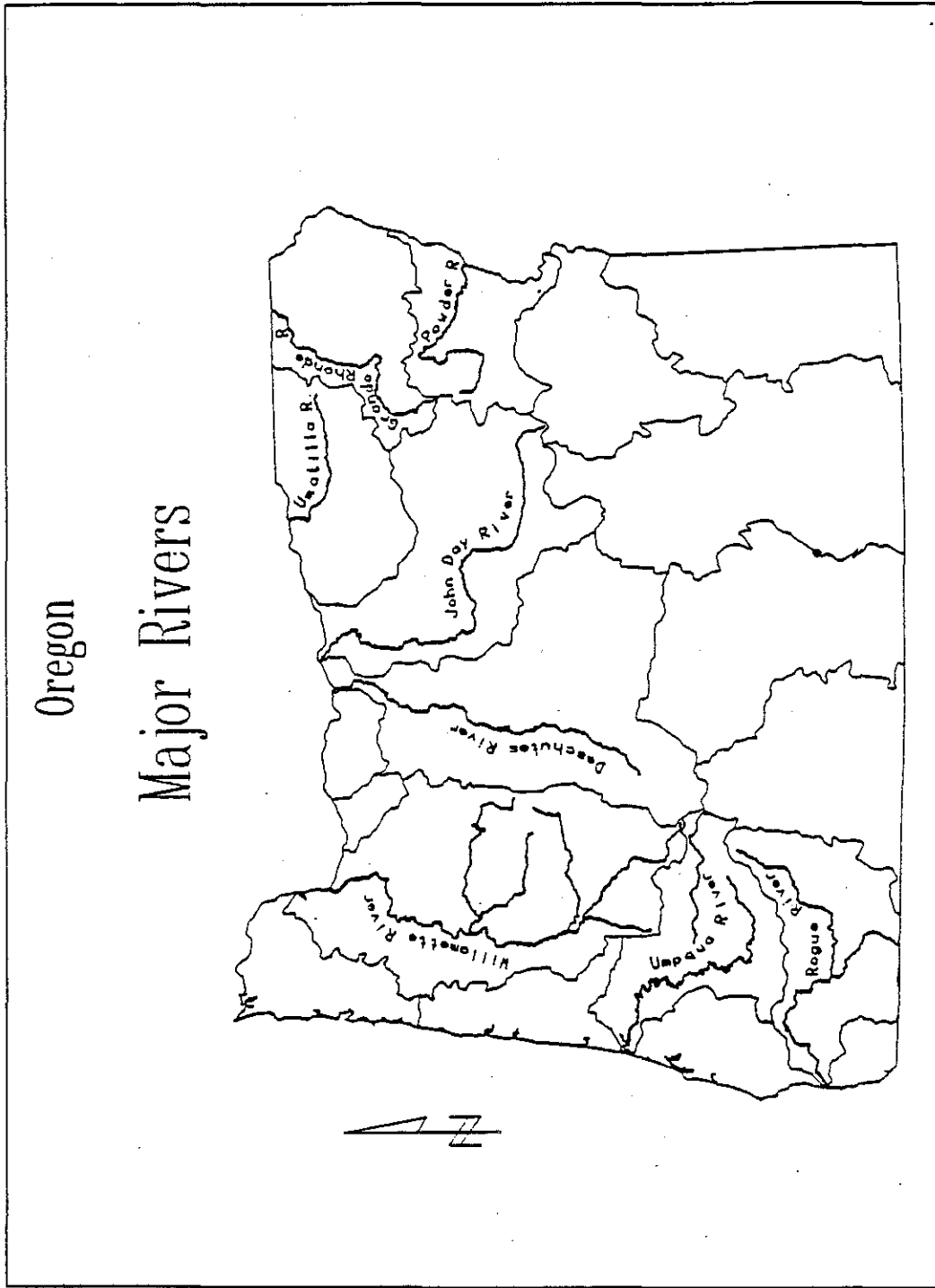


Figure 2-2: Major Rivers

Table 2-1: Beneficial Uses by Type of Waterbody

Beneficial Uses	Rivers	Lakes	Estuaries	Groundwater
Public Domestic Water Supply*	x	x	--	x
Private Domestic Water Supply*	x	x	--	x
Industrial Water Supply	x	x	--	x
Irrigation	x	x	--	x
Livestock Watering	x	x	--	x
Anadromous Fish Passage	x	x	x	--
Salmonid Fish Rearing	x	x	--	--
Salmonid Fish Spawning	x	x	--	--
Resident Fish & Aquatic Life	x	x	x	--
Wildlife & Hunting	x	x	x	--
Fishing	x	x	x	--
Boating	x	x	x	--
Water Contact Recreation	x	x	x	--
Aesthetic Quality	x	x	x	--
Hydro Power	x	x	--	--
Commercial Navigation & Transportation	x	x	x	--
<p>*With adequate pretreatment (filtration and disinfection) and natural quality to meet drinking water standards.</p> <p>LEGEND:</p> <p>x = Beneficial use generally present.</p> <p>-- = Beneficial use generally not present.</p>				

WH3920A (03/23/90)

Table 5-21: Streams and Lakes Identified as Water Quality Limited Due to Point Source Discharges

Waterbody	Status		
	TMDL Completed	In Progress	No Action at Present
Tualatin River	x		
Bear Creek	x		
Yamhill River	x		
Columbia Slough		x	
Pudding River		x	
Coast Fork Willamette River		x	
South Umpqua River			x
Grande Ronde River			x
Klamath River			x
Umatilla River			x
Columbia River		x	
Garrison Lake	x		
Coquille River		x	
Rickreall Creek		x	
Clear Lake		x	

WH3925 (03/26/90)

Table 3-4: Attainment of Clean Water Act Goals — Rivers

Basin	Total Miles Assessed	Fishable Goal		Swimmable Goal	
		Miles	Percent	Miles	Percent
North Coast/L. Columbia	905	905	100	852	94
Mid Coast	931	911	98	931	100
Umpqua	1,873	1,744	93	1,847	99
South Coast	1,368	1,261	92	1,329	97
Rogue	2,026	1,926	95	1,975	97
Willametta	4,019	3,883	97	3,746	93
Sandy	233	233	100	230	99
Hood	285	257	90	278	98
Deschutes	2,538	2,394	94	2,434	96
John Day	2,236	2,157	96	2,199	98
Umatilla/Walla Walla	1,120	1,032	92	1,120	100
Grande Ronde	1,771	1,761	99	1,706	96
Powder/Burnt	1,331	1,267	95	1,205	91
Malheur	1,613	1,541	96	1,534	95
Owyhee	1,659	1,659	100	1,642	99
Malheur Lake	1,902	1,550	81	1,902	100
Goose & Summer Lakes	1,040	983	95	1,040	100
Klamath	889	733	82	803	90
<b>TOTAL</b>	<b>27,739</b>	<b>26,197</b>	<b>94</b>	<b>26,773</b>	<b>97</b>

NOTE: Analysis was based on DEQ's nonpoint source data base. Results should be treated as estimates. The assessment information is based on information provided by resource managers and others. That information has not been verified by DEQ. Information in this data base will receive further evaluation. "Fishable goal" was determined by subtracting mileage of streams with "severe" dissolved oxygen and "temperature" problems (supported by data) from the total assessed. The "swimmable goal" was determined in a similar fashion by subtracting miles of streams with "severe" bacteria/virus or excessive weed growth problems. The nonpoint source assessment should be consulted for more information.

WH3914C (03/23/90)

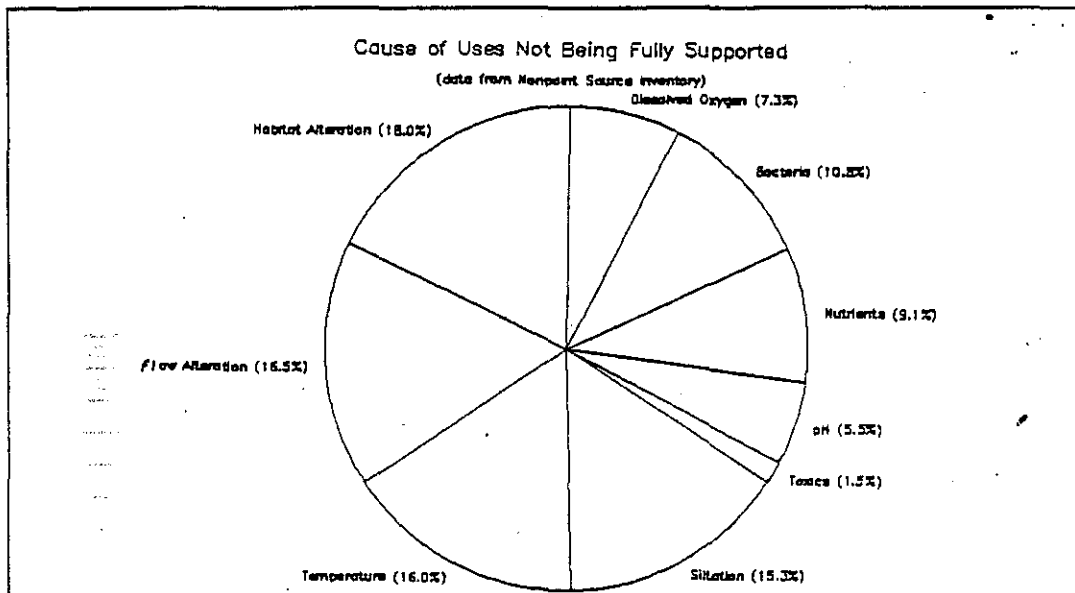


Figure 3-1A: Causes for Non-Support of Uses

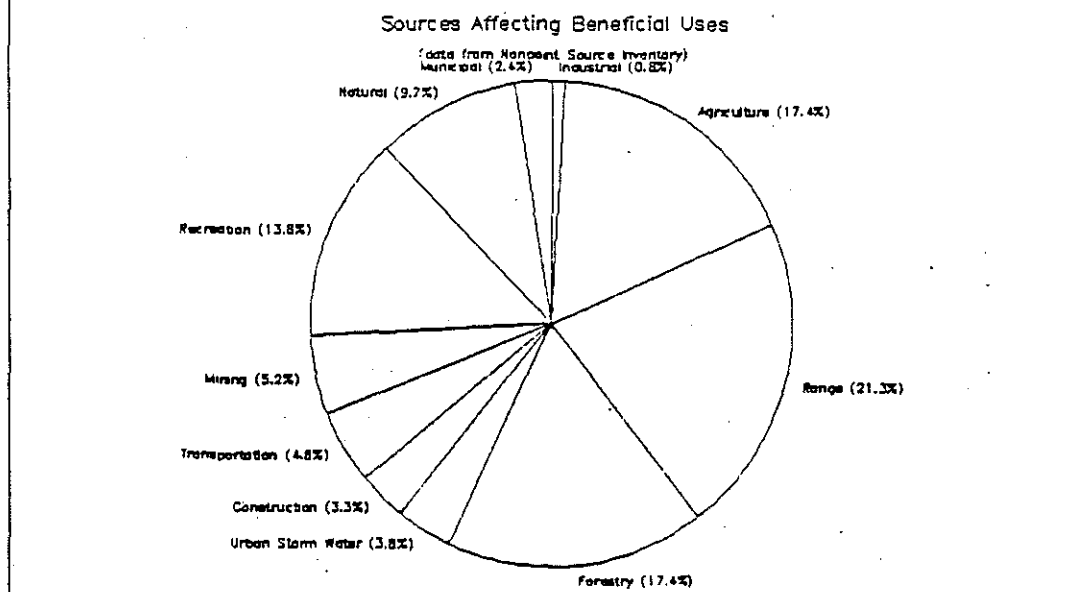


Figure 3-1B: Potential Sources Causing Non-Support

Table 4-1: Major Sources of Groundwater Contamination

Source of Contamination	Concern in Oregon	Relative Priority
Septic Tanks	Yes	8
Municipal Landfills	Yes	3
On-Site Industrial Landfills (Excluding Pits, Lagoons, Surface Impoundments)	Yes	--
Other Landfills	No	--
Surface Impoundments (Excluding Oil and Gas Brine Pits)	Yes	7
Oil and Gas Brine Pits	No	--
Underground Storage Tanks	Yes	4
Injection Wells (Incl. Class V)	Yes	--
Abandoned Hazardous Waste Sites	Yes	2
Regulated Hazardous Waste Sites	Yes	5
Salt Water Intrusion	No	--
Land Application/Treatment	Yes	6
Agricultural Activities	Yes	1
Road Salting	No	--
Other (Specify)	No	--

WH3921A (03/23/90)

Table 4-2: Substances Contaminating Groundwater

Types of Contaminants	Concern in Oregon
Organic Chemicals:	
Volatile	Yes
Synthetic	Yes
Inorganic Chemicals:	
Nitrates	Yes
Fluorides	Yes
Arsenic	Yes
Brine/Salinity	Yes
Other	Yes
Metals	Yes
Radioactive Material	No
Pesticides	Yes
Other Agricultural	Yes
Petroleum Products	Yes

WH3922 (03/23/90)



Table 5-12: Oregon Shellfish Growing Water Classification and Production

1989			
Data from Oregon Health Division			
Estuary	Acres	Total	FDA Classification
Coos Bay/South Slough	240	5,656 Gal. Oysters	Conditionally Approved
Netarts	189	213 Gal. Oysters	Approved
Tillamook	2,432	26,052 Gal. Oysters _____ Lb. Clams	Conditionally Approved
Yaquina	519	9,602 Gal. Oysters	Conditionally Approved
Umpqua	102	19,500 Lb. Mussels 1,500 Lb. Oysters*	Conditionally Approved
Nehalem		_____ Lb. Clams	Conditionally Approved
*Estimate -- on Private Land.			
NOTE: "Conditionally Approved" relates to partially supported (as shown elsewhere in this assessment). All Bays are swimmable and fishable.			

WH39158 (03/28/90)

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Table 5-10: Closure of Shellfish Growing Areas

October 1987 through September 1989								
Bay / Growing Area	Current FDA Class.	Possible Days Open*	Days Closed By Gage or Rainfall**	Days Closed Bypass	Total Days Closed	Gallons Sewage Spilled	Spill Events	Percent Closed
Nehalem	Conditionally Approved	64	1	0	1	0	0	2
Tillamook / Main Bay	Conditionally Approved	730	63	13	76	0	***	10
Tillamook / Pitcher Point	Conditionally Approved	730	104	13	117	0	***	16
Netarts	Approved	730	46	0	46	0	0	6
Yaquina	Conditionally Approved	730	40	32	72	342,250	7	10
Umpqua	Conditionally Approved	183	0	0	0	0	0	0
Coos / Main	Conditionally Approved	333	0	6	6	168,000	1	2
Coos / South Slough	Conditionally Approved	730	22	0	22	0	0	3
<p>*Days that an official management plan has been in effect. Does not count days when bay is seasonally closed due to management plan.</p> <p>**Days that bay was closed due to excessive river flow or excessive rainfall. Criteria are unique to each growing area. Does not count days when STP bypass was in progress even if river flow or rainfall limits were exceeded.</p> <p>***Bay closed because STP exceeded discharge limits. No additional spillage occurred.</p>								
DATA FROM OREGON HEALTH DIVISION								

WH3956A (03/26/90)

Table 5-6: EPA Construction Grants Funds Awarded Since 1972

AS OF 12/27/89 -- 92-500 FUNDED PROJECTS DOLLARS (\$)		
County (Region)	Grant Amount	Eligible Project Cost
Baker (ER)	889,199	1,137,995
Benton (WVR)	11,678,732	16,246,970
Clackamas (NWR)	55,561,465	73,594,119
Clatsop (NWR)	9,324,071	12,299,998
Columbia (NWR)	3,015,295	4,896,141
Coos (SWR)	21,450,436	33,829,370
Crook (CR)	445,222	593,629
Curry (SWR)	3,176,015	5,319,322
Deschutes (CR)	46,247,293	61,384,885
Douglas (SWR)	29,451,725	39,825,992
Gilliam (ER)	181,912	242,549
Grant (ER)	4,503,390	5,800,230
Harney (CR)	135,975	185,554
Hood River (CR)	1,875	2,500
Jackson (SWR)	9,989,345	13,321,981
Jefferson (CR)	1,587,199	2,116,265
Josephine (SWR)	2,480,501	3,307,335
Klamath (CR)	2,827,545	4,396,759
Lane (WVR)	94,488,954	123,178,360
Lincoln (WVR)	15,354,872	21,879,002
Linn (WVR)	13,329,891	18,843,008
Malheur (ER)	401,466	535,287
Marion (WVR)	29,930,613	39,958,633
Morrow (ER)	3,004,330	4,367,754
Multnomah (NWR)	65,090,104	93,114,122
Polk (WVR)	5,200,399	-7,463,096
Sherman (CR)	493,922	658,563
Tillamook (NWR)	10,973,027	14,630,702
Umatilla (ER)	9,348,321	12,610,431
Union (ER)	6,366,767	8,820,283
Wallowa (ER)	31,217	41,622
Wasco (CR)	1,062,333	1,420,194
Washington (NWR)	54,950,521	74,143,768
Yamhill (WVR)	17,460,874	22,943,883
TOTAL	530,434,806	723,110,302
NOTE: Wheeler and Lake Counties have not had grants.		

WH3981

WH3965

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**PROJECTED NPDES PERMIT RENEWAL STATUS**  
(FY = June — July)

<u>Permit Expirations</u>	<u>89/Prior</u>	<u>90/91</u>	<u>91/92</u>	<u>92/93</u>	<u>93/94</u>	<u>94/95</u>	<u>95/96</u>	<u>96/97</u>	<u>97/98</u>	<u>Total</u>	
<b><u>Status 6/30/90</u></b>											
NPDES Majors	27	9	9	8	4	2	--	--	--	59	Backlog 29%
NPDES Minors	84	41	62	43	41	48	--	--	--	<u>319</u> 378	
<b><u>Status 6/30/91</u></b>											
NPDES Majors	10	0	9	8	4	2	26	--	--	59	Backlog 18%
NPDES Minors	49	10	62	43	41	48	66	--	--	<u>319</u> 378	
<b><u>Status 6/30/92</u></b>											
NPDES Majors	0	0	0	8	4	2	26	19	--	59	Backlog 9%
NPDES Minors	34	0	0	43	41	48	66	87	--	<u>319</u> 378	
<b><u>Status 6/30/93</u></b>											
NPDES Majors	0	0	0	0	4	2	26	19	8	59	Backlog 0%
NPDES Minors	0	0	0	0	41	48	66	87	77	<u>319</u> 378	

PROJECTED NPDES PERMIT RENEWAL STATUS — DETAIL

(FY = June — July)

<u>Permit Expirations</u>	<u>89/Prior</u>	<u>90/91</u>	<u>91/92</u>	<u>92/93</u>	<u>93/94</u>	<u>94/95</u>	<u>95/96</u>	<u>96/97</u>	<u>97/98</u>	<u>Total</u>
<u>Status 6/30/90</u>										
Industrial Majors	6	4	5	5	2	2	--	--	--	24
Industrial Minors	16	31	24	15	25	24	--	--	--	135
Municipal Majors	21	5	4	3	2	0	--	--	--	35
Municipal Minors	<u>68</u>	<u>10</u>	<u>38</u>	<u>28</u>	<u>16</u>	<u>24</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>184</u>
	111	50	71	51	45	50	--	--	--	378
<u>Status 6/30/91</u>										
Industrial Majors	--	--	5	5	2	2	10	--	--	24
Industrial Minors	1	10	24	15	25	24	36	--	--	135
Municipal Majors	10	--	4	3	2	0	16	--	--	35
Municipal Minors	<u>48</u>	<u>--</u>	<u>38</u>	<u>28</u>	<u>16</u>	<u>24</u>	<u>30</u>	<u>--</u>	<u>--</u>	<u>184</u>
	59	10	71	51	45	50	92	--	--	378
<u>Status 6/30/92</u>										
Industrial Majors	--	--	--	5	2	2	10	5	--	24
Industrial Minors	--	--	--	15	25	24	36	35	--	135
Municipal Majors	--	--	--	3	2	0	16	14	--	35
Municipal Minors	<u>34</u>	<u>--</u>	<u>--</u>	<u>28</u>	<u>16</u>	<u>24</u>	<u>30</u>	<u>52</u>	<u>--</u>	<u>184</u>
	34	--	--	51	45	50	92	106	--	378
<u>Status 6/30/93</u>										
Industrial Majors	--	--	--	--	2	2	10	5	5	24
Industrial Minors	--	--	--	--	25	24	36	35	15	135
Municipal Majors	--	--	--	--	2	0	16	14	3	35
Municipal Minors	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>16</u>	<u>24</u>	<u>30</u>	<u>52</u>	<u>62</u>	<u>184</u>
	--	--	--	--	45	50	92	106	85	378

NPDES PERMITS TO BE ISSUED TO ACHIEVE BACKLOG ELIMINATION

<u>Permit Expirations</u>	<u>89/prior</u>	<u>90/91</u>	<u>91/92</u>	<u>92/93</u>	<u>Total</u>
To Issue 90-91					
NPDES Majors	17	9			26
NPDES Minors	35	31			66
To Issue 91-92					
NPDES Majors	10	0	9		19
NPDES Minors	15	10	62		87
To Issue 92-93					
NPDES Majors	0	0	0	8	8
NPDES Minors	34	0	0	43	77

DEQ 91-93 BUDGET REQUEST vs. GOVERNOR'S RECOMMENDATION (FINAL)

91-GOVREC

	91-93			91-93			DIFFERENCE	91-93	
	REQUEST	FUND	FTE	GOVERNOR'S RECOMMENDATION	FUND	FTE		FUND	FTE
*****									
WATER QUALITY PROGRAM									
31 PROGRAM DEVELOPMENT	6,663,539	G	39.93	6,454,859	G	39.93	(208,680)	G	0.0
	2,705,602	O	25.00	2,304,828	O	25.00	(400,774)	O	0.0
	5,518,363	F	33.12	4,067,563	F	33.12	(1,450,800)	F	0.0
Subtotal 31	14,887,504		98.05	12,827,250		98.05	(2,060,254)		0.0
38 WASTEWATER FINANCE	10,676,250	G	0.00	9,636,000	G	0.00	(1,040,250)	G	0.0
	542,116	O	3.39	542,116	O	3.39	0	O	0.0
	29,172,311	F	7.61	29,172,311	F	7.61	0	F	0.0
Subtotal 38	40,390,677		11.00	39,350,427		11.00	(1,040,250)		0.0
DECISION PACKAGES									
99 Bonding For Sewer Const Match	0	G	0.00	(9,636,000)	G	0.00	(9,636,000)	G	0.0
	0	O	0.00	9,850,000	O	0.00	9,850,000	O	0.0
	0		0.00	214,000		0.00	214,000		0.0
01 WQ Permits/Regulation	1,916,309	G	7.10	1,094,973	G	0.00	(821,336)	G	-7.1
	730,445	O	12.10	1,203,169	O	7.29	472,724	O	-4.8
	(562,085)	F	0.00	0	F	0.00	562,085	F	0.0
Subtotal 101	2,084,669		19.20	2,298,142		7.29	213,473		-11.9
02 Pretreatment & Sludge	150,373	G	1.00	150,373	G	1.00	0	G	0.0
	872,957	O	8.25	872,957	O	8.25	0	O	0.0
Subtotal 102	1,023,330		9.25	1,023,330		9.25	0		0.0
03 WQ Standards /Assessments	2,084,250	G	9.75	888,717	G	0.00	(1,195,533)	G	-9.7
	(888,717)	F	0.00	0	F	0.00	888,717	F	0.0
Subtotal 103	1,195,533		9.75	888,717		0.00	(306,816)		-9.7
04 Cross-Media Risk <i>Reduction</i>	296,080	G	2.00	0	G	0.00	(296,080)	G	-2.0
	88,105	O	0.50	88,105	O	0.50	0	O	0.0
	0	F	0.00	150,000	F	1.50	150,000	F	1.5
Subtotal 104	384,185		2.50	238,105		2.00	(146,080)		-0.5

DEQ 91-93 BUDGET REQUEST vs. GOVERNOR'S RECOMMENDATION (FINAL)

91-GOVREC

	91-93			91-93			DIFFERENCE	91-GOVREC	
	REQUEST	FUND	FTE	GOVERNOR'S RECOMMENDATION	FUND	FTE		FUND	FTE
114 Groundwater Base Activities	940,954	G	6.00	0	G	0.00	(940,954)	G	-6.0
	196,094	O	1.65	0	O	0.00	(196,094)	O	-1.0
Subtotal 114	1,137,048		7.65	0		0.00	(1,137,048)		-7.0
118 Nonpoint Source Program	308,516	G	2.00	0	G	0.00	(308,516)	G	-2.0
Subtotal 118	308,516		2.00	0		0.00	(308,516)		-2.0
119 Columbia/Willamette Studies	3,266,484	G	5.75	15,000	G	0.00	(3,251,484)	G	-5.7
Subtotal 119	3,266,484		5.75	15,000		0.00	(3,251,484)		-5.7
120 Oceanic/Estuaries Management	542,303	G	2.75	0	G	0.00	(542,303)	G	-2.7
Subtotal 120	542,303		2.75	0		0.00	(542,303)		-2.7
123 Oil Spill Plans	264,722	O	2.50	479,722	O	2.50	215,000	O	0.0
Subtotal 123	264,722		2.50	479,722		2.50	215,000		0.0
124 Laboratory Certification	181,684	G	2.00	0	G	0.00	(181,684)	G	-2.0
	153,004	O	1.50	153,004	O	1.50	0	O	0.0
Subtotal 124	334,688		3.50	153,004		1.50	(181,684)		-2.0
125 SRLF/Community Tech. Assst.	4,725,708	G	0.88	0	G	0.00	(4,725,708)	G	-0.8
	609,278	O	5.88	4,364,949	O	5.88	3,755,671	O	0.0
	33,624,247	F	1.25	33,624,247	F	1.25	0	F	0.0
Subtotal 125	38,959,233		8.01	37,989,196		7.13	(970,037)		-0.8
130 Groundwater New Activities	4,526,381	G	10.65	0	G	0.00	(4,526,381)	G	-10.6
Subtotal 130	4,526,381		10.65	0		0.00	(4,526,381)		-10.6



DEQ 91-93 BUDGET REQUEST vs. GOVERNOR'S RECOMMENDATION (FINAL)

91-GOVREC

	91-93			91-93			DIFFERENCE	91-GOVREC	
	REQUEST	FUND	FTE	GOVERNOR'S RECOMMENDATION	FUND	FTE		FUND	FTE
<b>GRAND TOTAL - WATER QUALITY</b>									
BASE BUDGET	17,339,789	G	39.93	16,090,859	G	39.93	(1,248,930)	G	0.0
	3,247,718	O	28.39	2,846,944	O	28.39	(400,774)	O	0.0
	34,690,674	F	40.73	33,239,874	F	40.73	(1,450,800)	F	0.0
<b>BASE TOTAL</b>	<b>55,278,181</b>		<b>109.05</b>	<b>52,177,677</b>		<b>109.05</b>	<b>(3,100,504)</b>		<b>0.0</b>
DECISION PACKAGES	18,939,042	G	49.88	(7,486,937)	G	1.00	(26,425,979)	G	-48.8
	2,914,605	O	32.38	17,011,906	O	25.92	14,097,301	O	-6.4
	32,173,445	F	1.25	33,774,247	F	2.75	1,600,802	F	1.5
<b>PACKAGE TOTAL</b>	<b>54,027,092</b>		<b>83.51</b>	<b>43,299,216</b>		<b>29.67</b>	<b>(10,727,876)</b>		<b>-53.8</b>
WATER QUALITY GRAND TOTAL	36,278,831	G	89.81	8,603,922	G	40.93	(27,674,909)	G	-48.8
	6,162,323	O	60.77	19,858,850	O	54.31	13,696,527	O	-6.4
	66,864,119	F	41.98	67,014,121	F	43.48	150,002	F	1.5
	<b>109,305,273</b>		<b>192.56</b>	<b>95,476,893</b>		<b>138.72</b>	<b>(13,828,380)</b>		<b>-53.8</b>

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 16, 1991

TO: Environmental Quality Commission

FROM: Fred Hansen, Director *Fell*

SUBJECT: Work Session Item #3, January 31, 1991 EQC Meeting  
"Status Report on Draft Rules/Guidelines for Gold Recovery Operations"

Background

The Commission discussed options for environmental regulation of gold recovery operations which use cyanide heap-leach and milling technology at its last work session, on December 13, 1990.

The Commission instructed the Department to proceed rapidly toward proposing rules/guidelines and to keep the Commission informed of the Department's progress. The Department has prepared a preliminary draft of rules which was sent to the Chairman and Commissioners Wessinger and Lorenzen, who specifically requested advance copies.

Rulemaking Schedule

The rules are in preliminary draft and not yet ready for general distribution. The Department is working on the following time schedule:

By February 1 Completion of a second draft, incorporating preliminary comments by the reclamation group of DOGAMI.

By March 1 Completion of a third draft, incorporating the preliminary comments of Oregon Department of Fish and Wildlife, Oregon Environmental Council, Oregon Mining Association and the Hazardous and Solid Waste Division and Groundwater Section of the Department.

Memo to: Environmental Quality Commission  
January 16, 1991  
Page 2

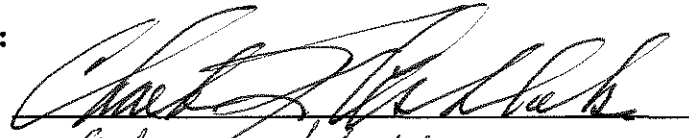

March 8            Request to the EQC for rule-making authority.  
By May 1            Completion of public comment period.  
June 14            Presentation of completed rules to EQC for  
                         adoption.

Prepared by: Jerry Turnbaugh  
                         Kent Ashbaker  
Phone:            629-5374  
Date:             January 16, 1991

Approved:

Section:

Divison:

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 31, 1991

TO: Chairman Hutchison, Members of the Commission

FROM: Kent Ashbaker, Water Quality

SUBJECT: Container Nursery Strategy Update

The Oregon Department of Agriculture and the DEQ have made some modifications to the Container Nursery Strategy. Chairman Hutchison met with the group on January 29th and agreed that the revised strategy could be on today's agenda as an informational item so the other members of the Commission could indicate whether or not they had any concerns about the revisions.

SUMMARY OF STRATEGY CONTENT

The original strategy required all container nurseries to either be on a permit or a consent order if they would have discharges after June 1, 1991. After further evaluation, it has been concluded that putting all nurseries on a consent order up front would be very time consuming and may cause a lot of resistance. The strategy now calls for a letter of intent by July 15, 1991. The letter of intent must indicate one of three options, as follows:

- A. No Discharge after November 1, 1991.  
If they receive a commitment to eliminate all discharges of irrigation return flow by November 1, 1991, nothing additional is required.
- B. Discharges Between November 1, 1991 and June 1, 1993.  
If discharges will continue after November 1, 1991, but will be eliminated by June 1, 1993, the deadline in the Tualatin Basin Rules, the nursery must submit a Waste Management Plan showing how it will be done and the schedule for achieving the intermediate steps. The Waste Water Management Plan is due by February 1, 1992. If they fail to follow the approved plan, they will be considered in non-compliance with the strategy and will be required to enter into a Stipulated Consent Order or referred to DEQ for a WPCF permit.
- C. Discharges After June 1, 1993.  
If there is no way that a particular nursery can eliminate all summer discharges by June 1, 1993, a WPCF permit will be required for all discharges after that date. Any

Memo to: Chairman Hutchison, Members of the Commission  
January 31, 1991  
Page 2

permits issued would include permit limits and monitoring requirements. Additional waste water treatment may be necessary. Any application for a WPCF permit must be submitted early enough so that the permit can be issued before June 1, 1993.

The Department has reviewed this plan with the Department of Agriculture and the Nurserymen's Association and are willing to endorse it, since the Nurserymen's Association are confident that it will be acceptable to the industry statewide and it should still meet our objectives. However, if the Department of Agriculture does not get the necessary commitments by the individual nurserymen in their letter of intent, due by July 15, 1991, we may have to return to a harder line.

Mr. John Mellott, Administrator of the Natural Resources Division of the Department of Agriculture is here to respond to any questions.

REGULATED INORGANIC AND SYNTHETIC ORGANIC COMPOUNDS--Fed. Reg. 1985 & 1989

SAFE DRINKING WATER ACT

<u>Parameter</u>	<u>MCLG</u>	<u>MCL</u>	<u>Detect</u>	<u>10<sup>-4</sup> Risk</u>	<u>Cancer Class</u>
Asbestos	7 mil. fibers	7 mil. fib.	0.01 MFL		A
Barium	5	5	0.002		D
Cadmium	0.005	0.005	0.0001		B1
Chromium	0.1	0.1	0.001		A
Mercury	0.002	0.002	0.0002		D
Nitrate	10	10	0.01		D
Nitrite	1	1	0.01		D
Selenium	0.05	0.05	0.002		D
Acrylamide	0	Treat			B2
Alachlor	0	0.002	0.002	0.04	B2
Aldicarb	0.01	0.01	0.005		E
Aldicarb	0.01	0.01	0.008		E
sulfoxide					
Aldicarb	0.04	0.04	0.003		E
sulfone					
Atrazine	0.003	0.003	0.001		D
Carbofuran	0.04	0.04	0.007		E
Chordane	0	0.002	0.002	0.003	B2
0-DBCP	0	0.0002	0.002	0.002	B2
0-Dichoro-	0.6	0.6	0.005		D
benzene					
Cis-1,2-dichloro	0.07	0.07	0.005		D
ethylene					
Trans-1,2-dichloro	0.1	0.1	0.005		D
ethylene					
1,2-dichloropropane	0	0.005	0.005	0.05	B2
2,4-D	0.07	0.07	0.005		D
Epichlorohydrin	0	Treat			B2
Ethylbenzene	0.7	0.7	0.005		D
Ethylene dibromide	0	0.00005	0.00005	0.00004	B2
Heptachlor	0	0.0004	0.0004	0.0008	B2
Heptachlor	0	0.0002	0.0002	0.0004	B2
epoxide					
Lindane	0.0002	0.0002	0.0002		C
Methoxychlor	0.4	0.4	0.01		D
Monochloro	0.1	0.1	0.005		C
benzene					
PCB	0	0.0005	0.0005	0.0005	B2
Pentachlorophenol	0.2	0.2	0.0001		D
Styrene	0	0.005	0.005	0.1	B2
Styrene	0.1	0.1	0.005		TASTE
Tetrachloroethylene	0	0.005	0.005	0.07	B2
Toluene	2	2	0.005		D
Toxaphene	0	0.005	0.005	0.003	B2
2,4,5-TP	0.05	0.05	0.002		D
Xylenes	10	10	0.005		D

Note all concentrations are in mg/L

**EPA CLASSIFICATION SYSTEM  
FOR CARCINOGENS**

**CATEGORY 1 Known or probable human carcinogen**

- GROUP A      Human Carcinogen**  
Sufficient evidence from epidemiological studies
- GROUP B      Probable Human Carcinogen**
- B-1      At least limited evidence of carcinogenicity to humans**
- B-2      Usually a combination of sufficient evidence in animals and inadequate evidence in humans.**

**CATEGORY 2 Equivocal evidence of carcinogenicity**

- GROUP C      Possible Human Carcinogen**  
Limited evidence of carcinogenicity in animals in the absence of human data

**CATEGORY 3 Non-carcinogens**

- GROUP D      Not Classified**  
Inadequate animal evidence of carcinogenicity
- GROUP E      No evidence of carcinogenicity for humans**  
No evidence for carcinogenicity in at least two adequate animal tests in different species or in both epidemiological and animal studies.

Reference: 50 Fed. Reg. 219:46884 and 46885 dated November 13, 1985

## REGULATED INORGANIC AND SYNTHETIC ORGANIC COMPOUNDS--Fed. Reg. 1985 &amp; 1989

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Nitrate	10	10	0.01		D
Nitrite	1	1	0.01		D
Selenium	0.05	0.05	0.002		D
Acrylamide	0	Treat			B2
Alachlor	0	0.002	0.002	0.04	B2
Aldicarb	0.01	0.01	0.005		E
Aldicarb	0.01	0.01	0.008		E
sulfoxide					
Aldicarb	0.04	0.04	0.003		E
sulfone					
Atrazine	0.003	0.003	0.001		D
Carbofuran	0.04	0.04	0.007		E
Chordane	0	0.002	0.002	0.003	B2
0-DBCP	0	0.0002	0.002	0.002	B2
0-Dichoro-	0.6	0.6	0.005		D
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Heptachlor	0	0.0002	0.0002	0.0004	B2
epoxide					
Lindane	0.0002	0.0002	0.0002		C
Methoxychlor	0.4	0.4	0.01		D
Monochloro	0.1	0.1	0.005		C
benzene					
PCB	0	0.0005	0.0005	0.0005	B2
Pentachlorophenol	0.2	0.2	0.0001		D
Styrene	0	0.005	0.005	0.1	B2
Styrene	0.1	0.1	0.005		TASTE
Tetrachloroethylene	0	0.005	0.005	0.07	B2
Toluene	2	2	0.005		D
Toxaphene	0	0.005	0.005	0.003	B2
2,4,5-TP	0.05	0.05	0.002		D
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**No evidence for carcinogenicity in at least two adequate animal tests in different species or in both epidemiological and animal studies.**

Reference: 50 Fed. Reg. 219:46884 and 46885 dated November 13, 1985

revised language  
from Michael H.

new (9) under 340-40-108

## Policy

While economics, ~~and~~ <sup>defectors</sup> technology & feasibility are excluded from consideration in establishing an NML, these factors ~~are~~ may be considered in <sup>determining appropriate</sup> remedial responses.

B4

A-4

(9) IN design remedial

removes following section

I. page B-1, OAR 340-40-100, last paragraph:

"The maximum measurable levels established by these rules are not designed to be used as drinking water standards or as clean-up standards for remedial actions, but to initiate the process of designating groundwater management areas where necessary to preserve groundwater quality."

II. page B-3, OAR 340-40-105 (8):

"Protect Public Health and the Environment: to keep humans and the environment from unreasonable present or future exposure to adverse risk, effect or harm, excluding economic concerns."

III. page B-4, OAR 340-40-108, insert as new #5 (and change old #5 to #6, old #6 to #7, etc.):

"Public Health: The Department shall, for the purposes of establishing maximum measurable levels and developing environmental and health advisories, consult with the Oregon Health Division regarding human health concerns."

IV. page B-6, OAR 340-40-125 (1) (a):

"The Department determines that valid scientific evidence establishes that the federal standard is not protective of [human] public health as defined in 340-40-105 (8)."

Amendment to proposed rules Agenda Item E, EQC meeting January 31, 1991. Add a statement to 340-40-108 recommended by Commissioner Lorenzen and Dr. Clinton Reeder

340-40-108 (9) While economics, detection technology and feasibility are excluded from consideration in establishing an MML, these factors may be considered in determining appropriate remedial responses.

Alternative Rule Changes for Agenda Item E, January 31, 1991

Change 1a

Wording changes to the proposed rules, recommended by the Health Division. The proposed changes are to better define the Health Division's role in the development of MMLs and the relationship between Drinking Water Standards and Maximum Measurable Levels (MMLs). The Department believes these modifications to the proposed rules clarifies the role of the Health Division in the MML setting process and the MMLs use. The Department concurs with the modifications.

STATE OF OREGON

DEPARTMENT OF ENVIRONMENTAL QUALITY

INTEROFFICE MEMORANDUM

DATE: January 18, 1991

TO: Environmental Quality Commission

FROM: John H. Loewy *JHL*  
Assistant to the Director

SUBJECT: Legislative Information

I am sending to you several pieces of information which you may find of interest:

- o A packet of the final Legislative Counsel drafts which were filed as bills. A covering document indicates briefly what each bill represents as well as its House or Senate bill number as appropriate.
- o A packet of short descriptive pieces on each bill.
- o A listing of the Members of the Legislature, committee assignments, and other information which you may find informative.

Please let me know of any additional information which would be helpful.

# HAZARDOUS WASTE LEGISLATION

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Department of Environmental Quality

Senate Bill 241

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## THE NEED

The number and complexity of requirements and regulations concerning management, handling, recycling, and disposal of hazardous wastes have increased dramatically in recent years. Options open to Oregon's small businesses, schools, farmers, and local governments have narrowed, and those remaining have grown more costly.

The focus of federal regulatory programs has been on companies that generate or manage large amounts of hazardous waste. Relatively little assistance or advice has been provided to small quantity generators, who may have neither the technical expertise nor financial resources to comply.

## THE PROPOSAL

Senate Bill 241 would fund a new Waste Management Assistance Program for Oregon's small businesses. The program would be funded by an increase in the per ton hazardous waste disposal fee, from the current \$20 to \$30, effective January 1, 1992. The increased revenue would also allow DEQ to strengthen its oversight of the Arlington facility.

## THE HIGHLIGHTS

The Waste Management Assistance Program would serve Small Quantity Generators through education, training and technical assistance, with the goal of hazardous waste reduction and ensuring that wastes which are generated are properly managed and disposed.

Key program elements would include:

- Workshops and seminars for specific industry groups
- On-site environmental assessments
- Toll-free hot-line
- Newsletter and informational materials
- Sponsorship of model demonstration projects
- Special collection events for small businesses
- Annual awards program

*Sent to Commission  
12/27/90 js*

State of Oregon  
Department of Environmental Quality

Memorandum

Date: December 27, 1990

To: Environmental Quality Commission  
From: Harold Sawyer  
Subject: Next EQC Meeting -- January 31, 1991

The next EQC meeting will be a one day meeting on Thursday, January 31, 1991 (instead of Friday as previously planned). This arrangement appeared preferable to all Commission members.

The plan at the moment is to begin the meeting at 7:30 a.m. with **Information Items**. The **Consent Items**, **Action Items**, and **Public Forum** would follow after 8:30 a.m. The **Work Session** will follow the Public Forum.



Date: 12-24-90 10:26am  
From: Fred Hansen:OD:DEQ  
To: Agency Staff:DEQ  
Subj: New Air Quality Administrator

---

I am very pleased to announce the appointment of Steve Greenwood as the new Air Quality Administrator. The hunt has been long. The uncertainties of a new Governor and Ballot Measure 5 made me go slow over the last two months. But now as the challenges before us are clear, the demands in the Air Quality Division never greater, Steve's appointment is particularly critical.

AQ is faced with some of the most intractable pollution problems we have in the Department. For example, woodstove smoke in Klamath Falls, Central Point, and La Grande is a problem which has to be solved. But our efforts have pitted DEQ against individuals, a position none of us feel good about no matter how necessary it is. The same types of tough problems exist in other air quality areas. In the face of this, I can think of no one more versed in dealing with tough problems in emotionally charged atmospheres than Steve.

When I asked him to join DEQ five years ago it was to take on one of our toughest assignments--find a landfill for the Portland area. And throughout that effort Steve showed a tremendous ability to master technical information, as well as deal effectively with all the different publics with whom we work. His work recently on Therm-Tec, as well as the surcharge on out-of-state solid waste, has underscored Steve's abilities in these regards.

Second, as AQ moves toward more market place driven incentives, such as those included in the Comprehensive Air Bill, we need an individual with business experience. Not only by education but by previous employment--Steve had been with Portland Development Commission before heading up the landfill siting project--Steve fits this requirement well.

Third, Steve is a strong and very supportive manager. He reflects the spirit of involving staff at all levels in the problems and issues that confront the organization. This spirit of participation is one which I feel is critical in all areas of the Department.

Lastly, the technical skills and expertise of the Air Quality staff are strong. Consequently, although Steve is a quick study, his limited exposure to detailed air quality issues will not be a hindrance.

I have known and respected Steve for over 20 years. I know he will be an excellent Administrator of Air Quality.

A special thanks to Tom Bispham for working two jobs as Acting Administrator. As always, Tom is one I and we can rely on to do a superb job under any circumstances.

So, join me in welcoming Steve Greenwood as the new Air Quality Administrator. An early Christmas present to Steve, Air Quality, Tom Bispham (going back to only one job), and Stephanie Hallock and the Solid Waste Section who will have to get a new leader.

Sent to EQ  
2/6

DEPARTMENT OF ENVIRONMENTAL QUALITY  
**RECEIVED**  
JAN 31 1991

CITIZENS FOR Quality Living  
P. O. Box 1886  
Klamath Falls, OR 97601

OFFICE OF THE DIRECTOR

ATTENTION: ~~XXXXXXXXXX~~ OD

COMPANY: EQC

FROM: CAROL YARBROUWN 882-3400

SUBJECT: SIP Fdpt 3

NO. PAGES: Cover p 16 = 8

17000-2

1/31/91





suggests that detected e... formation of wood stoves is dependent on factors other than burning wood, ambient air contamination with... plastic... of treated wood, or... used for stove... that were contaminated with chlorinated compounds during... .

The... of... and synergistic effects... . They seem... interested in wood stoves to the exclusion of all other sources.

The DEQ also ignores other sources of information and research that may not line up with their ideas. For example, they have continued to ignore the... State Air Resources Board reports, that do quantify dioxin and heavy metal testing and report that bio-medical waste incinerators are the largest dioxin sources in the State of California. Are we to assume that Oregon is immune from the same laws of science that produced the pollution in California?

We acknowledge that residential wood stove smoke presents a serious problem. We are aware of the... effects that PM10 particles present to people. Also these effects are added to the dioxin, heavy metal and PM10... the effects worsen. We also know that Klamath Basin people have a very... sense of fairness. If attempts to bring industrial sources under control isn't made at the same time as pressure is placed on residential sources, the people will resist. If however a balanced and honest assessment of the problem is presented... monitoring, bio-accumulative testing, and balanced... of both industry and individuals then... .

The Department of... need of an... overhaul in the Klamath... and... Oregon. Start... science... and... the... people... are charged no protest.

We present the following recommendations as a means to start the standard process:

1. The Urban Growth... .
2. A testing program that... also includes dioxin, heavy metal and... and toxic material be initiated. The tests must include bio-accumulated data. Tests on... must be included as well as... eggs, bacteria and others.

3. All sources must be controlled. Industry, wood burning, and residential sources must be reduced not just private wood stove smoke.

4. Alternative methods to reduce incineration, both municipal and commercial, are available. They must be brought on line and incineration as the method of choice eliminated.

The economic development aspects of the Klamath Basin are being seriously challenged by the acute air pollution problems. The EPA is a part of the problem. It exacerbates the problem with fragmented and incomplete data leading to local contention and strife.

It is unconscionable that industry should be allowed a 19.6% increase in emissions (EISs, page 41) in a containment area as severe as Klamath Falls. People from around the state as well as outside Oregon are becoming increasingly aware of the air pollution problem. The Klamath Basin can have a very significant economic growth if these increases in air pollution are permitted by EPA.

Thank you for the opportunity to input information to the process. We are expecting a response to the serious and sincere questions that we addressed in this letter.

Sincerely,

Carol Yarbrough, President



Department of Environmental Quality

1115 NE Oregon Street, Portland, Oregon 97232

September 13, 1978

Commissioner Fredrick  
Klamath County  
305 Main Street  
Klamath Falls, OR 97603

Re: Biowaste

Dear Commissioner Fredrick,

During your last visit to the site of the Biowaste plant, you asked about the significance of the air emissions from the Biowaste hospital waste incinerator. You asked us to send you any comparative data we may have on the subject. Attached you will find a comparison of air pollutants from the Biowaste plant and woodcreaking emissions in the Klamath Falls area. Information is a best estimate based on available data.

We understand that most concern has been raised about dioxin emissions. The attached graphic comparison of dioxin emissions indicates that for the most toxic of the dioxins, the Biowaste incinerator emits more than three times the amount of dioxin as woodcreaking.

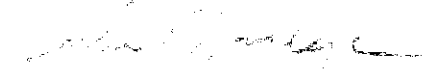
The attached tabular comparison of air pollutants also indicates that for ten of the wood heating emissions, the Biowaste plant emits more than three times the amount of dioxin as woodcreaking. The ground level concentration of dioxin from the Biowaste plant is estimated to be several hundred times greater than the Biowaste plant, State and Federal standards. The Biowaste plant also emits more than three times the amount of dioxin as woodcreaking.

We are able to estimate that emissions from the Biowaste plant are able to contribute to ground level concentrations of dioxin that are several times greater than those from woodcreaking. In general, the Biowaste plant emits more than three times the amount of dioxin as woodcreaking. Our ground level estimates are based on the Biowaste plant and woodcreaking at the Biowaste facility.

Don't forget to sign, enclosures  
September 1970  
Page 2

I hope this information is useful to you.

Sincerely,



John P. Kowalski, Manager  
Planning & Development  
Air Quality Division

1970  
REGULAR 10751  
Enclosures: 2 copies of original and 2 copies of figures.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 WASHINGTON, D.C. 20460

Pollutant	Emission Factor		Emission Rate		Total Emissions		Emission Ratio
	lb/ton	kg/ton	lb/day	kg/day	lb/day	kg/day	
Particulate	1.2	42	0.0001	0.0003	0.0001	0.0003	300
Carbon Dioxide	4.6	280	0.0001	0.0003	0.0001	0.0003	100
Hydrogen Sulfide	2.1	130	0.0001	0.0003	0.0001	0.0003	10
Mercury	1.7	0.4	0.0001	0.0003	0.0001	0.0003	2
Lead	0.03	0.00026	0.0001	0.0003	0.0001	0.0003	0.10
Chlorine	0.00039	0.00025	0.0001	0.0003	0.0001	0.0003	0.01
Fluorine	0.00035	0.00015	0.0001	0.0003	0.0001	0.0003	0.01
Sulfur	0.0012	0.0004	0.0001	0.0003	0.0001	0.0003	0.01
Other	0.00003	0.00001	0.0001	0.0003	0.0001	0.0003	0.01
SO <sub>2</sub>	0.015	0.34	0.0001	0.0003	0.0001	0.0003	0.01
NO <sub>x</sub>	1.1E-07	4.4E-02	0.0001	0.0003	0.0001	0.0003	0.01

WASTE BURNS 3500 TONS OF WASTE  
 AN AVERAGE WOODSTOVE

WASTE EMISSION

The following table shows the estimated emissions from the burning of waste in a woodstove. The emissions are based on a woodstove that burns 3500 tons of waste per year. The emissions are compared to the emissions from a woodstove that burns 3500 tons of wood per year. The emissions from the burning of waste are significantly higher than the emissions from the burning of wood.

Co

137th R.C. [unclear]

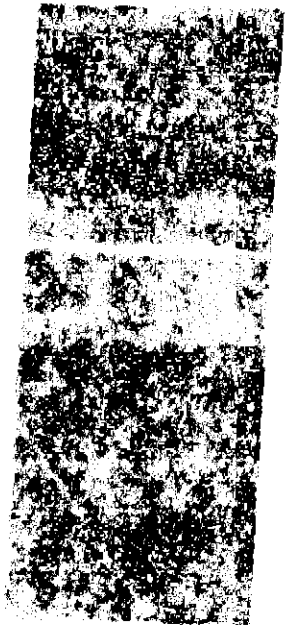
[unclear]

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001-2-1



001-2-2

[unclear]

[unclear]

[unclear]

[unclear]



**Oregon Environmental Quality Commission**

**Request to Present Information**

PAUL D. PARKER MILL WASTE RECYCLING  
Name (Please Print Clearly) CO.

4993 OSAGE SWEET HOME, OR 97386  
Address

Partner  
Affiliation

3241

Please limit comments to five minutes.

**Oregon Environmental Quality Commission**

**Request to Present Information**

BRETT FISHER  
Name (Please Print Clearly)  
PO BOX 1393, EUGENE, 97440  
Address  
NORTHWEST COALITION for ALTERNATIVES to  
Affiliation PESTICIDES

Please limit comments to five minutes.

**Oregon Environmental Quality Commission**

**Request to Present Information**

Clinton Reeder  
Name (Please Print Clearly)

Star RT Box 421 Pendleton OR  
Address

Ch, Groundwater Adv. Comm.  
Affiliation

Please limit comments to five minutes.

Bill-

I talked to Stephanie and my  
concerns on items "B" are satisfied.

No need for me to waste your time,

← Thanks

Bill

**Oregon Environmental Quality Commission**

**Request to Present Information**

---

Name (Please Print Clearly)

---

Address

---

Affiliation

Please limit comments to five minutes.

**Oregon Environmental Quality Commission**

**Request to Present Information**

LOREN KRAMER

Name (Please Print Clearly)

3200 N.W. YEON PORTLAND OR 97210

Address

SCHNITZER STEEL PRODUCTS CO

Affiliation

Please limit comments to five minutes.



**Oregon Environmental Quality Commission**

**Request to Present Information**

Mr Michael Jones  
Name (Please Print Clearly)

8733 N TYNDALL AVE P 097217  
Address

\_\_\_\_\_  
Affiliation

Please limit comments to five minutes.

Agenda Item Pub Forum,  
Odor &  
Noise issues

**Oregon Environmental Quality Commission**

**Request to Present Information**

Lee Poe

Name (Please Print Clearly)

Address

Affiliation

3911 N. Attu Portland, Or 97217

North Portland Odor Abatement Committee

" " Noise Abatement Committee

Please limit comments to five minutes.

**Oregon Environmental Quality Commission**

**Request to Present Information**

PAUL COSGROVE

Name (Please Print Clearly)

222 SW Columbia #1600 Pdx 97201

Address

Soap & Detergent Assn (member [alternate] on 5B

Affiliation

1079 Task force

Please limit comments to five minutes.